

ICT and Sustainable Development in an Outermost Region

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List of Abbreviations

RAM- Autonomous Region of Madeira
RUP- Outermost regions
DOM- French Departments Overseas
SIRS – Small Islands Regions and States
OFC – Off-shore Centre
INE-Portuguese Statistical Office

Abstract

The aim of this research project is to understand the link between the adoption of ICT tools and the economic development of a peripheral region. This study is focused on the current status of adoption of ICT tools by a sample of SMEs operating in a peripheral island, the Autonomous Region of Madeira, Portugal. The overt optimism propagated by supra-national organisations such as the EU, stresses that the adoption of ICT tools constitutes one of the key strategic weapons in overcoming the peripheral/remote character and competitiveness problems of less-favoured regions. This argument is based on evidence (core region based) that suggests a causal link between investment in ICTs and economic growth. However, there is no evidence to prove such a linkage in peripheral regions. The argument developed in this thesis is that a large scale adoption of ICT tools may have neutral or even negative effects on regional development prospects, in the specific context of remote island economies.

The development of this new line of reasoning assumes that the examination of the potential contribution of ICTs in increasing growth prospects should be based on: an in-depth analysis of the territorial dynamics of the region under analysis; the growth options available in such a specific territory; the degree of preparedness to embrace ICT tools; and the local firms' response to the on-going technological revolution.

It is concluded, in line with the expectations developed in the thesis, that the large scale adoption of sophisticated ICT tools - namely, the adoption of complex e-commerce platforms – has not occurred in Madeira. It is also evident that the widespread adoption of ICT tools cannot provide a short term answer to island development problems. The current growth path is strongly conditioned by geographical constraints and by specialisation in traditional sectors, which cannot be reversed overnight. However, although the adoption of ICT tools such as the Internet has not impacted upon the macro-economy level, it does have consequences at the micro (firms) level for those firms making intensive use of Internet functionalities.

This study, although based on quite a specific geographical and economic context, may provide interesting theoretical insights to be explored further. In fact, it is suggested that the traditional EU approach focused on increasing levels of general awareness should be reoriented towards a more promising focal point such as increasing the levels of

effective use of ICT tools. Finally, this research project provides evidence to suggest that in the absence of a favourable macroeconomic environment, the adoption and use of ICT tools only increases the ‘selection mechanism’ at work (ie which firms survive, and which fail). As larger firms have the greater capacity to adopt complex ICT tools, any advantage arising from the adoption of such technologies will be concentrated on those firms already at an advantage.

In the end it can be asserted that the traditional development strategies (personified by investments in transport and other ‘hard’ infrastructures) should continue to be pursued for the time being, in order to avoid the negative consequences of reduced income transfers in the period until a new cycle of development can be established in islands such as Madeira.

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I dedicate this thesis to Tiago, with a sincere wish that he will have a less turbulent life than that of his predecessors. And I specially dedicate this thesis to Carla for the support she provided me in the difficult stages of the development of this work and to those with whom I am in debt in terms of time and attention.

Chapter 1:

Introduction: establishing the underlying research question

1.1 Islands, perceived (paradisiacal) images in an increasingly vulnerable context

Deloughrey (2003: pg. 298) states that “islands functioned ideologically in various historical eras as a new Eden, a socio-political utopia, a refreshment stop for long maritime journeys, and the contained space where shipwrecked men may reconstitute their metropolitan homes”. He further declares that “islands for many people, remain an opportunity to escape from the mainstream to an environment that is perceived to be different – physical removal from the normal parameters of work routines, a slower pace of life and different social and cultural characteristics are commonly cited as the virtues of island living” (Deloughrey, 2003: pg. 300). The imaginary scene associated with the insular context therefore conjures up the idea of remoteness, perceived difference, slower pace of life, distinct culture, exotic wildlife, a pristine environment, etc (Kokkranikal et al, 2003: pg. 426; Butler, 1997b).

Baum (1997: pg. 21) attaches to islands a “romantic notion of being cut off and isolated by storms or similar natural challenges”. Butler (1997a: pg. 59) puts the tourism phenomenon in islands down to the “image of illusion or illusion of escapism, exclusivity or adventure”. Further to this, Pitt (1980: pg. 1051) states that islands, especially South Sea Islands were in the 19th century a “symbol of an escape back to nature from the monotonous landscapes of the Industrial revolution. Islands were also symbols, sometimes erotic, always permissive, of a way of life in direct contrast to the repressive social norms of the Victorian Age”. As far as their paradisiacal connotation, anthropologists in the beginning of the twentieth century found this not to be so, being rather part of a collective imaginary scene characterising islands.

In contrast with the image built up by the tourism industry and the collective imaginary scene conceived by the western world, living conditions in loco seem to differ somewhat, in some islands, from a paradisiacal and stress-free scenario (Condes, 2003; Pitt, 1980). For example in the Caribbean, the cruise industry recreated “carefully-planned and artificially-created environments” in order to avoid a real (and almost

certainly shocking) “spontaneous contact and experience” with the reality (Wood, 2000: pg. 362). In truth, most theoretical-empirical analyses based on the insular context, tend to bring to the fore a number of geographical and economic difficulties which condition the social and economic development of islands (Barnett, 1998). And more recent studies have rather shown an increasingly vulnerable economic insular reality (Wood, 2000; Gonzalez, 2002; Nelson, 2002; Read, 2004).

1.2 A historical overview of island economies: from experimentation spaces in the 15th century to problematic areas in the 20th century

However, contrary to the present context which displays relative political and economic marginalisation, and economic, political and technological dependence, it is vital to mention the central role played by the Atlantic insular regions in the dynamics of economic and cultural progress (and globalisation) associated with colonial and maritime expansion in the 14th to 18th centuries (Murray, 2001; Wood, 2000; Câmara, 2001). The age old incorporation of the insular regions in the global capitalist development process since the 14th century is summarised by Deloughrey (2003: pg. 300) when he states that “time and space compression, perceived as intrinsic to the globalised, post-modern era, was long familiar to the Caribbean due to centuries of fragmentation and reassembly in the landscape, economy and culture. Islands ... embody the earliest structures of capitalist modernity as well as its contemporary global inequities”. With reference to the Pacific, Murray (2001: pg. 11) states that “the globalisation agenda is not unprecedented” given the continuous economic and political integration since the 19th century, with phases of accelerated integration into the global economy.

Madeira and the Canary islands were pioneered as colonial and social-political experimentation grounds, via a) development of capitalist/industrial type production and commercialisation on an international scale of tropical commodities (e.g. sugar cane in the regime of ‘plantocracy’), b) environmental and ecological disasters (e.g. deforestation) and c) migrations, multicultural experimentation and ethnical miscegenation (based on import of slave labour).

Parallel to their political-economic input, insular regions contributed decisively towards ecological, biological and social scientific investigation, as well as making literary

contributions from the 18th century. Pitt (1980: pg. 1051) states that “island societies have been fertile intellectual terrain for anthropology and have long provided inspirational material for the advance of anthropological method and theory”. Where literature is concerned, the colonial island adventure narratives became one of the most popular literary genres in the British Empire from the 16th century, (for example “Robinson Crusoe” by William Defoe and the “Tempest” by Shakespeare), and contributed to the ‘mystification process’ concerning the islands colonisation process (Pitt, 1980; Gruffudd et al, 2000; Deloughrey, 2003; Ogborn, 2002).

The insertion of islands into the process of capitalist globalisation and expansion does not restrict itself to the agricultural and cultural dimension. For centuries, islands were used as hubs in the global maritime transport system, crucial to the colonial expansion process. According to Raoulx (1999: pg. 267), their “integration into the great oceanic trade networks” constitutes a distinctive factor of the insular societies. The frequent passing of explorers and colonists allowed for the development of welcoming physical and mental infrastructures and the building of an image of hospitality, a factor that became a characteristic of insular identity and led to the emergence of a ‘welcome society’, an expression used by Husbands (1998), quoted by Butler (2000), a cultural-economic process prolonged by the mass tourism of the 20th century.

The globalisation process understood to be a worldwide broadening of socio-economic processes began centuries before the present with the journeys of discovery and colonisation, first of the Atlantic islands and then of the New World. However, the economic exploitation of the islands always occurred in accordance with the needs of the metropolitan economies, evolving by means of cycles and never allowing a balanced and diverse development of the insular economies (Murray, 2001). For example, in the case of the Autonomous Region of Madeira, ‘economic development’ is the result of successive cycles (eg. sugar, bananas and tourism). Raoulx (1999: pg. 265) describes the cycles of economic specialisation in the Falkland Islands based on the primary sector corresponding to major stages of international capitalism, which is inevitably translated into the “fragile, even catastrophic, economic situations found today in small island groups”. The specialisation cycles of modern capitalism constitute a mediator factor of insertion of the local economies into the world space economy and the global economic system.

Following this brief historic background, featuring the exploitation dependence of the island economies, it is vital to analyse some key facts relating to the twentieth century, which gain importance in understanding the current social and economic tendencies. Firstly, colonial dependence seems to be one of the explaining factors of the existing “conflicts, tensions and blockades” concerning the development process in islands (Dimou, 2003: pg. 2). A historical contextualisation is crucial to situate and understand the starting conditions previous to the ‘re-start’ of the development dynamics that happens from the 70s onwards. In fact, the convergence process towards the EU average depends on both the islands’ growth dynamics (dependent on both macro-economic options and access to financial transfers) and their initial conditions especially regarding the initial level of infrastructures.

Figure 1.1: RAM specialisation cycles

1500	1600	1700	1800	1900	1960-1980	1980-2000	2010
Sugar transport	sugar transport	sugar transport	transport emigration	tourism emigration	tourism emigration	construction tourism	KIS???* Tourism

*KIS (Knowledge Intensive Services)

The second stylised fact about islands concerns geographic-economic conditions (in terms of distance and sector specialisation) inherently linked to their peripheral context, factors that strongly shape islands’ development perspectives. The majority of islands have absolute advantages only in the tourism sector and, in some cases, in natural resources. In fact, the insular context affects key economic mechanisms, (such as the cost of transportation, production functions, economies of scale and critical mass), limitations which constrain the frontier of production possibilities. This group of conditions, directly and indirectly linked to their peripheral context, is designated as the ‘islands penalty factor’. And although some island states are examples of success (in terms of Human Development Indicators computed by the United Nations Development Programme), the environmental and economic vulnerability intrinsically associated with the insular context, is a factor of growing uncertainty (UNDP, 2001; Armstrong and Read, 2003). In fact, data concerning 2004 show islands as strongly liable to environmental and economic catastrophes and “impending loss of traditional markets” (Mullings, 2004: pg. 279). Also, as a consequence of the bounded geographical scale, one identifies the existence of socio-cultural specificities, expressed in a particular social ecosystem.

Thirdly, the decades of relative economic and political marginalisation are reflected in the mass emigration of islanders and preference for the maintenance of political dependence statutes on the ex-colonial powers chosen by numerous islands, in contrast with the traditional political choices (independence) generally manifested in other African and Asian former colonies. Hence, the fact that the United Kingdom is still responsible for various insular territories such as Saint Helene, the Ascension Islands and the Falkland Islands.

Fourthly, islands have benefited for some time from a 'solidarity capital' (cf. relational capital), expressed by significant external aid *per capita*, another curious fact, which will be analysed later. The aid flows have allowed the perpetuation of neo-Keynesian type development programmes and, therefore held back the application of the neo-liberal based structural adjustment programmes, frequently applied in Africa and Asia from the 70s onwards. In fact, the greater part of islands can be categorised as transfer' economies, as the level of demand and production is dependent on social transfers (eg. unemployment benefit, public employment). Years of dependence created obviously an excessive dependence on the state (Raoulx, 1999).

Therefore, the positive perception relating to the island image (eg. slow pace of life), is related to relative under-development and exclusion from modern social and technological trends. Deloughrey's (2003: pg. 300) statement "the notion of a timeless island can only signify as such when constructed in binary opposition to the modern and urbanised geography of its continental visitors" provides the basis for a distinction between islands and core regions. In fact, peripheral islands are characterised by: low business density and predominance of low-tech sectors; slowing down of cultural-social modernisation processes and technology diffusion processes; low capacity for innovation and access to external markets; and, dependence on high levels of aid *per capita*.

1.3 The neo-liberal paradigm; dire straits in paradise

The current globalisation process along with parallel processes of technological and ideological ruptures produce threats (as well as opportunities) to the existing *status-quo* (Barnett, 1998). The globalisation process is associated with the growing incorporation of peripheral geographical territories (as is the case in most islands) in the sphere of the

capitalist economy. After decades of relative protection expressed in the high levels of Official Development Assistance (ODA), some of the highest *per capita*, the insular peripheral economies, as with most Less Favoured Regions (LFR) in Europe, are confronted with restructuring and readjustment processes, and the urgent need to promote economic growth and reduce disparities and with the need to adapt to a scenario of reduced financial transfers (Armstrong, 2004; Malecki, 2003; Shefer and Rietveld, 1999; Entrena and Gómez-Mateos, 2004).

Contrary to what was noted between the 1970s and the 1990s, insular peripheral regions are expected to attain international standards of productivity, growth and competitiveness (European Commission, 2004). The urgency and intensification of the economic-social modernization processes taking place in the global arena and the affirmation of the neo-liberal paradigm (in terms of the reduction of the *levels* of ODA *per capita*), increasingly limits the capacity for an autonomous management of the development process on the part of islands' governments (Murray, 2001; Wood, 2000; Razak, 1995; Pelling and Uitto, 2001). In fact, the application of the orthodox neo-liberal agenda seems inevitable in the island context.

Consequently, as solidarity becomes rarer and rarer in the world, risks are increased, creating further vulnerability for islands. It must be said that some authors (in line with the neo-liberal reasoning) challenge the alleged island penalty factor. Local social and cultural idiosyncrasies (and the colonial 'excuse') are less and less tolerated (Taylor and Wren, 1997). For example, Wood (2000: pg. 354) points out the 'cultural mismatch' between Caribbean culture and the tourism industry. Consequently, Caribbean based shipboard employment on the Caribbean cruisers account for no more than 7%.

Data concerning the HDI index show some islands well placed amongst developed countries, which seems to support the 'no island penalty factor' thesis (UNDP, 2004). However, concerning the process of socio-economic development, the problem emerges from the fact that there are very few viable alternatives, besides tourism, where it seems to be the only absolute advantage (Murray, 2001). Given the limits to development, most islands chose to develop some non-orthodox development approaches, such as a) the valuation of natural strategic resources (climate/localisation, geo-strategic importance), b) valorisation of social and cultural endowments (such as 'musical assets', and c) 'alternative' sectors (tax havens, rents based on income transfers, etc). But alternatives a) and c) are under increasing threat. As Razak (1995: pg. 457) states,

for “small places in a rapidly changing world, the uncertainty is tremendous”. Where the development process on islands is concerned, the existence of very few viable alternatives, apart from tourism, presents a problem (Murray, 2001). In fact, the challenges underlying the global effect point to a scenario of “recession: mounting debt, unemployment and emigration”, as experienced before in islands (Raoulx, 1999: pg. 366).

1.4 The geographical context: the outermost regions as a special case study

Before moving onto the definition of the research question and the underlying reason for the present study, one must situate the spatial context underlying this study: an island, as indicated in the introduction, more specifically, the Autonomous Region of Madeira (RAM), a constituent part of the RUP¹ (Outermost Regions), areas defined as being problematic in accordance with article 299 Amsterdam Treaty. The RUPs all belong to the EU territory as they are part of Portugal (Azores, Madeira), Spain (Canary Islands) and France (Guadeloupe, Guyana, Reunion, Martinique). Although the economic analysis relating to the islands (which includes both independent islands states and autonomous regions) is explored in order to define the common historic-economic context, this dissertation is centred on the RUP context. The RUPs, as part of the Objective 1 Regions group, show social-economic indicators below the EU average and are located in peripheral areas, very far from the EU core regions. The RUPs were helped substantially by EU Regional Policy, having received extra financial support, linked to specific programs aimed solely at RUPs. In fact, the RUPs enjoy (enjoyed) a unique and advantageous status under the EU law. EU Regional Policy allowed for an acceleration of the convergence rate in relation to the EU average allowing social indicators (e.g., access to social security), acceptable within EU standards, to be reached. However, the reformulation of EU Regional Policy (also as a result of EU Enlargement), evident in a substantial reduction of financial transfers, constitutes a growing threat, due to the dependence of the RUPs growth rate on EU transfers.

Recent data concerning access to EU transfers show a reduction of over 50%, as RAM is going to be included in the Objective 2. And the political-economic dependence in relation to Portugal implies an extra dependence, probably unfavourable, on Lisbon's

¹ RUP from the French 'regions ultra-peripherique'.

negotiation capabilities at Brussels. In fact, the pending threats to RAM do not only derive from the transnational arenas. Also as a consequence of the so called country-effect, a macroeconomic crisis at the national level may have negative effects on the local economy (Felsenstein and Portnov, 2005). Thus, for the first time since the 70s, RAM is facing a 'double challenge': reduction and reorientation of EU financial funds and also a severe economic crisis on the mainland.

Box 1: Some key data concerning the geographical context

The territory of the Autonomous Region of Madeira consists of the islands of Madeira (758,5 km²), Porto Santo (42,5 km²), and the uninhabited islands of Desertas (14,2 km²) and the Selvagens (3,6 km²), having a combined area of 796 km² and an average population density of 350 inhabitants per square kilometre. Administratively, the territory is divided into 11 divisions (at the county level) and 53 'junta de freguesia' (parishes). The main mountains are Pico Ruivo (1862 m) and Pico do Areeiro (1818 m), both situated in the island of Madeira. The air temperature rarely goes below 16°C even during the winter. Most plants and flowers are endemic to the island and the so-called 'Laurissilva' forest was categorised as a World Heritage site in 1999.

Madeira has been a popular year-round tourist destination since the 1890s (with low levels of seasonality), for its levadas (walking paths), landscape, as well as its New Year's Eve celebrations that offer a unique fireworks show, which is understood to be one of the most famous in the world. Dozens of cruise ships moor in Funchal harbor for the fireworks show every New Year's Eve.

Madeira's archipelago is located about 360 miles from the coast of Africa, 535 miles from Lisbon, 230 miles from Gran Canaria, and 480 miles from Santa Maria in Azores. Madeira belongs politically, culturally and ethnically to Europe, even though it is quite close to Africa. As with most islands Madeira shows some social, cultural and political peculiarities. A map concerning the island's location in the Atlantic is shown below (Box 2).

1.5 The research question: is there a digital solution to the development problem?

Having identified the generic threat to the islands' status quo (the globalisation process and the pervasive neo liberal orthodoxy), alternatives and solutions must be put forward in order to help islands to foster economic growth. As stated before, a wide range of non-dependent solutions is not available; in fact, only a few examples are provided in the literature and some of them such as Internet gambling are problematic to say the least. A European Commission Report published in 2001 (the COM 147 Report) strongly advised RUPs to follow a 3 fold-strategy focused on a) an up-grade of parameters for competitiveness in traditional sectors; b) the development from scratch of high-tech sectors; and c) regional cooperation (trade and association agreements such as those underlying the INTERREG Programme). Almeida and Pereira (2007a) based

on analysis of air travel patterns between Canary Islands and Madeira show that it is 'unrealistic' to expect short terms results from a development strategy based on "international openness and regional integration" and cooperation programmes among the outermost regions themselves and with other countries" (European Commission, 2002: pg. 12; See also Almeida and Pereira (2007b) about a similar analysis applied to the Madeira Islands - Azores route). In fact, we should not expect short term results from a strategy based on international openness and regional integration as shown by the Caribbean case concerning the regional integration agenda

Box 2: Madeira location in the Atlantic



An in-depth analysis of such 'integrative' development strategies in other geographical contexts produces similar conclusions. Concerning traditional sectors (tourism, agriculture), there is evidence to suggest they face fierce competition, especially in tourism sector.

Given the limited likelihood of success of 'traditional' solutions, the digital technological revolution was soon understood as a unique opportunity for experimentation and technological and economic affirmation (Lopes, 2000; European Commission 2001; European Commission, 2004; Armstrong, 2004). The European Commission considers (2004: pg. 51) that RUPs "could become a nursery of know-how in widely varying fields (the economy, education, culture, etc.) and advanced sectors such as research and technological development or the ICT and laboratories of excellence for experimentation, 'platforms for the dissemination of technologies', 'real scientific portals for the geographical areas where they are located'. It was also expected that ICTs would facilitate in islands "a decoupling of economic growth and environmental damage" (Berkhout and Hertin, 2004: pg. 914).

RUPs were also urged by the EU to build up a developmental capacity not based on financial transfers. In this regard, the European Commission (2001) suggests a generalized adoption of ICT tools by local firms as a way to develop competitive factors and access external markets (understood as a crucial step to mitigate the alleged negative impact of the 'island penalty' factor, especially concerning lack of market potential).

However, the EU policy relies on a largely untested assumption regarding SMEs' capacity and willingness to embrace technological and organisational up-grades similar to those experienced by larger firms (Spanos et al, 2001). In fact, the EU Commission acknowledges a lack of scientific research concerning RUPs. Further to this, little evidence exists as to local firms' strategic and competitive behaviour and ICT adoption patterns and strategic use of ICT tools. Evidence available for other peripheral regions seems to suggest low adoption rates. A regional development strategy should obviously be based on contextualized and validated analyses and studies, which appears not to be the case where the RUPs are concerned. Hence, doubts that arise as to how practical EU policy actually is may be justified (Spanos et al, 2002).

One can hereby identify the general research question underlying to the thesis:

To what extent can ICT adoption/diffusion by SMEs, possibly contribute to the development and modernization of a unique region such as RAM (or “is there a digital solution for development problems in peripheral/remote islands?”).

Given the importance attached to the Information Society concept it is important to ask if a large scale adoption of ICT tools could make a difference to the fate of peripheral regions.

However, a thorough answer to the research question implies an analysis (though relatively succinct) of a number of supplementary and interconnected questions.

- Which factors condition ICT adoption at the SME level?
- What are the similarities/differences between the ICT adoption process in the RUP context and in the core regions?
- What kind of impact results from ICT adoption/use in terms of productivity, sales growth and learning and technology trajectories?
- What can local firms do to affect their prospects in the information society era?
- Is there a digital solution for the geographical constraints face by islands?

The impact of an adverse/dissimilar economic structure (compared to core regions) and the prevalence of micro-SME firms should also be discussed (Burton, 2004).

As stated by Labour and Perreur (1998) the EU ICT policy rationale is indisputable. However, most regional development programmes may be understood as “an incantatory ritual” needed to justify the access to EU funds (Lacour and Perreur, 1998: pg. 350). Development goals such as ‘large scale adoption of ICT tools’ or ‘improved competitiveness on the part of local firms’ or ‘increased levels of human capital’ cannot be contested. However, the feasibility of such generic targets is quite often not defined from the outset. As a consequence, a ‘rigorous’ evaluation of the success rate of such development programmes cannot be produced.

Obviously, an answer to the general research question under analysis implies an assessment of the feasibility and likely impact of the EU policy towards RUP (Spanos et al, 2001). In fact, there is not sufficient empirical evidence as to local firms’ responses and the factors conditioning ICT adoption, making it impossible to comment accurately

on the applicability of EU policy prescriptions (based primarily on core region case studies). On the subject of peripheral rural areas, North and Smallbone (2006) and Grimes (2005) recommend an in-depth analysis of validity of the EU policies concerning the impact of 'standard' entrepreneurship and innovation programmes on regional development prospects. As shown in Chapter 3 most regional development programmes are based on a 'one size fits' all approach.

Given the rarity of generic analyses/studies on RUPs, an in-depth analysis of the local political, social economic context (and respective impact in terms of development potential) becomes necessary, as the territorial dynamic in RUPs cannot be compared to what is happening in core regions. Otherwise, one could run the risk of writing fiction, for example, in terms of firms' behaviour and the likely impact of the adoption of ICT tools. The predominance of traditionally low-tech sectors and innovation-averse actors in the local economic structure tends to signify, in other contexts, low Internet adoption rates, which *a priori* contradicts the EU Commission's pretensions of a short term ICT based solution to the RUPs development problems (Labriandinis, 2006).

Further comments on the chosen research focus

Other aspects of an ICT related 'development' agenda (health, education and government/governance policies) are also a worthwhile research topic. However, I believe that the chosen research focus on the possible role of ICT tools in contributing to the economy competitiveness and access to extra markets by local firms is the most 'critical' one for the following reasons.

The first reason is related to the fact that most regional development plans are informed by the EU regional development normative framework. However the EU normative framework is based on quite generic statements and seems to adopt a one size fits all approach. Concerning RUPs, the three priorities proposed by the European Commission (to improve RUPs' competitiveness) are related to:

- improvements in terms of outermost regions competitiveness in order to reinforce an economic environment that is categorized as not conducive to running a successful businesses;
- improvements in terms of accessibility in order to reduce the main constraints arising from the remoteness and extra transport costs faced by these regions and;
- a regional integration agenda.

So, the concerns about accessibility, the regional integration agenda and the competitiveness agenda are related to the economic development goal of the EU regional development plans towards RUPs.

But the regional integration agenda should not be considered as strategic as the other priorities. All evidence available suggests that neighbouring countries/regions in the island context are competitors rather than partners. The Caribbean experience indicates that we should not expect a dramatic improvement in the movement of people and trade in goods and services as a consequence of transnational and cross-border cooperation. To put in place a strong network of economic, social and cultural links demands a strong economic and political rationality and a large time horizon besides a very close geographical location.

Most regions have invested heavily in transport infrastructure. However, the impact of poor access to the outermost regions cannot be overcome based only on improved accessibility. Further investment in infrastructure will not on its own result in economic growth "as transport infrastructure acts as a complement to other important conditions, which must also be met if further economic development is to take place" (Banister and Berechman, 2001: pg. 210). Usually additional transport infrastructure is not a necessary condition, but a supporting and complementary measure when other conditions are at work. Factors such as agglomeration economies, availability of a good quality labour force (well trained and highly skilled), large numbers of externally oriented firms and especially the underlying dynamics in the local economy are critical to foster the positive impacts of additional investment in infrastructure. The underlying dynamics in the local economy are "the fundamental condition as it is only when the local economy is buoyant that the transport investment will in conjunction with other necessary conditions have an economic development impact" (Banister and Berechman, 2001: pg. 210). Thus, we must draw our attention to the local economy dynamics and this is the reason why the main focus of the thesis is on SMEs as the principal elements of the Madeiran economy.

A second reason to focus our attention on the SMEs concerns the lack of absorptive capacity on the local firms' part. It has been argued that significant advances in communications technology, notably information technology (ICT) and e-commerce are rendering distance, and therefore location, less important, which particular is good news for the peripheral areas (Read, 2004). However, taking advantage of these growth opportunities will require both a critical minimum threshold in terms of technological

infrastructure and human capital (absorptive) capacity. Technological infrastructure problems are usually a matter of concern for local government and there are reasons to suspect that for Madeira Island the access to the necessary technological infrastructure is likely to be less problematic than absorptive capacity problems. In fact, several ICT programmes have led Portugal to be ranked second in the EU, after the United Kingdom, on progress in the e-government field. The Madeira Government has launched very successful ICT programmes. As a consequence, Madeira is a leading region in Portugal in terms of efforts to overcome the digital divide issue (inequality in terms of access to PC, Internet and broadband).

However such efforts have not been followed by the private sector and most individuals (and households) concerning the adoption of e-commerce solutions. We present below some key facts about the positioning of Portugal in terms of access to ICT tools and adoption rates by individuals and firms (Table 1.1). Portugal ranks quite well in terms of e-government on-line availability (53% above the Euro zone average). And Portugal is also well positioned in terms of the share of enterprises having a broadband connection (86% of the Euro area average) and share of enterprises having access to the Internet (88% of the Euro area average). But the figures concerning the share of individuals having ordered goods or services for private use over the Internet (5%) and the Percentage of firm's turnover from e-commerce via Internet (1,3%) are clearly below the EU average. As a consequence there are reasons to focus our attention on the 'demand side' (firms and individuals) of the equation as the Portuguese government seems to thrive quite well in the Information era in terms of e-government and infrastructure.

Figures concerning the adoption of ICTs tools and R&D advances in Madeira are provided in Table 1.2 and Table 1.3, which suggest a rather bright picture in terms of local government involvement in the information society. Data concerning the access to broadband connection and access to the Internet suggests that Madeira is close to the Portuguese average, which suggests a rather narrow infrastructural gap. However, data concerning the percentage of enterprises involved in cooperative innovation processes (8,3%), which is the lowest figure for the seven Portuguese regions and the percentage of enterprises with subsidies to innovate (20,1%), which is the highest score in Portugal, suggests that local firms should be studied in order to assess their ability to thrive in the Information Society era.

Table 1.1: Portugal positioning in terms of adoption of Internet related technologies

Indicators	EU27	EU25	EU15	Euro zone	Portugal	Ratio Port/ Euro zone
Share of enterprises having a broadband connection	73	74	77	77	66	86%
Share of individuals using the Internet for interacting with public authorities	21,3	22,6	...	23,9	14	59%
Share of households having a broadband connection	30	32	34	31	24	77%
Share of individuals having ordered goods or services for private use over the Internet	20	21	23	20	5	25%
Share of individuals regularly using the Internet by broadband access	80	80	81	79	64	81%
E-government on-line availability	59	...	...	...	90	153%
Broadband penetration rate	...	16,5	20,7	...	12,9	62%
E-government usage by enterprises	63	64	64	65	60	92%
Level of Internet access households	49	51	54	51	35	69%
Share of enterprise (for small enterprises) having a broadband connection	70	71	75	74	62	84%
Share of individuals regularly using the Internet	45	47	49	46	31	67%
Perc. of the total turnover from e-commerce	4	4	4,1	3,5	1,3	37%
Share of enterprise having access to the Internet	92	93	94	94	83	88%
Share of enterprise (for small enterprises) having access to the Internet	91	92	93	93	80	86%

Table 2: RAM positioning in terms of adoption of Internet related technologies

Internet adoption Indicators	RAM	Portugal
Share of individuals having access to a PC	39,4%	42,5%
Share of individuals using the Internet	32,6%	35,6%
Share of households owing a PC	46,5%	45,4%
Level of households having access to the Internet	37,1%	35,2%
Level of households having access to broadband	33,4%	24%

Table 3: Indicators of R&D capabilities and innovation strategies

Indicator	Portugal	Madeira	Azores	Madeira rank*
Innovation intensity	2,1	0,6	1,6	*lowest rank
Turnover of new products sales	21,4	33,9	8,9	*highest rank
Government expenditures on R&D	16,9	18,2	54	*highest rank
Business enterprises expenditure on R&D	33,2	5,4	5,1	
GERD as percentage of GDP	0,78	0,21	0,5	*lowest rank
R&D personnel in the labour force	0,47	0,2	0,3	*lowest rank
Enterprises with innovation activities	40,9	31,7	45,6	*lowest rank
Enterprises with public allowances to innovate	11,1	20,1	9	*highest rank
Enterprises with cooperation to innovation processes	19,4	8,3	14,3	*lowest rank
R&D personnel (full time equivalent)	25.529	229	341	*lowest rank
R&D expenditure/enterprises	6.124	10	13	*lowest rank
R&D expenditure/government	4.917	140	94	
R&D expenditure/higher Education	11.147	75	205	*lowest rank
R&D expenditure/private non profit	3.342	5	30	*lowest rank
Number of R&D Units	2.281	21	30	*lowest rank

* Madeira rank in the seven Portuguese Regions

As stated above, there are good reasons to believe that the (ICT) problem doesn't lie in further government intervention in terms of telecommunications infrastructure and access to PCs and to the Internet. On the contrary, islands economies must adapt to a changing environment, which are not going to be based on further government intervention, and try to maximize the return from past investments. The increasing intensity of international competition between both countries and between firms and the globalisation process are eroding national policy autonomy. In fact due to the globalisation process most islands rely upon unsustainable growth strategies as they are based on a high level of government intervention in the economy, external aid, subsidies, etc. Most authors and local government agencies are well aware that state-led growth, based upon high levels of public investment and financed with aid flows is no longer available (World Bank, 1995, pg. 1; see also Sutherland, 2000; Madeira Tecnopol, 2001); as stated by Sutherland (2000: pg. 462), "the state-led development had given way to the magic of the market". Islands economies in the Pacific Basin (and elsewhere) are urged to "abandon their inward-oriented development strategies reduce protectionism and address the problem of large, costly and inefficient public sectors" (Sutherland, pg. 462). A more dynamic private sector is highly recommended as well as the reduction in the excessive government intrusion in the economy (Fairbairn, 2000; Swaroop, 1996). Islands are urged to build up a more resilient economic bases based on a diversification of their production bases and export markets. Islands governments are urged to enhance private sector growth, as government is much larger than in other countries (World Bank, 1995). Non-market services and non-export oriented services experienced a significant expansion in terms of employment. However, there is no doubt that further emphasis on infrastructure and non-market sector will not bring the same results in terms of sustainable development, economic growth and employment. Further efforts should be deployed to promote the competitiveness of Madeira companies and to generate entrepreneurship in new sectors.

Given the budgetary deficit in Portugal, it is well accepted that further economic growth (in Madeira) must come from the private sector. The private sector is required to play a greater role in achieving sustainable growth and the local economy is advised to be more in tune with the global market forces and less dependent on government decisions. Some statements by government officials in Madeira point in that direction (Madeira Tecnopol, 2001).

The third reason is related to the uniqueness of the geographical area being studied. The purpose of this research project is to analyse the dynamics of the local economy, namely in terms of the adoption of ICTs tools and the integration of firm's strategies with the on-going technological revolution. The available evidence suggests that firms operating in islands face an unfavourable environment which is translated into low expectations (in terms of market expansion) and lack of externally oriented growth strategies. Most firms are locally oriented and operate in small and fragmented regional markets. As a consequence a favourable political and policy environment in terms of access to grants, tax breaks, training programmes, specific EU programmes in the ICT field and improved levels of accessibility will not necessarily result in economic growth and modernisation unless other necessary conditions (for example firm's strategies, local managers expectations, attitude towards technology) are also operating favourable. As the level of accessibility improved in the recent years and the policy environment is still favourable we should focus our analysis in the 'other conditions' category (namely in terms of attitude towards change, modernisation and new technologies).

Concerning firms operating in a peripheral Spanish region, Pose (2000, pg. 108) noted that "most firms have little or no capacity to network with other firms in the same sector inside and outside Galicia. Many are still family owned and lack the adequate capital, the technology and the management capacities to adapt to recent structural changes. Poor internal organisation is an additional handicap. Large firms face identical problems of shortage of adequate technology, skills and management techniques and are hardly embedded in the local economic fabric". Pose also declares that "dynamic firms are still the exception and not the rule". The same concerns may also be applied to Madeira.

Another (fourth) reason to base our research project on a bottom-up approach (in the sense of looking at the ground level of the local economy) is related to the fact that most studies propose quite generic and vague statements such as 'diversify away from traditional sectors', 'pursue an ICT agenda based on international competitive sectors', "develop niche markets in the tourism area', etc. Most authors (concerned with islands development problems) strongly recommend the development of offshore financial services, call centre operations, information processing operations, information technologies, electronics, software industry, on-line gambling, niche markets in the agro-industry, fisheries, regional cooperation, etc (Berezin et al, 2002; Sutherland, 2000; Suss et al, 2002 ; Schware and Hume, 1996).

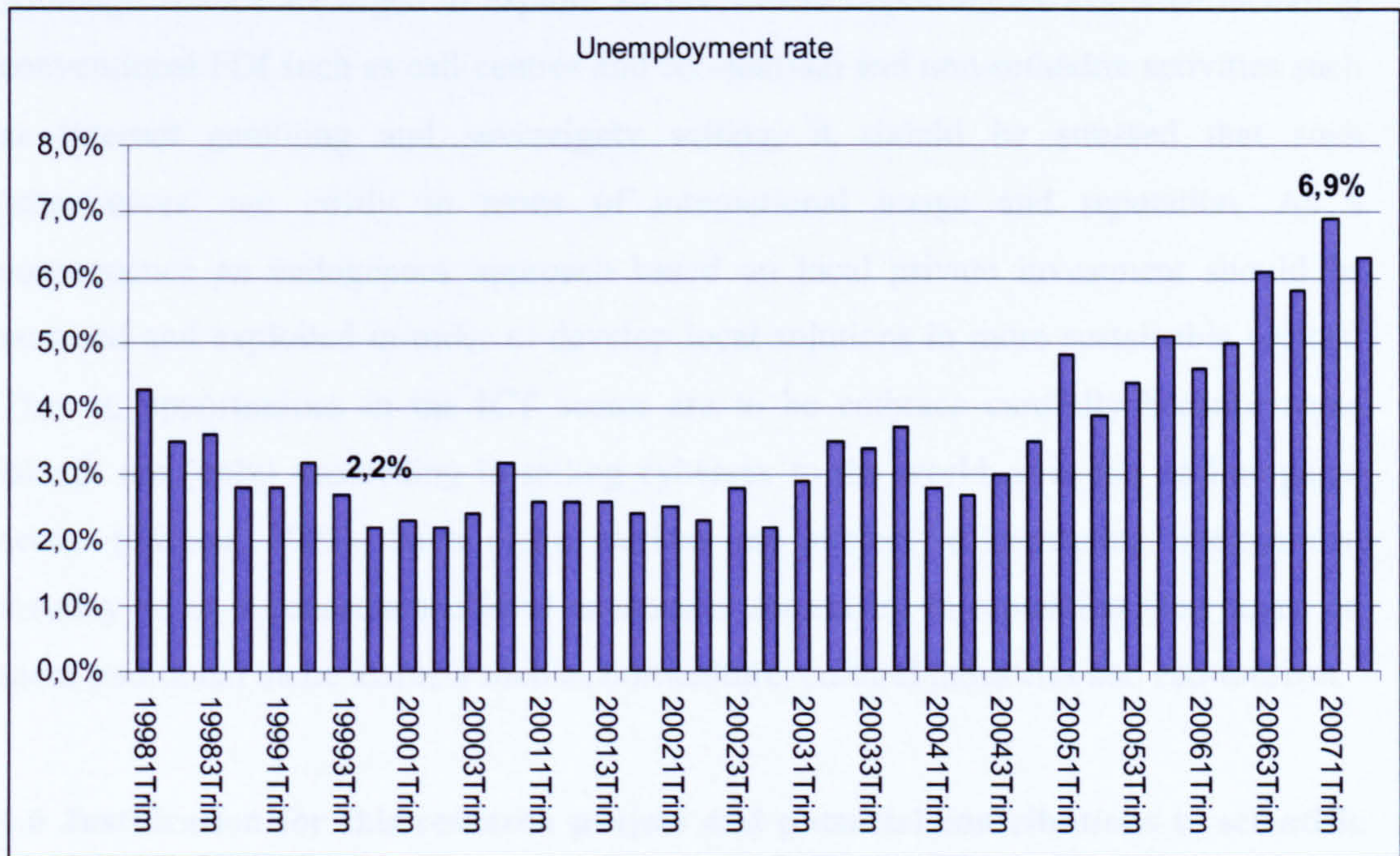
There is a general agreement about the opportunities to be seized in the telecommunications sector and in the ICT field. Most authors urged islands to pursue developments in communications technology, such as the e-revolution as such technologies are leading to greater efficiency in coordination and reducing the cost of transacting as well as transport costs. The adoption of ICT tools may be linked to efforts to improve increase the local firm's efficiency and international competitiveness. However, we really don't know if local economies/societies are ready to embrace the Information Society challenge. As a consequence it was believed that a more in-depth analysis of opportunities and challenges should be based on a grass-root perspective (from the point of view of local entrepreneurs) in order to avoid such 'empty statements'.

There is, as yet, a lack of empirical analysis of the specific contribution of the adoption of ICT tools for the improvement of the prospects of the local firms prospects and by extension to the Madeira competitiveness problem, primarily because of a lack of data on the absorptive capacity of ICT tools on the individuals and OMs part. Although the impact of the adoption of ICT tools is presumed to be significantly positive and strategic we simply don't have enough evidence to discuss the subject, especially concerning the effects of the ICT Revolution on the traditional sectors. Berezin et al (1996) strongly recommend a vertical diversification strategy (instead of developing from scratch new sectors such as software industry, Internet gambling) via enhancement of competitive advantages (building on the strengths) of the existing sectors in order to exploit the synergies already existing. It is our intention to study the absorptive capacity of the traditional sector from an ICT perspective, as it comprises most companies operating in Madeira.

The fifth reason to focus our research on SMEs is related to the fact that Madeira must "make big decisions" about its development prospects as the traditional development model has reached its limits. The tourism industry needs to renew its appeal to the traditional customer as the industry experienced some setbacks in terms of the number of overnight stays. The construction sector lost around 1000 jobs in 2006 and 2007 as most major public works are now completed. And due to the on-going budget crisis at Lisbon, the public administration is constrained in terms of admissions of new civil servants. As a consequence the unemployment rate (See Figure 1.2) is soaring and new niche markets are required to create new jobs. However we don't know if the private

sector is ready to explore new market niches (for example based on e-commerce platforms) in order to create value and employment.

Figure 1.2 Unemployment rate in Madeira (1998-2007)



Finally, we should focus the analysis on the (locally oriented) private sector due to the ever increasing difficulties faced by the non-orthodox sector such as the off-shore zones as shown in the Antigua and Barbuda case. The small Caribbean Islands of Antigua and Barbuda with a population of roughly 70.000 inhabitants won a legal case (a WTO trade dispute) against the United States concerning the regulation of remote (on-line) Internet gambling (Madger, 2006). The United States claimed that the on-line gambling raised “specific problems for public policy – such as money laundering, underage gambling and fraud and health concerns” and as a consequence, “laws were necessary for the protection of public morals and the maintenance of public order”. The Anguila and Barbuda full-scale victory was a Pyrrhic Victory. As a consequence of legal uncertainties in the United States concerning the remote gambling the number of operators had declined from “120 companies with 3.000 people to 28 companies employing fewer than 500 people in 2003” (Madger, 2006: pg. 57). The on-line gambling sector was really important: it comprised about 120 operators, accounting for around 10% of the country’s GDP and almost 5 percent of the islands employment. The Antigua and Barbuda case shows that most non-traditional export sectors (such as internet gambling, off-shores tax heavens) are under increasing threat and international

scrutiny related to organised crime, money laundering, tax evasion (Magder, 2006). Islands cannot affront major international powers such as the United States or the European Commission concerning such problematic development alternatives. Although islands are urged to explore all investment opportunities available including conventional FDI such as call-centres and eco-tourism and non-orthodox activities such as Internet gambling and sovereignty selling, it should be stressed that such 'alternatives' are costly in terms of international image and reputation. As a consequence an endogenous approach based on local private investment should be nurtured and exploited in order to develop local solutions in more sustainable sectors. That is, opportunities in the ICT sector are to be embraced carefully because some islands are (only) succeeding in selling cybersex to the world or in the on-line game sector (Nelson, 2002). Such niche markets are subject to increasing international scrutiny so as a consequence local economies should try to reposition their focus on more traditional niche markets such as horticulture, cultural industries and eco-tourism.

1.6 Justification for this research project and potential contributions to scientific knowledge

It is important to make reference to a difficulty underlying scientific research in peripheral contexts. Where rural areas are concerned, Kalantaridis (2006) and Ramirez (2001) point out the academics' and policy makers' incapacity to conceptualize rurality, due to its multidimensional nature. This is the reason why a comprehensive analysis of the research question demands a more descriptive local social and economic context and a case study approach.

However, it is also important to point out some potential advantages of a case study applied to such remote and peripheral areas. An in-depth analysis confined to a limited geographical area allows for a systematic analysis of the multiple factors (social-cultural environment, individual attitudes, firm strategies) conditioning the ICT adoption and diffusion process. Thus, a number of the issues complementary to the research question may be answered based on an integrated theoretical framework which enables a global understanding of SME adoption strategies, an option not frequently selected in IT adoption studies. In line with Bateira and Ferreira (2002: pg. 297) my analysis of small and medium-sized enterprises (SMEs) is placed on the "crossroads of different strands

of theory” (Diffusion of Innovation Theories, SME literature and firms strategic management).

Another advantage, in the sense of the contributions made by this thesis, results from the fact that it adds to the scientific knowledge about the issue of ICT adoption by SMEs operating in peripheral areas. In fact, some authors lament the scarceness of studies and analyses on the subject of ICT adoption by SMEs. On the subject of ICT adoption by Italian firms, Fabiani et al (2005) refer to a relative limitation of firm-level evidence. Mehrtens et al (2001: pg. 165) further refer to the “dearth of research identifying the organisational rationale behind Internet adoption” (see also Hempell, 2005). The clear predominance at the local level of SMEs allows for the addition of statistical evidence on the issue of ICT adoption by SMEs. Further to the lack of empirical analyses relating to the geographic space under analysis, it can be seen that most studies (90% in agreement with Caldeira and Ward (2002), tend to be the result of analyses applied to the context of advanced economies (USA, EU). However, SMEs located in LFRs differ in terms of competitive base, cost structures and local and external orientation (Caldeira and Ward, 2002; Spanos et al, 2002; Mullings, 2004). In fact, most studies do not avoid “generalisations (about the ICT adoption rationale) which are at odds with the experiences of individual firms on the ground” (Jarvis et al, 2006: pg. 152). Should a different social and cultural context be considered, there seem to be no doubts in relation to the need to disbelieve the validity and applicability of the traditional theoretical frameworks. For example, Hoggart and Paniagua (2001: pg. 63) criticize the “self-evident bias in writing on rural restructuring toward the Anglo-American world or, if more generally, toward capitalist production relationships (or even more narrowly toward agriculture)”. Consequently, they contest an automatic transfer of the theoretical achievements in relation to agriculture restructuring theory as a useful theoretical tool in the exploration of the restructuring process in course in the Spanish rural areas. Consequently, where ICT adoption is concerned in an ultra-peripheral context, so as to obtain a deeper understanding of the ICT phenomenon, it is necessary to proceed with an analysis in terms of the similarity of the economic and social context in as much as they may help to formulate an adequate “ICT adoption rationale”. North and Smallbone (2006: pg. 45) also understood the possibility of transferring EU policies as problematic “at least not without substantial modifications” (see also Zhang et al, 2006).

The extreme character of most RUPs at the EU level in economic and geographical terms (remote location, non viable traditional development models and social concentration) may provide interesting grounds to understanding such a complex subject in other peripheral and remote contexts. Although the RUPs represent less than 1% of the EU area, they present characteristics in common with the other LFRs. Hence, this study aims to be another contribution to the analysis of the processes on ICT adoption and diffusion in geographical areas that generally receive little attention. As mentioned above, in the past, islands contributed significantly to the progress of science, given the self-contained character of island environment and culture. In this sense, Roberts and Thompson (2003: pg. 62) state that the Western Isles, given the high incidence of self-employment, dependence on the traditional sectors, heavy dependence on subsidies and increasing vulnerability (market pressures and biotechnical risks) “combine to make it a good case study on which to base empirical analysis”.

And given the neo-Keynesian experience of most RUPs, this study may contribute to the analysis of the applicability of the neo-liberal agenda in a peripheral and traditionally dependent on financial transfers context. In fact, a common problem in the traditional regional development field is the attempt to apply a ‘one size fits all’ approach centred on the core regions.

1.7 Methodological issues: why a case study approach

A research project is defined by both the subject matter (what is being studied) and by the method or approach applied to study the subject matter (how it is being studied). Further to the research question (identification of the economic agent and the economic/social behaviours under analysis), the research design and data collection procedures must also be stated from the very begin.

Given the prevalence of myths and misconceptions in the Internet research arena, a subtle discrimination process can be found in the literature. Most studies deliberately favour medium and large enterprises in the manufacturing sector (Spanos et al, 2001; Haleblan and Finkelstein, 1999). The “natural attraction of the lucid and logical respondent” in the ICT research field (in other words, the preference for manufacturing firms) seems to be the norm (DeLorne et al, 2001: pg. 11). The ‘problem’ in such an approach lies in the fact that non-manufacturing firms make up the majority of the

existing firms in the RAM. Grimes (2005: pg. 1070) was unable to strictly apply the 'right criteria' (that is, selection of large firms in the manufacture sector) in a study of the ICT adoption patterns in peripheral regions in the EU "because of difficulty in finding suitable enterprises (i.e., manufacturing firms) for the study".

There is evidence to suggest that SMEs are not adopting in large numbers ICT tools. As a consequence, I assert that "ignoring of the rich contextual contributions by deliberative, reluctant respondents such as non-adopters of ICTs tools" would result in writing fiction, as micro and small firm's accounts for more than 90% of firms in RAM (DeLorne et al, 2001).

We can now move on in the discussion of the selection research methods. It must be said that excessive attention to the philosophical aspects in terms of the underlying philosophical approach (qualitative or quantitative in nature) may clearly limit the practicality of the research methods. Graham (2001) alerts to the fact that the 'practice of geography' and the selection of the methods and approaches cannot correspond exactly to the philosophical choices preferred by the investigator. My experience with research projects in the island seem to point to the 'feasibility issue' as being central in the selection of methods and data sets. For example, hard qualitative approaches (such as ethnographic studies) were not an option, as it would not possible to conduct such time consuming examination of the firms Internet strategy over a long period of time (Houghton and Winklhofer, 2004; Mitchell and Clarke, 1999; Premkumar and Roberts, 1999; Skinner et al, 2003). As stated by Skinner et al (2003: pg. 476) "we need to use practices mutually acceptable to both researcher and participant". Concerning data sets it must be stated that financial data is not available due to secrecy concerns.

In the end, I choose a double approach based on both a quantitative research methods (firm's surveys) and qualitative methods (case studies of individual firms). As I am pursuing a research project 'revelatory in nature' given the absence of previous studies a pure quantitative analysis in character would not allow one to completely take into account the social constructed nature of the economic reality, and the context that influences the Owner Managers (OMs) decision-making. Qualitative methods allow for contextual descriptions and the exploration of new phenomena. In fact, the interpretation and meaning that local OMs give to the on-going technological revolution can be better assessed via qualitative research designs, such as semi-structured interviews.

Some authors have based their analysis of the OMs decision-making concerning the adoption of ICT tools on a case study approach (based on semi-structured interviews), which is especially appropriate when theoretical models available are not well developed or when a contemporary phenomenon is under analysis. Levy and Powell (2001: pg. 175) state that a case study approach is especially appropriate when “the boundaries of the research are not clear”, and when the complexity and ignorance of the phenomenon under analysis implies the “need to investigate the issue within a real life context drawing on the views of a number of sources”. Mehrtens et al (2001: pg. 166) state that case studies allow one to capture “reality in substantial detail and are particularly useful when a natural setting or a focus on contemporary events is needed”.

I finalise this section by identifying the economic phenomena under analysis. My concern evolves around the decision making process concerning the adoption of ICT tools on the OMs part. I am interested in understanding and modelling the process of adoption. But I am also interested in overcoming the traditional assumption that OM decision making can be modelled purely in terms of individuals acting to maximise profits (Austin et al, 1998). Coexisting with the Innovation Diffusion literature there is an extensive literature showing that the typical OM in a peripheral area attaches great importance to non-economic factors such as the betterment of the family. As a consequence, a pure (mathematical) economic model cannot capture the full complexity of the decision making at the micro and small firm level. That’s the reason why, concerning theoretical frameworks, a one sided vision is rejected, as I assert in line with Saarenketo et al (2004: pg. 366) that SMEs should be eclectically studied in terms of various frameworks and theories to gain comprehensive understanding of the phenomenon. Chapter 5 provides a multi-fold contingent model to analyse the adoption rationale in RAM.

1.8 The structure of the thesis

Chapter 2 provides an in-depth understanding of the social/economic dynamics of RAM. It is argued that after two decades of successful experimentation with neo-Keynesian policies local actors may refuse ‘structural changes’ and technology upgrades. RAM is an example of a ‘de-coupled’ regional economy sheltered from the potential damaging effect of global trends. The local economic dynamic was fuelled by

large amounts of financial transfers and as a consequence, RAM was able to reach impressive scores in terms of GDP per capital and well-being. Thus, it can be assumed that individuals, firms and political actors were not desperately searching for 'technological solutions' in order to cope with the impact of the on-going globalisation process. Such impacts were understood elsewhere as linked to processes of downsizing Welfare States rights, fierce inter-territorial competition, increased competition for market shares, organisational and technological up-grades, but not in RAM.

Chapter 3 investigates which development options are available in islands and provides a detailed analysis of the applicability of the current regional development models (such as learning regions and clusters approach) to the RAM context. It is important to recognise, before defining policies/measures, some basic facts relating to the backward and peripheral regions, namely the absence of the classical territorial assets which are characteristic of industrial districts and/or learning regions. The current approaches are assumed as being non-applicable in the RUP. The social and economic context and political and cultural patterns diverge in a fundamental way from those found in the core regions. The out of date institutional, political and technological processes in the core-regions decades ago, are still in place in most LFR. Hoggart and Paniagua (2002: pg. 77), referring to the restructuring processes in course in Andalusia (Spain), states that "fundamentally, the driving forces underlying dominant societal relationships did not change, ..., Spanish rural society still pumps the past through its main arteries". For this reason, an analysis of ICT and regional development issues imply a critical evaluation of the socially accepted dominant discourse, i.e., the cluster approach and competitiveness discourse. In fact, it is important to understand how the current territorial dynamic in RUPs produced a 'distorted' understanding of major events of our time (globalisation, fierce competition at an international scale, unprecedented and relentless change, geo-political turbulence, etc). For years, islands have pursued a 'clientelist approach' concerned essentially with the 'preservation' of the status-quo. In a subsidiary way, it is important to contribute towards the examination of various blockages and barriers to development in islands and peripheral context.

Still in chapter 3, further to analysing the feasibility of current regional development models, a tentative model is proposed in relation to the development prospects of RUP. In order to proceed with such a demanding approach (i.e., the tentative model to understand the development prospects in RUPs), it is deemed convenient to turn our

attention to independent island states. An analysis of the islands' development models successes/failures, and critical factors conditioning islands' incorporation into global economic and technological networks brings to the fore 'common elements' which are very important to understand islands' development prospects. As seen before, independent island states becomes evermore subject to neo-liberal orthodoxy, although many are clearly unprepared for it. But as stated by Murray (2001: pg.), in relation to the Pacific Island Countries, "there is little option but to comply". In fact it is argued that all recent events points to substantial theoretical/empirical relevance of the ecological approaches (focused on the analysis of the mechanisms and processes governing the establishment, growth, change, decline of organisations such as firms) that relate decreasing levels of financial transfers to high levels of firms failures.

Chapter 4 is dedicated to the analysis of available ICT solutions to the island problem. It is crucial to state from the onset that the debate about the ICT Revolution constitutes a recent phenomenon and is subject to strong controversy and contradictions. The emergence of the Internet on the global scene aroused excessive hopes as to the emergence of high-tech sectors in improbable places (such as RUPs). Shefer and Rietveld (1999: pg. 11) show how policy makers understood the ICT revolution "as if they were a panacea for all economic problems", alerting the authors to the exaggerated expectations associated with the ICTs given the specific economic circumstances of most LFRs (see also Bertrand, 2001; Hempell, 2005). It is therefore crucial to try to understand why there has been an exaggerated importance attributed to ICT in the LFRs and then a 'disillusion' phase. Implicit to the debate, is the relative lack of success of the current development strategies (in the ambit of traditional location advantages). Such disenchantment with current solutions offered ground to welcome miraculous solutions. In fact, an equalisation of development opportunities in relation to the core regions was expected. The 'death of distance' hypothesis based on ICT-based frictionless geography and cyber-geographies and therefore on unlimited access to markets/information, constituted a fundamental assumption in the ICT discourse in the 1990s (Rietveld and Vickerman, 2004). A frictionless geography (or cyberspace) seemed, in truth, an exceptionally attractive solution to mitigate (direct/indirect) traditional location disadvantages (Bertrand, 2001; Webber, 2004).

However such extremely optimistic views expressed by academics, governments and corporate actors never materialised. And, absent from the outset were a concern with

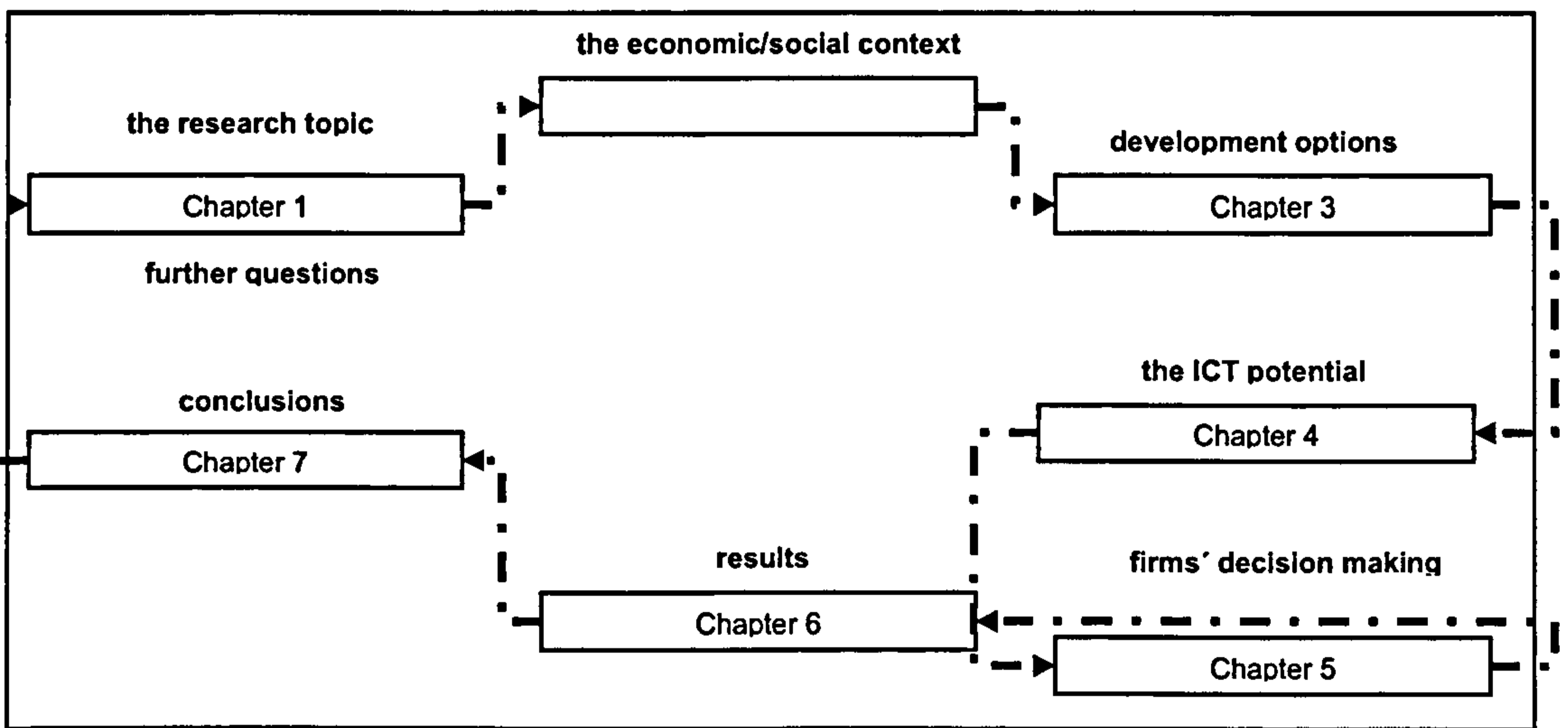
informed choices and political preferences. In fact, most citizens do acknowledge the alleged ICT revolutionary proprieties (such as reducing the tyranny of distance), but are not interested in such ICT dreams. As a consequence there is no political support to embark on 'high-tech dreams'.

In order to understand the structure of the thesis, it is important to state that all available evidence relating to ICT adoption in other peripheral regions seems to confirm the most pessimistic forecasts. Lucchetti and Sterlacchini (2004: pg. 163) state that "the potential of digital technologies is far from being exploited by Italian SMEs". Contrary to the expectations in the ambit of the death of geography hypothesis, a widespread diffusion of e-commerce tools is not foreseen even in the long term. ICTs tools are understood at best as complementary to the traditional marketing approaches. And firms' ICT strategy is obviously related to its innovative and technology history and therefore to its strategic and competitive behaviour. The applicableness of the EU policy clearly depends on the local firm's 'e-readiness' (that is, their preparedness to adopt/adapt ICT solutions). Chapter 5 provides a comprehensive analysis of local firm's behaviour, Owners Managers (OMs) likely understanding of the on-going ICT Revolution and a review of several strands of theory needed to provide a global understanding of ICT patterns/uses. Still in Chapter 5, it is deemed possible to contribute generically towards the analysis of the ICT adoption impacts, by means of a redefinition of the ICT adoption/firm development link which take into consideration SMEs behaviour and idiosyncrasies in a peripheral context. Most studies adopt a 'econometric approach' that relates the stock of ICT capital to increases in the productivity levels. However, such approach is deemed 'impossible' as financial data is not available.

Chapter 6 presents the results coming from my mixed (quantitative and qualitative) approach. The quantitative results provided in Chapter 6 and are based on a stratified sample of 238 local firms. The qualitative approached is based on semi-structured interviews of 17 OMs. The results provided are quite interesting and controversial as both the optimistic and pessimist approaches concerning the Information Society project are challenged. As expected, local firms are not adopting complex ICT tools nor are they interested in reach external markets. As a consequence, the EU conceptualisation of the likely impact of the Information Society in islands is misplaced and over-optimistic about the potential contribute of the adoption of ICT tools to the development of a unique region such as RAM. However, there is an intense and invisible use of most

Internet functionalities, which is providing most innovative firms with competitive weapons to thrive in the local market. It is suggested that the Information Society project may contribute to the modernisation of the firms operating in the region but at the expense of a high levels of failure rates. The innovative use of ICT tools may result in an economic landscape populated by a few but 'modern' firms unable to provide an answer to the soaring levels of unemployment. See figure 1.2 about the thesis structure.

Figure 1.3. The thesis structure



Chapter 2:

RAM: Crisis? Which crisis? Economic and political trends affecting the Information Society prospects in RAM

This Chapter is dedicated to an in-depth analysis of broader local social, political and economic trends that may influence the likely outcome of the 'digital project' in the context of RAM. It is now well understood that not every region is well placed to thrive in the digital era. And it also acknowledged that an in-depth analysis of the ICT adoption/diffusion path cannot be understood outside the social and economic context specific to the given territory.

In fact, despite the RAM's favourable location close to the "centre of gravity of the transactional economy geography which lies in the North Atlantic" (Sassen, 2002: pg. 10) and previous cycles of prosperity, there is no evidence to suggest a high degree of e-readiness and/or interest in the Information Society. This chapter intends to give the reader an understanding of the specific economic, political and cultural 'idiosyncrasies' that condition the economic and political sustainability of the islands' digital prospects.

2.1 A 'de-coupling' of local economy prospects from the globalisation process

As suggested in the introduction "governments in islands have had little option but to comply" with the neo-liberal agenda (translated into the adoption of structural adjustment policies and outward-oriented growth strategies) which is at odds with the neo-Keynesian agenda applied in most islands during the 1970s and the 1980s (Murray, 2001: pg. 138). Although current and future tendencies are unarguably complex, and allow for crisis scenarios, this was not the case up until 2004-2005 in RAM, as the local government managed to maintain a continuous stream of financial transfers. But the RAM case study is not an exception in the peripheral regions context even if the reasons for the late arrival of the impact of the globalisation process (and the neo-liberal agenda) are different (Roberts and Thompson, 2003; Rodríguez-Pose, 2001). Concerning independent island states in the Pacific Basin, Murray (2001: pg. 137) declares "that neo-liberalism arrived late in the Pacific islands compared to other regions in the South". Islands 'geopolitical comparative advantage' (in terms of 'important' geo-strategic location) during the Cold War allowed for high levels of ODA "which propped

up relatively large public sectors and inward-oriented policies” (Murray, 2001: pg. 137). As stated by Sutherland (2000: pg. 459) “the high levels of aid reflected the region’s (Pacific) geopolitical importance” and were used to “prop up the islands economies and thus lessen the urgency for reform”. However, with the end of the Cold War such geo-strategic advantages were eroded and donors demand islands to conform to ‘orthodox development polices’. However, dependent territories such as the RAM still have straightforward access to key developmental resources such as EU financial transfers.

Such a ‘regime of exception’ that has been applied to RAM prompted a relative ‘de-coupling’ of local economy dynamics from the potential negative impacts of the globalization process such as a demand for international competitiveness, fierce competition at global level, tight budget constraints, delocalisation of manufacturing, long-term unemployment, etc (Kearney, 2003). As stated by Helg et al (2000: pg. 64) concerning Sicily the easy access to financial transfers allowed the “creation of public sector jobs, sheltered from the ups and downs of the market and from competition and the rescue of troubled companies”. Concerning RAM it also is possible to observe that due to the substantial amount of public investment, unemployment rates were below 3% in the 1980s and 1990s. The relative prosperity was also translated in high rates of firm creation and reduced competitive pressures impacting on locally oriented firms.

As we shall see later on, aggressive strategies aggressive strategies such as organisational innovations and ICT ‘solutions’ intended to expand market shares may be understood as not really decisive and potentially damaging to firms’ prospects, capital accumulation and profit maximisation due to sunk costs and lack of financial return. The cycle of prosperity (fuelled by high levels of demand) allowed a ‘place for everyone’ in the market. As a consequence, the passive reaction to advances in the technology field should not be conceived as irrational as the local economy mood was always positive. That is, we intend to demonstrate how a ‘regime of exception’ (i.e., an easy access to financial transfers) propped up a specific social and political and economic dynamics that ultimately influenced societal and firms’ attitude towards technology and innovation. However, a detailed analysis of the EU policy towards RUPs must precede the analysis of RAM’ territorial dynamics. In fact, the ‘European venture’ may be conceived as a major structural transformation impacting the local development ‘philosophy’ and growth prospects.

2.2. EU policy towards RUPs: from 'positive discrimination' to a 'quasi neo-liberal approach'

In accordance with the magnitude of obstacles to development faced by RUPs, those regions benefit greatly from the economic and social cohesion principle via substantial financial transfers (European Investment Bank loans, Structural Funds and Cohesion Fund) (European Commission, 2004; Comissão Europeia, 2001; Armstrong, 2004). With respect to RAM, the financial help received for the period 2000-2006, implied on average the transfer of 2900 euros per year and per inhabitant in RAM. Should one include the transfers due to access to generic programs available at the national level (also fuelled by EU transfers), the amount reaches 3442 euros per inhabitant (See Table 2.1). The average level for all Objective 1 regions was 1.500 euros per inhabitant. According to the European Commission (2004) the financial transfers implied, where amounts relating to RUPs GDP in 2000 are concerned, 2% of the GDP of the DOM, 4% of the GDP of Azores and Madeira and 1% of the GDP of the Canary Islands. In terms of investment, the relative weight of EU programs corresponds (1997 figures) to 1/3 of the public investment in the DOM, in the RAM and in the Azores (European Commission, 2004).

Until the 1990s such huge financial transfers were understood as a fair deal. The 'insular penalty factor' (a reference to the disadvantaged, accumulative and conditioning character of the development potential that results from the insular condition) was recognized in the EU legislation (European Commission 2004; European Commission 2001; Malecki, 2002). Article 299 of the Amsterdam Treaty acknowledges that such regions are conditioned by remoteness, insularity, small size, difficult topography and climate and economic dependence on a few products. Further, Article 299 also recommended that all EU policies should take into consideration the peripheral character of the RUPs, via the application of specific and contextualised measures. And Article 299 recognised RUPs handicaps in terms of accessibility, size and morphology as extreme cases in the EU setting. As a consequence, economic dependence, high unemployment rates and the intrinsic difficulties of to developing from scratch new activity sectors were 'understandable' and understood in the EU legislation. In fact, the EU Commission favoured the RUPs up until the late 1990s, based on the design and implementation of specific projects intended to mitigate the RUP's development constraints.

Table 2.1: EU financial transfers towards RUPs (Average Transfer per inhabitant)

Region	Specific (RUP) Programs	All programmes
DOM (French Territories)	2,000 euros	...
RAM (Madeira)	2,900 euros	3,442 euros
RAA (Azores)	3,600 euros	4,163 euros
Canary Islands	1,100 euros	1,642 euros
Objective Regions 1	1,500 euros	

Source: European Commission (2004)

The incapacity to access and exploit a large market potential is recognised in EU policy and the local orientation of firms operating in RUPs is also acknowledged. But recent EU reports and documents do not support such a 'benevolent' approach as they urge RUPs to pursue a neo-liberal based agenda.

In fact, the COM Report 543 (2004) identifies other economic and political trends which strongly condition development dynamics, but which are not explained by the alleged geographical disadvantage. For example, in terms of the capacity to absorb 'financial transfers', some difficulties have come to light relating to the potential to upgrade traditional sectors. The COM Report 543 acknowledges the failure of programmes aimed to diversify the local economy via the emergence of innovative sectors or competitive up-grade by local firms. Although a huge capacity for investment/accumulation of public capital (infra-structures) is noted, the absorptive capacity in more immaterial factors seems low.

And the European Commission Working Document SEC (2004) 1030 provides other 'problematic' data as far as the local social-economic dynamics are concerned. The distortions patent at the level of market organization was translated into "*de facto* monopoly situations have arisen which reduces the competitiveness of the whole of the economy there and has generated inflation". It is also criticises the lack of any real competition between economic actors, whether public or private. The European Commission also criticises the lack of repercussions of all financial support to the final consumer as the final price of some products is not reduced no matter the amount of aid received by producers to compensate for transportation costs.

As stated in Chapter 1, RUPs are now expected to live up to international standards of productivity, growth and competitiveness (European Commission, 2004). RUPs are urged to develop competitive factors, 'awaking the business spirit' and the built-up of strategic and innovative high-tech sectors, which signals a clear change of orientation

concerning the EU policy towards RUPs. RUPs are told to “improve their economic performance, participate in stimulating growth, create jobs and counter the risks of exclusion» (European Commission, 2004: pg. 34). In other words, RUPs should pursue a restructuration process, and hence assure greater economic and political autonomy. The European Commission also favours measures to increase the level of capitalization of local firms, to increase the productivity level and employability of human resources, the competitive level of SME’s, and the optimization of ICT usage. In line with the neo-liberal agenda, the EU also suggests an export oriented strategy, via access to external markets, and/or the development of complementary markets at the local level (eg. development of e-commerce).

Although the objectives mentioned above make up part of any regional development project, it is clear, however, that the European Commission Working Document SEC (2004) 1030 is in line with the re-orientation of the EU regional policy, already foreseen in the 1990s concerning LFRs in general (Azzi, 2000; Pereira, 2000; Lopes, 2000). Now peripheral regions are expected to adopt aggressive development strategies and local governments should improve the functioning of local labour markets and correct all market inefficiencies as settled by the neo-liberal orthodoxy.

Given our research aims it is important to highlight the EU conceptualisation of the RUPs place in the Information Society era. On the subject of the Lisbon Strategy (the EU Information Society Project), the European Commission Working Document SEC (2004) 1030, states that RUPs “will have to find an echo in the economies of the outermost regions”. The EU also suggests that local firms must target specific niches, where, supposedly, RUPs will have geostrategic advantages, namely e-government, e-medicine, e-learning, e-commerce (European Commission, 2001; European Commission, 2004; Lopes, 2001).

With reference to the EU RUP policy on the Information Society Project, the COM Report (543) (2004) assume a levelling of the RUPs with Objective 1 regions. This marks the end of the ‘exception regime’ (easy access to financial resources). Only a specific compensation program in order to reduce the impact of over-costs incurred by local firms when trying to pursue an internationalisation approach is proposed. The aim is to get local firms’ competitive potential up to the standard of Objective 1 regions. The EU Commission also recognizes the need for additional investment in order to combat: the accessibility deficit; the impact of the undersized local market; and environmental

and climatic handicaps. While until the 2001 RUPs were categorised as a homogenous group in terms of access to financial transfers, now the EU Commission proposes the definition of financial transfers in accordance with the level of backwardness of each RUP. Although the EU “intends to continue according more favourable treatment to the outermost regions», the EU intends to base all measures on studies aimed to “a more precise evaluation of the handicaps faced by RUPs” (European Commission, 2004; see also Gouveia, 2000; Martins, 2000; Matias, 2000).

The ‘insular penalty factor’ thesis is not ‘untouchable’ anymore (Ferreira, 2000). Extra funding is now ‘linked’ to ‘empirical evidence’, which suggests the end of the exception regime as traditional assertions concerning specific development constraints are no longer accepted without proof. The EU Commission vision matches alternative theoretical accounts that suggest peripherality will increasingly become an “aspatial issue, necessitating fundamental changes to our concepts, models, indicators, and policy approaches” (Copus, 2001: pg. 539; see also Copus and Skuras, 2006). According to Copus and Skuras (2006: pg. 79) “aspatial peripherality is defined as a range of processes which are increasingly emerging to compound or distort the handicaps conventionally associated with remote locations”. It is acknowledged that physical distance or travel/freight costs are less and less constraints to economic activity and quality of life in peripheral regions (Armstrong, 2004). As a consequence, the growth performance of LFRs should also be conceived as influenced “by the effects of poor utilization of new information and communications technology, or by inadequate networks linking local businesses, institutions and global sources of information or markets” (Copus and Skuras, 2006: pg. 79). An intelligent management of such non-geographical characteristics may result in GDP growth and quality of life indicators above what would be expected in such peripheral locations. An analysis of such aspatial factors is provided later on in Chapter 3.

In conclusion, it is evident that the EU Commission accepts the idea that the economic potential of all regions (including those on the ‘periphery’ in spatial terms) are less and less closely related to location, but instead increasingly influenced by such ‘aspatial’ characteristics. Hence, RUPs are required to minimize non-geographical constraints (such as market imperfections, monopolies, and subsidy-dependence) in order to maximise growth opportunities. An in-depth analysis of RAM territorial dynamics is now provided.

2.3 RAM territorial dynamic: 1976-2007

As stated earlier in this Chapter, up until very recently (2004-2005), RAM's Regional Government managed to maintain, sustain and expand an expansionist policy of the Keynesian type thanks to 'able' management of the access to European and national financial transfers. And an '*a posteriori*' management of the regional public debt (the antithesis of the 3% budget deficit rule) was also possible. RAM has enjoyed a charismatic political leadership which has engendered a 'Robin Hood like action' in relation to the mainland/EU (Raagmaa, 2001). The strategic leadership in place had become fundamental to shape regional development policies, as it allowed the establishment of a well defined sense of purpose, and the ability to create a vision concerning strategic developmental options, frequently based on a 'institutional war' (i.e., overtly and/or dissimulated political confrontation) with Lisbon.

As previously suggested in section 1.2, the islands social ecosystems are characterized by a strong regional (cultural) identity. The influence of the local culture on individuals and entrepreneurial values and attitudes and, consequently, on the degree of personal and entrepreneurial innovativeness, is acknowledged by institutional approaches. In fact, the prevalent attitudes and values in society can, at a given moment, end up limiting the range of available economic options, as will be shown later.

2.3.1 Brief geographic background and key facts about the functional linkages with outside world

Before embarking on an analysis of the socio-economic evolution, it is important to provide some geographic facts about RAM. As stated before the archipelago of Madeira includes the island of Madeira (736 km²) and the island of Porto Santo (with an area of 42 km²). The island of Madeira is situated at approximately 1000 km from Lisbon and the total area of the archipelago constitutes about 2% of the total area of the country. The island of Madeira, of volcanic origin, presents a maximum length of 58 km and a maximum width of 23 km. The particular morphology of the island constitutes a huge obstacle to the economic and social evolution of the island: about 35% of the area of the island is situated at over 1000 metres and only 11% presents a slope under 16%. The

arable land utilized corresponds to only 9% of the total area. The arable land is generally of poor quality and the biological wealth of the insular waters is low. The Island presents some ecological peculiarities due to the high number of 'endemisms', which are vegetal species found only on the island. The archipelago enjoys a subtropical climate with an average monthly temperature oscillating between 10° and 20° degrees Celsius, an inviting temperature for leisure activities. It is important to mention that the specific morphology imposes a very high density on habitable lands (about 500 inhabitants per km²). The distribution of the population is very asymmetric being concentrated essentially in the vicinity of Funchal (50% of the population).

We will provide now some comments on the island external accessibility. Madeira Island is provided with two main ports (Funchal and Caniçal) and a small port in Porto Santo. Regional government assigned the Funchal's Port to the cruise market, with the relocation of the traditional activities (merchandising traffic and fishing activities) to the Port of Caniçal (See Madeira map in Box 2.1: Caniçal is located in the eastern part of the island close to Machico). The Regional Government intends to develop the cruise market in order to reach 250.000 passengers by 2007 and 250 vessels arrivals by 2007.

Madeira Island depends exclusively on the maritime transportation (and air transport) in order to trade with the rest of the world, especially in terms of food and energy supplies. However, the maritime traffic is unbalanced given the economic structure of the island. Imports accounts for almost 83% (in value) of the Madeira's maritime traffic in 2005. The most important maritime connections in terms of transport service and weekly availability are the Funchal-Lisbon route and Funchal -Leixões (Oporto) route. Funchal is also connected with Azores by one service every two weeks. Connections with Canary Islands are now provided in a weekly basis. The Madeira-Lisbon route is supplied with 3 services per week and the average travel time is about 48 hours. Cement, iron related products, wood and grain are the main products loaded/unloaded. The local media has drawn the attention to the excessive port operation rates, which is above the national average and one of the most expensive in Europe. However, such allegations are strongly contested by the Local Government.

There is one regional route in terms of air traffic, the Funchal-Porto Santo route, which connects the two islands of the archipelago. Porto Santo Island has only about 5.000 inhabitants and is located 75 km away from Funchal. There is an average of 3 flights every day. There are two routes available between Funchal and the mainland: the

Funchal-Lisbon route and Funchal-Oporto route. The Funchal-Lisbon is the most important route in terms of traffic with an average of 11 daily flights. In order to travel to another city in Europe, one stop at Lisbon is necessary. There are only 3 different daily flights between Funchal and Oporto. However, several European cities are accessible from Funchal. One of the low cost company start operating from Funchal to London Stansted and Bristol in UK.

Data available for the 03rd November to 09th November period show 39 European cities (directly) available from Funchal based on charter flights. Another 5 cities are also available based on one stop (at Lisbon) flights (See Box 2.2).

An analysis of Madeira functional linkages with the outside world should not be only based on the number of flights available from Funchal Airport as the cost of these flights is also pertinent. The return fare for the Funchal/Lisbon route accounts for 45% of the Portuguese minimum wage. And most of charter routes are only operated on a weekly basis and as a consequence seat availability is dependent on availability of 'empty seats'. Daily flights are only offered for the Porto Santo, Lisbon, Oporto and London routes.

2.3.2 Recent socio-economic evolution: successes and limits to development

It is important to state from the outset that the social-economic context and the historical legacy of the 70s in order to understand the development options following post-1986. The political sustainability of the (traditional) public investment choices and society preferences in terms of employment can only be understood when taking into consideration the initial (1976)² level of supply of transport infra-structures, health/education services and investment/job opportunities. The consequences of such a dramatic initial starting point (low level of literacy rates, low levels of offer of social infrastructure, low levels of internal accessibility, etc) are beyond calculation; basically put, focusing on closing the gap in terms of basic infrastructure reduced the political willingness and resources available to pursue an alternative development strategy, for example based on more intangible factors.

² The political system which has been in place for 50 years, the so-called 'Estado Novo' ended in 1974. Autonomy was granted to RAM and RAA in 1976. And Portugal (and RAM) accession to the EEC occurred in 1986

Box 2.1: Madeira' map



www.madeira-club.de
www.madeira-club.com

Box 2.2: Madeira Island Flights connections

City	Sat 03/11	Sun 04/11	Mon 05/11	Tue 06/11	Wed 07/11	Thu 08/11	Fri 09/11	Total
Regional Flights								
Porto Santo	3	3	3	2	3	2	4	20
National Flights								95
Lisbon	10	12	11	11	11	11	11	77
Oporto	2	3	3	2	2	2	3	17
Ponta Delgada	0	0	0	0	0	0	1	1
European Flights								
United kingdom								31
Manchester	0	0	3	0	0	0	1	4
Newcastle	0	0	0	0	0	0	0	0
Gatwick	2	0	5	2	2	1	3	15
Cardiff	0	0	1	0	0	0	0	1
Birmingham	0	0	1	0	0	0	0	1
Glasgow	0	0	1	0	0	0	0	1
Luton	0	1	1	0	0	0	0	2
Exeter	0	0	1	0	0	0	0	1
East Midlands	0	0	1	0	0	0	0	1
Stansted	1	1	1	1	1	1	1	7
Jersey	0	0	0	1	0	0	0	1
Belfast	0	0	0	1	0	0	0	1
Germany								20+6*
Nuremberg	0	0	0	2	0	2	0	4
Dusseldorf	1	0	0	0	0	1	0	2
Munich	2	0	1	0	0	1	1	5
Hanoover	0	0	0	0	0	1	0	1
Hamburg	1	0	0	0	0	1	0	2
Berlin	1	0	0	0	0	0	0	1
Stuttgart	0	0	0	2	0	0	0	2
Frankfurt	1*	1*	1	2+1*	1*	1*	1*	3+6*
Dresden	0	0	0	1	0	0	0	1
Dusseldorf	0	0	1*	2	0	0	0	2+1*
Finland								3
Helsinki	0	1	2	0	0	0	0	3
France								1+7*
Paris	1+1*	1*	1*	1*	1*	1*	1*	1+7*
Spain								2+14*
Las Palmas	0	1	0	0	0	0	1	1
Madrid	1*	1*	1*	1*	1*	1*	1*	7*
Barcelona	1*	1*	1*	1*	1*	1*	1*	7*
Switzerland								1
Zurich	1		0	0	0	0	0	1
Ireland								2
Dublin	1		0	1	0	0	0	2
Belgium								5
Bruxless	2		2	0	0	1	0	5
Netherlands								5*+3
Amsterdam	1	1*	1+1*	1*	1*	1	1*	5*+3
Italy								15*
Malpensa	1*	1*+1*	1*	1*	1*	1*	1*	8*
Rome	1*	1*	1*	1*	1*	1*	1*	7*
Venezuela								2
Caracas	0	2	0	0	0	0	0	2
Chec Republic								1
Prague	0	1	0	0	0	0	0	1
Sweden								3
Billund	0	0	1	0	0	0	0	1
Stockholm	0	0	0	1	0	0	0	1
Malmo	0	0	0	1	0	0	0	1
Austria								2
Vienna	0	0	1	0	0	0	0	1
Linz	0	0	0	1	0	0	0	1
Norway								3
Bergen	0	0	1	0	0	0	0	1
Stavanger	0	0	1	0	0	0	0	1
Oslo	1	0	0	0	0	0	0	1
Denmark								1
Copenhagen	0	0	2	0	0	0	0	2
Luxembourg								1
Luxembourg	0	0	1	0	0	0	0	1

*One stop flights (without getting off the plane) at Lisbon or Oporto

All standard socio-economic indicators available for 1976) presented figures well below the national average and therefore very far from EU standards – the RAM GDP per head in 1976 was only 28% of the EEC average. Up until 1974 the Portuguese regime could be classified as reactionary, conservative, anti-democratic and 'anti-modernist'. Given the political-economic options and the colonial 'venture' (Colonial War), the social-economic indicators diverged greatly from the European average, and poverty rates were extremely high in Portugal and especially in the islands. An adequate road network was absent. Geographical details help to provide examples. The direct geographical distance between Funchal and Porto Moniz is about 40 km. But up until the year 2000, the distance one had to travel was about 99 km, through sinuous roads, implying a 2-3 hour journey.

And according to Geoideia (1997), the social, economic and political regional reality, in the RAM in 1974, could be described as follows: political relations between RAM and Portugal could be described as 'crypto-colonial' (neo-colonial), due to the centralizing history of the Portuguese State; low investment rate, neglect of the islands and lack of national solidarity; low intra-regional accessibility, a situation which later made necessary significant investment in infra-structures; under-qualified labour and high rate of illiteracy; poor health and education services; lower access to durable goods and much lower quality of life in comparison to the rest of the country; over-reliance on agriculture, and non-market services, as well as large internal asymmetries.

However, the evolution of the RAM since 1976 expressed in terms of GDP per head cannot but be classified as a clear example of success given the fact that RAM GDP per head exceeded the national average in 2001, reaching also the EU 75% average in 2001. The catch-up/convergence process to the national average is unarguable, especially since 1986 (the date Portugal joined the EEC). The social and economic performances registered become especially worthy of note when taking into consideration the permanent obstacles to the social and economic evolution of the region (See Figure 2.1). Also, in the group of RUPs and other insular regions, the evolution of the RAM cannot but be viewed as a clear case of success. In comparison to Portugal, the RAM has managed to avoid crisis periods (GDP with negative growth), for the reasons stated previously in Chapter 1.

Significant improvements in terms of household income and employment opportunities were also recorded. As can be seen in Figure 2.2 the wages growth rate for the period

1995-2004 is quite impressive. Data relating to well-being indicators show a clear improvement in terms of access to goods and fundamental services. But, probably the best social and political achievement concerns employment opportunities.

Another critical characteristic of the island's society and history concerns emigration. A mass departure from an island indicates lack of employment and investment opportunism. In fact, as a consequence of the limited opportunities for work and investment in RAM emigration reach high levels up to the 1970s.

Figure 2.1: Growth rate of GDP in Portuguese Regions (1995-2004)

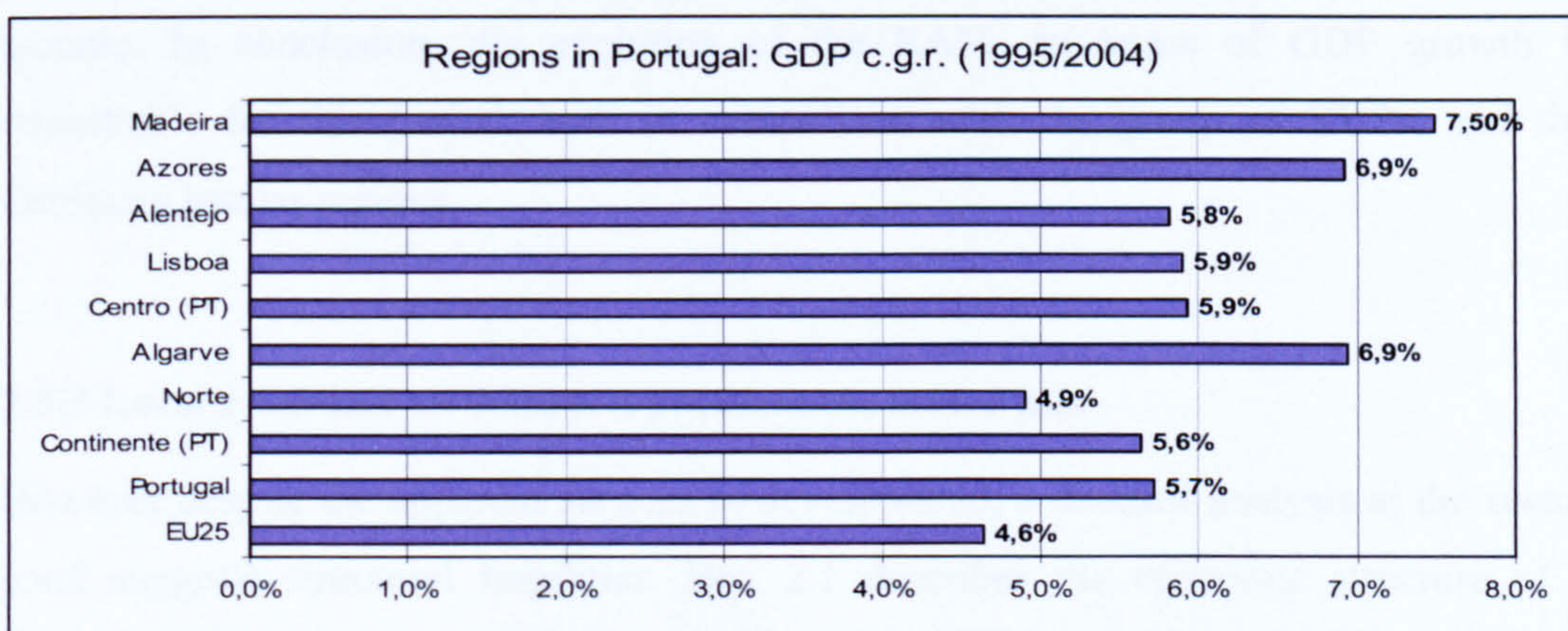


Figure 2.2: Wages Growth by Sector (1995-2004)



For example, for the 1890-1900 period about 1 in every 5 individuals left the island. The scarceness of arable land, constant demographic pressure, scarce opportunities in terms of employment in industries and public administration caused strong migratory

movements to Venezuela, South Africa and Canada. At the same time, the social and economic evolution on the mainland did not allow for any viable alternatives. The decision to emigrate implied a low opportunity cost. However, due to the loss of attractiveness of the traditional destinations, there occurred a re-direction (after 1992) of the emigrational movements to other parts of Europe (United Kingdom, Channel Islands). The point to be made concerns the fall in emigration levels during the 1990s.

At the same time, there occurred a significant return of the population from the traditional destinations (South Africa, Venezuela) due to the political instability in these countries. It should be highlighted the positive side of the equation: as a result of emigration and for decades, following it remittances constituted an important source of income. In conclusion, the evolution of the RAM, in terms of GDP growth is remarkable for this period, both in comparison with the group of RUPs, and the European insular regions.

2.3.3 Local economic structure: a problematic sector mix

However despite the apparent success in development, a detailed analysis at the sector level suggests structural fragilities. Box 2.1 describes the economic structure of a peripheral/rural county in RAM. It is evident the predominance of non-market activities and locally oriented firms. In fact, firms competitive at an international scale account for less than 7% of firms in Calheta County. As is the case in most insular regions, the local economy is based on a small number of sectors with clear predominance of services (tourism and non-market services associated to the public administration) and the construction sector. However, the predominant sectors exhibit a weak development of value chain and are subject to growing competitive pressures. And due to the lack of employment opportunities, most companies take on the form of self-employment. Let's move on to consider some of the key facts about the dominant sectors of the local economy.

2.3.4 Some comments concerning agriculture, industry, retail and tourism

It is important to mention that the local economy evolved from a pre-industrial stage to a services economy, without ever having experienced an industrialization process (Dimou, 2003).

Box 2.2: A typical county: the Calheta case

The council of Calheta has an area of 40 km², in the Western part of the Island. The population is about 10.000 inhabitants. The town of Calheta is around 40 km away from Funchal. Data concerning the year 2005 show the existence of around 350 micro and SMEs and self-employed individuals. From these only 7,4% are externally oriented. The remaining companies depend on the dynamics of the local and regional market (that is, macro-economic context and financial transfers). However, one of the hotels competes at a global scale, in a specific ecological niche, being considered one of the best on a global scale. Some data related to economic activities is provided below.

Tourism sector in a peripheral/rural county

Parish	4 star	3 star	Inn	B&B	Apart.	Detached houses	Rural tourism	Country house
Arco	...	...	1	...	1	3	...	3
Calheta	1	...	...	...	2	2	...	...
Estreito	...	...	1	1	...	...	...	1
Prazeres	1	...	...	1	...	1	...	...
Jardim do Mar	...	1	...	...	...	...	...	...
Paul do Mar	1	...	...	...	...	...	...	...
Fajã da Ovelha	...	...	...	...	...	...	2	2
Ponta do pargo	...	...	...	...	...	1	...	...
Total	3	1	2	2	3	7	2	6

Secondary sector in a peripheral/rural county

Parish	Construction	Carpentry	Iron works	Brick factory	Mechanic	Manufacturing
Arco	7	3	2	...	4	...
Calheta	1	2	3	...	3	1
Estreito	1	2	2	...	1	...
Prazeres	2	...	...	1	1	...
Jardim do Mar	...	...	...	...	...	...
Paul do Mar	1	...	...	...	...	...
Fajã da Ovelha	3	...	1	1	...	...
Ponta do pargo	3	...	1	...	1	...
Total	18	7	9	2	10	1

Service sector in a peripheral/rural county

Parishes	Grocer's and bars	Restaurants	Snack-Bar	Hairdress	Appliances	Boutiques	Auto Stand	Bazaars	Banks	Ironmonger's	Insurances	Furniture	Supermarket	Lawyer/Solicitor	Travel agency	Photoshop	Estate agent's	Doctors	Undertakers	Baker's	Chemist's	Post office	Medical Clinics	Pubs	Greengrocer	Driving schools	Florist's	Computers	Butcher's	Gymnasium	Gas stations	Foot wear	Jeweller's	
Arco	19	3	7	5	2	1	3	3	1	4	1	2	1	2	2	1	1	1	1	1	1
Calheta	13	8	4	5	3	9	5	5	4	1	4	1	4	4	2	3	2	4	2	1	1	1	1	...	1	2	2	1	...	2	1	1	1	
Estreito	9	1	4	1	3	...	1	...	1	1	1	1	...	1	...	...	1	...	...	1	...	...	1	...	...	...	...	1	...	...	...	...	...
Prazeres	2	6	1	1	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jardim do Mar	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Paul do Mar	6	3	3	1	...	...	...	...	1	...	...	1	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Fajã da Ovelha	6	2	...	1	1	...	...	...	1	1	1	1	...	1	...	...	...	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ponta do Pargo	6	3	1	1	1	1	1	1	2	...	1	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...
Total	62	27	21	15	11	11	10	9	9	8	7	6	6	5	5	5	5	5	4	4	3	3	2	2	2	2	2	2	2	2	1	1	1	

Since the 70s, agriculture clearly began to lose its importance in terms of being a source of employment and added value. Agriculture today represents less than 1% of regional value added, but about 8% of employment, a reflection of the low levels of productivity. The structural adjustment process has continued over time, at the same time as a transfer of the labour force from agriculture to services has occurred.

Madeiran agriculture presents clear competitiveness problems, due to the strong conditioning effects of the topography and the predominance of small scale units. Within the sector, there seems to be no capacity for the exploitation of larger scale units.

Similarly to as Rodríguez-Pose (2000) noted in Galicia, Madeiran agriculture is dominated by 'mini-fundio', that is, small patches of land divided from generation to generation. However, the most significant agriculture contribution undoubtedly concerns the ecological and social balance of the region. The extremely fragile nature of the ecosystem, along with an increased risk of the occurrence of natural disasters justifies the protection of agricultural areas. In fact, the economic importance of agriculture lies within its subsistence value, crucial in times of crisis as it allows for extra income. The fishing sector carries little weight due to the lack of natural resources.

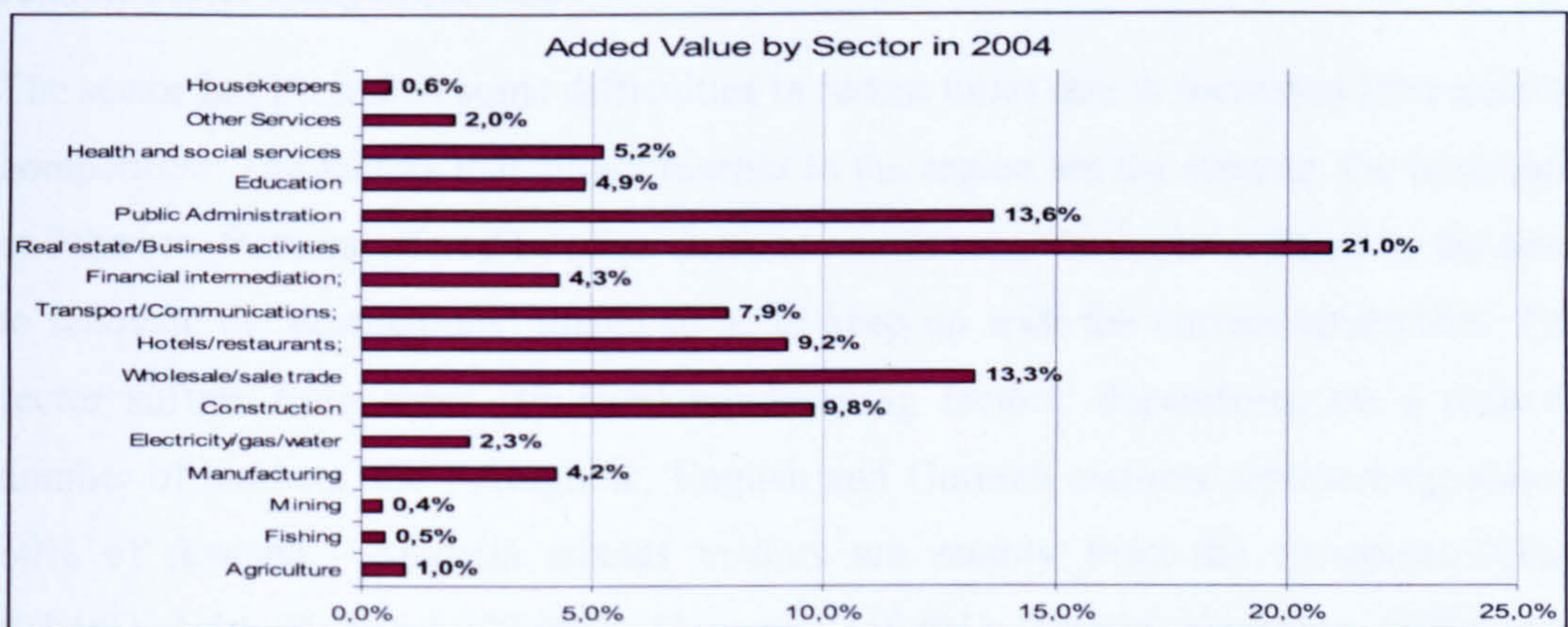
Local manufacturing provides employment for around 20% of the work force but is almost exclusively locally oriented. No competitiveness problems are apparent for existing companies, due to the natural protection provided by the RAM's remoteness. The industrial base comprises micro-businesses and small firms and concentrates on the low-tech activities, in the food, drink and tobacco industries, and civil construction sector and in the artisan sector. The industrial sector is conditioned by the reduced potential market (and indirectly by the transport costs) that do not allow for the exploitation of economies of scale. The artisan sector faces serious threats due to the importation of similar products from South-east Asia. The importance of the artisan sector is more from the social standpoint (in terms of absorption of unqualified labour-force) as opposed to its weight in terms of employment/GVA. The prospects for the construction sector are more complex, as the sector is about to reach the saturation level in terms of growth.

Industry revealed a certain level of dynamism as did the economy as a whole. Regional Government opted for the realization of investments in the infrastructure for industrial use to concentrate industrial premises in industrial parks. The sector also benefited from

a number of regional and national schemes which aimed primarily to increase the local technological competence. In accordance with RAMs Development Plan, local industry should increase its competitive potential, and up-grade traditional competitive factors: design, product conception and marketing, adoption of advanced technology and especially of ICT tools. It seems, however, that no significant changes have been verified where innovative capacity is concerned.

The tertiary sector perhaps represents an excessive weight, especially concerning non-market services. The activities linked to public administration and the real-estate sectors carry significant weight. Figure 2.3 shows the recent evolution in terms of GVA growth. The growing importance of the real estate, whole sale and retail and public administration sectors in terms of GVA is evident.

Figure 2.3: Added Value by Sector in 2004



2.3.5 The tourism sector

The tourism sector merits detailed attention, in terms of its evolution and growth prospects. The influence of the sector on the local economy is unarguable in terms of employment, value added and exports, as it is the only sector that is truly viable and internationally competitive (Ferreira, 2000). The effects on the local economy are significant, although the multiplier effects are relatively limited due to the dependence on imports. It is probably the only sector where it is possible to witness a 'clusterisation' process due to its links to agriculture, transport and the entertainment sector. Tourism is an important sector in the region's economy since it contributes 20% to the region's value added (according to the PDES – Madeira Islands Development

Plan), constituting an important market for the service sector and local products. Data available concerning gross value added by sector suggests a 9% figure (See Figure 2.3). However the sector only includes hotels and restaurants. As such, indirect and multiplier effects are not included.

The regional share of the national total is significant: about 1/7 of overnights (3rd place on a national level). Supply has presented outstanding dynamics with growth rates in terms of number of beds exceeding demand. Over the past decade Madeira has recorded a substantial increase in the hotel accommodation capacity (annual growth rate of 5,5% for the period 1990/2005 in hotels and 5,1% in lodging capacity). However such increase in terms of number of hotels was not matched by a similar increase in terms of overnights (3,7% for the 1990/2005) and guest (4,5% for the 1990/2005). However, the absence of a low cost carrier flying to Madeira imposes high costs, a factor which reduces sector competitiveness.

The sector has presented some difficulties in recent times due to increased international competition. The factors that attract tourists to the region are the climate, the landscape and the sea, features offered by other destinations. Hence, the sector is faced by the need to renovate the destinations' image so as to keep up with the current tendencies. The sector suffers from some structural conditioning factors: dependence on a reduced number of markets, the Portuguese, English and German markets representing almost 60% of demand - Madeira islands visitors are mainly from the European Union (93,1%), with Portugal (26,2%), Germany (18,0%), United Kingdom (20%) and Scandinavia (8,8%) providing the main contingents of tourists (See Figure 2.6); excessive dependence on the tour operators, a factor which limits the chances for price negotiation; concentration of most hotels in the area of Funchal; the need for an upgrade of labour-force qualifications; and problems relating to complementary supply areas (restaurants, museums, etc).

Some additional comments are provided concerning the tourism sector in Madeira. As stated by Peter Wise (Financial Times, 9 May 2006) the Madeira's secret is their natural beauty, classy hotels and tax breaks. Tourism demands is based on "the affluent over-50s". In fact, for some visitors and for local inhabitants Madeira Island "conjure images of white-haired tourists in straw hats taking tea on the lawn".

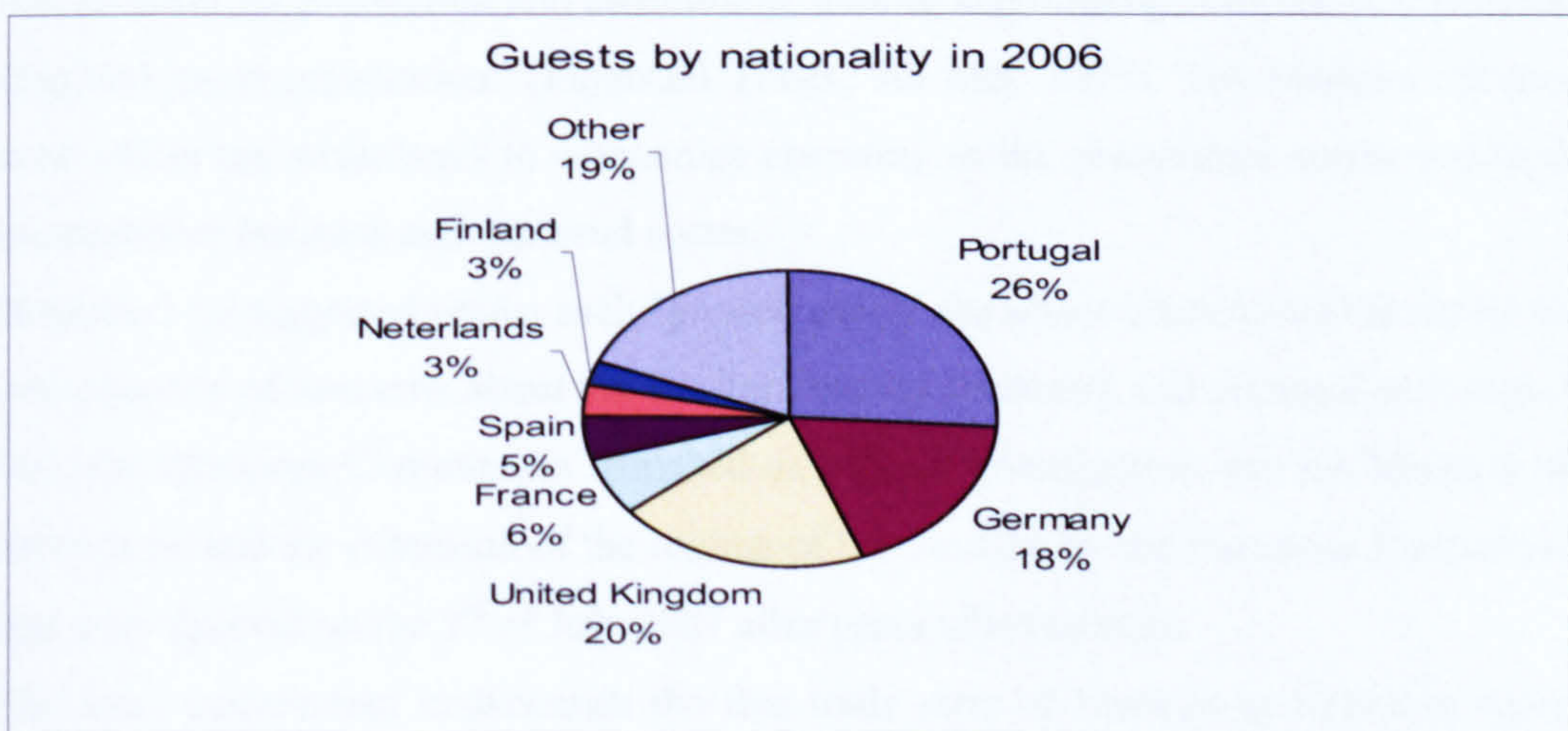
The island of Porto Santo, with its 9 km long sand beach and its 'desert' climate, is totally dependent on tourism (and public transfers).

Figure 2.4 Madeira Tourism key data (2005)

Establishments (hotels)	191
Lodging capacity	28,093
Number of guests	1,011,921
Nights spent	5,638,426
Lodging income	154 millions of euros
Average stay of foreign guests	6.3
Proportion of foreign guests	75.3%
Gross-bed occupation rate	55.4

Madeira now has top quality transport infrastructure which offers opportunities to expand its hotel infra-structure in the North coast. It is the local government wish to increase the numbers of hotels in a controlled manner in order to avoid socio-economic and environmental disturbances as those experienced in the Canary Islands and the Balearic Islands. The unique natural landscape is one of the main tourist attractions and for this reason it should be preserved at any cost. However, it is not easy to balance socio-economic development with nature conservation. It should be taken into account that two-thirds of Madeira territory is officially designated as a nature reserve, which imposes severe constraints in terms of land availability.

Figure 2.5.: Guest by nationality in 2006



As stated above there are signs of crisis in terms of demand. The tourism industry needs to renew its appeal to the traditional customer as the customer wants 'active holidays' based on outdoor activities and health concerns. In fact, the industry experienced some setbacks in terms of overnights.

The Local Tourism Plan points to a total number of hotel beds in the island of 39,000 by 2012, up from the 29,000 figure in 2006. The aim is to limit growth in the Funchal area (where the industry started in 1890), where most hotels are concentrated. Tourism operators are now encouraged to invest in the west and north side of the island. The Local Government urges local operators to diversify tourism products to attract new market segments. The Local Government is pursuing a quality based strategy (supplying niche markets with differentiated products) as it is understood that Madeira cannot become a mass tourism market area like the Canary Islands if the island's natural heritage is to be preserved. Nonetheless, the number of hotels had grown substantially over the past two decades. As stated above the regional government points to 39,000 hotel beds by 2012. However, there are reasons to believe that such a goal will be not easily reached as the growth rate in last the decade is rather modest.

2.3.6 The off-shore zone: hope and illusion

As with most islands, Madeira's development has involved an 'off-shore zone'. According to the administration of the Madeira off-shore zone, the so-called Madeira International Business Centre" (the legal designation of the off-shore area), is "one of the most attractive International Business Centres in the European Union and as win-win location for production and assembling, trading and holding companies, e-business, ship and yacht registration" (Financial Times, 9th May 2005). The Madeira off-shore zone offers tax advantages to companies operating in the manufacture sector and in the international business and financial sector.

However, as suggested above such 'growth poles' are under international scrutiny as a consequence of concerns about tax evasion, money laundering and criminal activities. In fact, the European Commission launched an official investigation into the Madeira off-shore zone and the extension of the regime of tax benefits by the European Commission was only granted on the 3rd of July 2007 after years of incertitude.

The local government understands the free trade zone of Madeira as linked to islands efforts to attract "foreign investment and therefore to create high qualified employment,

contributing at the same time to the modernization of island's economy", according to Mr. Ventura Garcês (the local finance minister) quoted from the Madeira Business Centre web page (www.sdmadeira.pt). However, the local government struggle to extend the regime of tax benefits was also dependent on the Portuguese Government's diplomatic efforts, which prompted complaints about the lack of interest on the subject from the Lisbon part. The new legal regime means that the International Business Centre of Madeira will continue to be ready to attract businesses until 2020. The European Commission's press release on the extension of the regime of tax benefits states that "the aid is intended to promote regional development in Madeira by enabling companies established in this outermost region to overcome their structural handicaps". According to the International business centre web site new "companies licensed as of 2007 and until the end of 2013 will enjoy a reduced corporate tax rate of 3% between 2007 and 2009, 4% between 2010 and 2012 and 5% between 2013 and 2020, in addition to various others tax benefits". Still quoting the International business centre web site, "companies licensed to operate within Madeira's International Business Centre before the year 2001 will continue to benefit from a full exemption from corporate tax until the end of 2011. As of 2012, such companies will fall under the new regime now approved by the EU and which shall be valid until the year 2020".

The real contribution of the off-shore zone to the Madeira economy development is a controversial issue. As of 2003, the total number of firms operating in Madeira's International Business Centre³ was around 5800: the industrial sector with 49 entities licensed and in process of being licensed; the international shipping register of Madeira with 255 entities; the international services with 4793 entities (most of them managed locally by one of the local management companies and as a consequence not contributing directly for the employment figures); and the financial services with 42 entities. After tourism, it is Madeira's off-shore zone that contributes most (from a nominal point of view) to the local economy. The off-shore zone is understood as a way of diversifying the economy of the region. Mr. Francisco Costa, chairman of the Madeira Development Company (SDM), which runs Madeira's International Business Centre (IBC), conceives the results obtained in just under 12 years as "amazing". He claims that the off-shore zone "has directly created more than 3,000 jobs and now accounts for about 21 per cent of the island's GDP". He also claims that "the IBC

³ See Madeira's International Business Centre web page (www.sdmadeira.pt) for further information on the subject.

[Madeira's International Business Centre] has been very efficient in creating new opportunities for Madeira to grow and diversify” as "it has brought new activities to Madeira, including more recently telecoms, internet and e-commerce services, that have an important spill over effect for the local economy." As an off-shore area, Madeira has been able to attract some companies related to the telecommunication, internet and e-commerce areas. However, as shown above, the off-shore zones are under threat. Negotiations with the European Commission on the extension of the tax benefits available reduced the credibility of the off-shore zone and as a consequence the number of firms operating in the off-shore zone has declined.

Regardless of the fact that the local government also claims that the off-shore contributes 20% to the island GDP and 4.000 jobs, a recent document produced by the Portuguese Statistic Office, and strongly disputed by the local Government point only to 1.000 jobs (1% of total employment). The same document available at Portuguese Statistic Office web page stressed the distortion effect in terms of regional accounts. It is believed that the Madeira GDP is inflated by 20% and as a consequence the GDP per capita in PPPs would be around 64% and not 80% (as it is the case). The local press and the opposition leaders highlighted the fact that such 'error measurement' was responsible for the inclusion of RAM in EU Objective 2 as the 75% ceiling was reached. If Madeira GDP per capita as below the 75% ceiling, Madeira would be allowed to be considered a Objective 1 region. As a consequence of the inclusion of Madeira in EU Objective 2 areas, 50% of EU financial transfers were lost. However such claims were strongly contested by the Local Government.

In fact there are reasons to believe that such fiscal advantages are not translated in large amounts of FDI. According to Peter Wise (Financial Times, 9th of May 2006) “Most of the companies attracted to the IFTZ [Madeira's International Business Centre] so far are local. Investors from Madeira account for 55 per cent of the total share capital of firms operating in the zone. Shareholders from mainland Portugal represent 27 per cent of total investment and foreign investors 18 per cent. The largest sector is food and beverages, which accounts for 10 companies, followed by metal products with six companies and chemical products with four. Other sectors include the storage of oil derivatives, recycling, warehousing, wind energy production and electronics. Most companies are focused on supplying the local market. Of the 44 companies in the

Madeira's International Business Centre, 10 are currently exporters and only three of those supply markets outside mainland Portugal”.

Firms operating in the Madeiran off-shore area enjoy some fiscal advantages. However, such fiscal rewards cannot offset the insular penalty factor (extra transport costs). And Madeira cannot offer labour costs advantages such as those practised by other off-shore zones located elsewhere. As a consequence, one of the off-shore directors recommends “production of small, high value-added products with low transport costs”. As an example of such high value-added products, the off-shore director recommends to tap on the herbal medicine as the “native flora together with island's special climate conditions, geographic location and rich history of herbal medicine market, make it especially suited to the cultivation of medicinal plants and the industrialisation of related products”.

Another problem concerning the off-shore zone relates to the lack of fiscal autonomy. Autonomous regions usually have less discretion than independent island states to use the fiscal policy as a microeconomic policy weapon. According to The Financial Times (2006), Madeira lost a unique opportunity to thrive in the Information Society era. Senior executives from Yahoo visited the island to discuss plans to run their European e-commerce business from Madeira. Other global internet operators, including AOL and Apple's iTunes, were also interested in the Madeira off-shore zone. Still based on the Financial Times, we learn that “three days after the Yahoo visit, Portugal's newly-elected Socialist government made a decision that caused the immediate collapse of these plans, which would have put Madeira definitively on the map as an international centre for e-commerce, created dozens of jobs for qualified professionals and generated hundreds of millions of euros in tax revenue. In May 2005, the Lisbon government, struggling to resolve a budget deficit crisis, increased the Madeira VAT to the 15 per cent level. As a consequence the VAT at Madeira equated the VAT rate at Luxembourg and Cyprus (more central in geographical terms)” and “Yahoo immediately informed Madeira officials that the deal was off. Given that there was no longer any VAT differential, it was opting for the more central location of Luxembourg” (Financial Times, 2006).

In conclusion, the prospects of the Madeira's International Business Centre are rather uncertain as the extension of the regime of tax benefits is only granted until 2020. As reported above, most off-shore zones are under international scrutiny as a

consequence of concerns about tax evasion, money laundering and criminal activities. The European launched an official investigation into the Madeira off-shore zone in 2002 and as a consequence the number of firms operating in the there declined. Another investigation may reduce further the credibility of the off-shore zone. It was also shown that most companies attracted to the off-shore zone are local. Their move to the off-shore was strictly justified by fiscal concerns. As a consequence, some critics claim that the real impact of the off-shore zone is rather insignificant. However, most small islands are obliged to pursue all development strategies available including off-shore zones.

2.3.7 The local business climate: traditional sectors, individualism, and non-cooperative behaviours

In RAM, family-run businesses and self-employed businessmen are predominant especially in the traditional sectors (See Table 2.2). And the dynamics of firm creation have been outstanding. However, the creation of businesses tends to be concentrated in the traditional sectors (restaurants, traditional commerce, and civil construction) although some investments are channelled towards more modern sectors (financial services and business services). As stated by Geoideia (1997), a growth in quality would be more beneficial than a growth in quantity.

Table 2.2: Sectors ownership structure -Self-Employed(S.E.) vs. Companies(Com.)

Sector ownership structure	Com.	S.E.
All sectors	47.8%	52.2%
A- Agriculture, hunting and forestry;	30.4%	69.6%
B- Fishing	21.8%	78.2%
C- Mining and quarrying;	56.4%	43.6%
D- Manufacturing;	48.3%	51.7%
E- Electricity, gas and water supply;	100.0%	0.0%
F- Construction;	37.1%	62.9%
G- Wholesale and sale trade; repair of motor vehicles, motorcycles and personal and household goods;	39.9%	60.1%
H- Hotels and restaurants;	44.6%	55.4%
I- Transport, storage and communications;	57.7%	42.3%
J- Financial intermediation;	20.1%	79.9%
K- Real estate, renting and business activities;	75.4%	24.6%
MNO- Education / Health and social work / Other community, social and personal services activities	37,4%	62.6%

On the other hand, the local firms' profiles are not the most favourable, as they tend to display two worrying characteristics: small scale (in terms of number of workers and

sales volumes) and low productivity and profitability rates. An even more 'disturbing' fact concerns local firm's reluctance to develop inter-firm cooperation agreements which makes it difficult for a modernisation approach to be adopted. Rodríguez-Poses (2000: pg. 108) observations based on the Galicia case can be applied to the RAM: "given their size and also the skills of the workforce, most firms have little or no capacity to network with other firms in the same sector inside and outside Galicia. Many are still family owned and lack the adequate capital, the technology and the management capacities to adapt to recent structural changes. Poor internal organisation is an additional handicap. Large firms face identical problems of shortage of adequate technology, skills and management techniques". In conclusion, local firms lack resources/strategic capacity, human capital, and scope for growth. Later on in Chapter 5, a firm behaviour model will be discussed, strongly anchored into the SMEs family-run business literature.

However, the emergence of local economic groups can be seen, while strongly based on the construction and transport sectors and access to special political and relational assets. Although most firms cannot realistically venture outside the RAM, due to their low rates of competitiveness (in terms of product or business concepts), some of these groups do demonstrate the capacity to go international.

2.3.8 Employment and unemployment trends and the 'human capital' problem

In relation to employment distribution over the various sectors, an excessive weight can be noted for the agricultural sector (See Figure 2.4). Industry maintains a stable employment share since the 1980s. But interesting data results from the analysis of the evolution of employment between 1995 and 2003. As shown in Figure 2.5 a reinforcement of employment can be seen in the sectors related to public administration and other traditional sectors (construction, wholesale and retail and hotels and restaurants).

Moving on to the unemployment rate, it is a noteworthy fact that the current rates are increasing after decades of virtually full employment. In a way, it has been possible (until now) to avoid crises such as those suffered on the mainland or Spain. There is, however, some sub-employment, especially in the agricultural sector. Further to this,

some worrying figures exist relating to the absorption capacity of qualified human resources.

Figure 2.6: Employment by sector in 2004

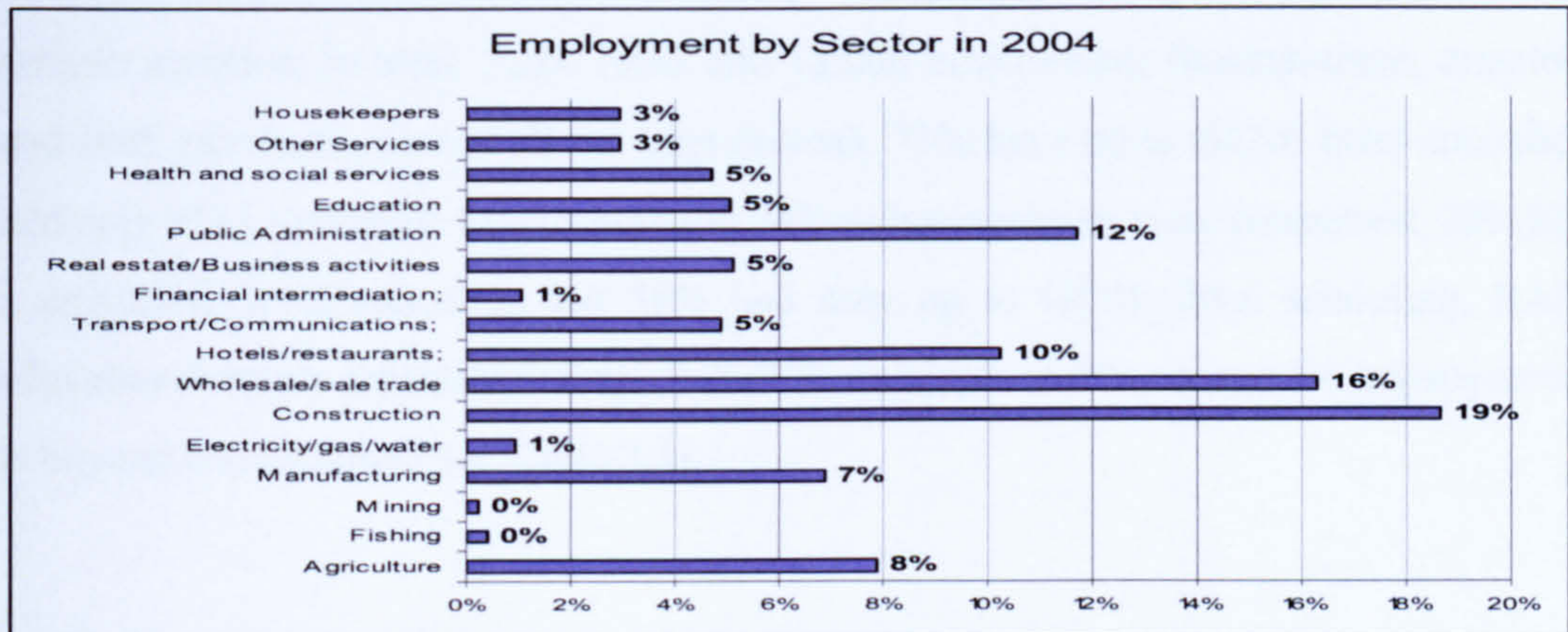
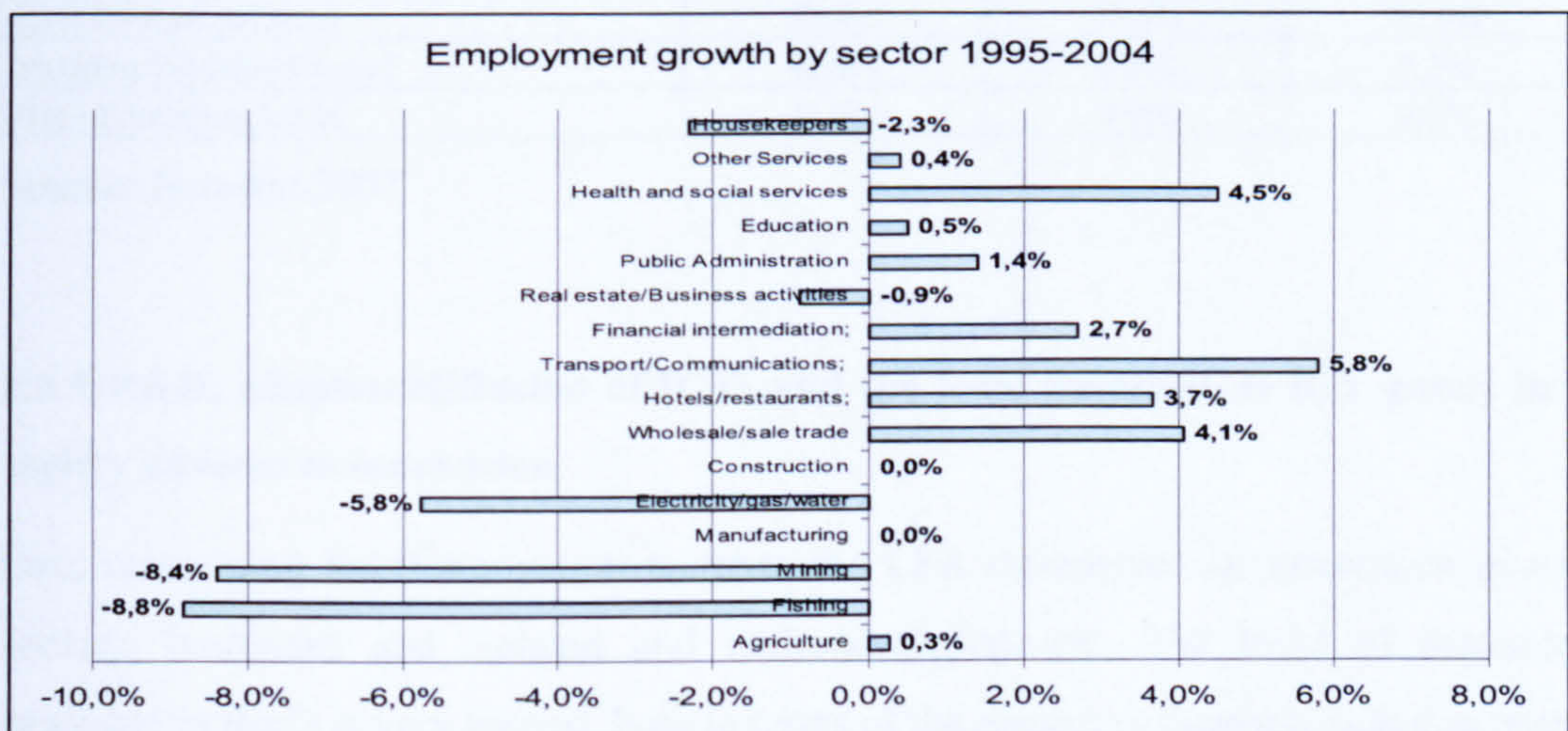


Figure 2.7 Employment growth by sector (1994-1995)



Recent news has shown an increasing rate of unemployed qualified work-force. Public administration has stopped taking on workers with degrees, and there is not a critical mass of innovative and growth oriented firms with the necessary complexity to demand high numbers of highly qualified personnel. Another problem that is not easy to solve is the difficulty of transferring labour-force from the traditional sectors (agriculture, civil construction) to more demanding sectors in terms of qualified labour-force. The matter of the conversion of the work-force is one of the most worrying issues, due also to the lack of alternatives in other traditional sectors such as manufacturing. Most individuals who have been unemployed in the long-term prove to be, predominantly, those without professional and academic qualifications.

However, the critical factor concerns the employees, directors and managers academic background. Data recently reported in the regional press, based on a study commissioned by the Regional Government shows a problematic context in terms of academic qualifications (Diário de Noticias da Madeira, 28/April/2006 edition). The sample included, in total, 5,200 firms and 18,000 interviewees (businessmen, directors and staff members). Out of all the interviewees, 73% have up to GCSE level education and only 9% a university level education. Where businessmen were concerned, 20% had a university level education but 58% had only up to GCSE level schooling. RAM educational levels critically diverge from EU standards and the scope for improvement is beyond contestation (See Table 2.3).

Table 2.3: Education levels RAM/Azores /EU average

Region	EU-15	Azores	Madeira
Low Education Level	35.4%	86.3%	85.9%
Medium Education Level	42.9%	8.9%	9.3%
High Education Level	21.8%	4.9%	4.8%

Source: Eurostat 2007

2.3.9 R&D, adoption/diffusion of ICTs and the local government ICT policy in a society adverse to innovation

Data concerning R&D/innovation matches the LFR stereotype: an innovation averse society, backward and isolated and underdeveloped, etc. The level of resources available to R&D is very limited, both in terms of the resources themselves and in terms of infrastructures. R&D is primarily a public investment choice. However the University of Madeira is taking an increasing important role in terms of R&D. Data relating to 1995, shows the private sector to account for only 2,7% of the R&D total (Regional Government, 2000). The Regional Government admits a lack of critical mass, which would permit the viability of R&D investments made and the eventual institutionalisation of collaboration agreements. The low level of R&D is seen to be the result of significant obstacles: low levels of cultural and scientific achievement; insufficient level of human capital at the society and firm level; and insufficient practice of private-private and public-private cooperation.

Data relating to the adoption/diffusion of ICT conforms to the 'non-technological' profile. A study developed by Almeida (2005) showed worrying figures concerning Internet adoption trends. The average firm opted for the 'wait and see' strategy in adopting basic ICT tools that is, access to the Internet and e-mail.

RAM cannot be classified as being ready for the Internet and e-commerce (Anderson and Bjørn-Anderson, 2003; Wong, 2003). As verified in most ICT adoption studies, ICT adoption depends on income (GDP level *per capita and* capacity to invest in ICT), on the utilization of banking services (eg. credit card) and, above all, on the society educational background. As suggested above, the RAMs educational background is 'problematic'. In relation to the income effect, there is a clear concentration of the wealth and population in the urban area of Funchal. On the other hand, the high level of urbanization and the large population density, that is, a compact domestic market with easy access to commercial districts (shops) limits the benefits of on-line shopping and complicates matters on the principle of e-commerce (Wong, 2002). As RAM is populated by approximately 245,000 inhabitants there are some doubts about the viability for e-commerce due to the lack of critical mass in terms of users. The rural boroughs of the island are characterized by low buying power rates/low educational achievement rates, which compromises the adoption of costly ICT tools and banking services. Although some effort has been invested to encourage ICT adoption levels by high school students, the palpable results will only be seen in the medium and long term. Further, a presumably conservative attitude towards innovation also does not favour ICT adoption.

The local market orientation of most firms limits interest in the adoption of complex ICT tools, namely in terms of digital platforms to reach distant customers. Further, a preference for 'proven business models' should also be expected on the firm's part. Only a minority of local firms seem to be in the global market, which naturally limits interest in 'externally oriented' digital platforms. However an in depth analysis of these assumptions will be carried out in Chapter 5.

The Local Government ICT Agenda and attitudes towards the Information Society project

There are reasons to believe that the Local Government has approached the European ICT agenda with enthusiasm. As acknowledged by the European Commission, "was

very encouraging to note that from the first year of the initiative (2001) Réunion, the Canary Islands and Madeira showed great interest in the innovative actions and secured part financing for their respective programmes”. As a consequence of such access to funds, several ICT based projects were launched and an institutional infrastructure was built-up to manage the ICT agenda. However the regional ICT agenda is primarily outlined and subsidized at national and EU level.

The Local government ICT agenda is managed by the Madeira Tecnopolo (Madeira Technology and Science Park) based at the University, which defines itself as a Centre of Competences in the ICT and R&D area. The Madeira Tecnopolo claims that a dense network of institutional relationships with several regional, national and European entities linked to the R&D area “cause that, within the space of the Park students, entrepreneurs, researchers, be them regional, national and even international cross daily, which causes the dynamic interaction between several people and several entities they represent, can flow naturally” (Madeira Tecnopolo website).

The strategic intervention areas of the Madeira Tecnopolo are:

- Innovation
- New Information and Communication Technologies (NICT)
- Sustainable Development
- Environment
- Education / Formation / e-Learning
- Information Society

Madeira Tecnopolo is running several projects in the Information Society area and some advances in the field at national level are now experienced by local firms. Portugal has been very successful in the e-government area. Some projects such as the ‘On the Spot Firm’ (a programme intended to provide all documents and bureaucracy to register a firm in one hour) and the citizen's card (which combines data on a number of services, such as tax information, identification, social security, national, health and voter's registration) are examples of good practices that have attracted much interest internationally. According to the Portuguese News Agency Lusa such “initiatives have led Portugal to be ranked second in the EU, after the United Kingdom, on progress in the e-government field” (see www.lusa.pt).

A review of all programmes launched and managed by Madeira Tecnopolo is provided below (See Box 2.2). It can be asserted that local firms are not deprived of information about interesting cases studies and examples of good practices in the e-commerce field.

Madeira is well provided in terms of ICT network infrastructure as a result of its 'privileged' location. Madeira Island is 'touched' by several submarine cables and for practical reasons is one of the leading Portuguese regions in terms of adoption of innovations. Madeira was the first region in Portugal to be supplied with cable TV. One

Box 2.3: Madeire Tecnopolo ICT projects (based on Madeira Tecnopolo web site)

- Madeira Digital – aims: to reinforce economic competitiveness, by creating an environment which is favourable to creating and developing projects in the Region through the information and communication technologies; to promote the adaptation of traditional industries and developing competences in the area of digital economy; to contribute for the equality of opportunities and to fight info-exclusion
- IRIS-Europe (InterregIIIc)- aims: to help the decision making of local and regional authorities concerning the evolution of development policies and the correct use of the Information and Communication Technologies (Its); to share Good practice cases in European ICT projects aiming to improve the public policies of "know-how to take a decision"
- Infoband – aims: to create a stable cooperation platform in the domain of the Information Society (IS) composed of a group of experts made of technical staff of all regions and interest areas, that promotes the transfer of knowledge and "best practices", as well as to cooperate on developing preparations and implementing solutions in each and every region; the creation of cooperation networks between cities and rural areas in a regional, inter-regional (Azores, Madeira, Canary Islands) and European scope
- e-Safer- aims: to evaluate the potential and to offer an alternative to the use of software of FLOSS (Free, Livery, Open Source Software) as regards to eGovernment (electronic government), and-Learning and and-Business, as well as promoting its use and when maintaining a sustainable development of FLOSS in the three mentioned sectors
- One family, one computer – aims : to increase the number of families (up to 30% in 2006) residing in the Autonomous Region of Madeira, owning a personal computer and complementary equipment ; to ease up Internet access, as well as the purchase of a multimedia personal computer, namely to families with weaker economic resources, so as to allow the use of information technologies;
- A computer for all – aims to foment the increment of new information technologies over all the Autonomous Region of Madeira To promote better accessibility conditions and better quality of contents within the scope of the Information Society, creating easier access conditions to a personal multimedia computer and to Internet, by means of specifically created spaces; To reinforce competences at the basic level of the use of new technologies, by way of shared leasing of computer equipment; Installation of 80 computer rooms, forcibly including all civil parishes in the Region
- Dias.Net – aims: to create a network of different regions in Europe in order to share knowledge and experience, namely between the most advanced and the less advanced regions in terms of new technologies and innovation.
- Infocentres/TEC spaces- is understood as a way of de-centralizing the information society and, therefore, making it accessible to the populations and, above all, to youngsters
- Telerup – aims: to improve the life quality of people finding with professional introduction problems, specially the physically handicapped, through the use tele-work tools, since it implies transformations in the personal and familiar relations, allowing a better adaptation to individual needs.

of the reasons to be supplied in first place is linked to Madeira structural advantages in terms of product testing. The contained character of the economic and social life of the island, the small number of inhabitants to be provided, the concentration of around 50%

of local inhabitants in a medium sized city, all these characteristics combine to make Madeira Island a good case study on which to test innovative products.

Data concerning the access and adoption of ICT solutions shows a rather bright (at national level) context in terms of access to telecommunications technologies and services.

Madeira development plan for the 2007-2013 period

Some additional comments are needed concerning the RAM government development policies in broader terms and with respect to the ICT agenda. The development programme for the 2007-2013 period will put the emphasis on a high and sustained growth record. High levels of employment, social and territorial cohesion (equally balanced growth of all parts of the region) and environmental sustainability are also targeted. The development of dynamic parameters for competitiveness, the encouragement of innovation, the adoption of ICTs tools and an entrepreneurial spirit based on the internationalisation of the economy are also important aims.

These priority axes are in line with the Community policies on economic and social cohesion subject and the Lisbon Agenda. The regional government is well aware of the increasing adverse environment due to the European enlargement and the increasing significance of the competitiveness discourse in shaping the EU social and regional agenda. The local government also acknowledges that the on-going battle to win the budgetary crisis at Lisbon conditions negatively the Madeira development prospectus.

The local government aims to combine concerns about innovation, ICTs and quality in an integrated strategy order to enhance local firm's competitiveness. The adoption of ICTs tools and quality schemes are understood as a key factor for increase the levels of productivity and competitiveness. The entrepreneurial attitude of the local inhabitants is also seen as instrumental in enhancing innovation and the Information Society project, as new ideas are adopted through new firm's creation. The regional government intends to promote a favourable attitude towards innovation (a culture of innovation). It is also believed that extra knowledge about best practices may foster a culture of innovation. The regional government also wishes to integrate the innovation and knowledge society agenda with the local scientific production. Aid for businesses will be centred on measures to assist the simultaneous adoption of innovation, the internationalisation of the economy and of the enhancement of entrepreneurial spirit in the sectors of the new

economy. A particular effort will also be made to improve skills and training opportunities for the entire workforce.

The local government intends to support projects aimed at: increasing the degree of openness (internationalisation) and attract strategic FDI and provide extra funding for innovative projects based on a focus on the entrepreneurship. Concerning the ICT axis, the regional government aims at ensuring a widespread access to broadband on the individuals part, increase the exposure to new work methods such as teleworking, provide extra funding to fight the info-exclusion and develop new set of ICT related projects.

The regional government seems committed to building a knowledge economy in Madeira based on the use of cutting edge technologies, the widespread adoption of new work methods and the attraction of FDI. The regional government is ready to create its own vision of a 'hyper connected' island offering top quality factors and a high-status International Business Centre. Raul Caires, chairman of the Madeira Tecnopolo asserts that "if we persevere with the right strategies, we can achieve what other small, peripheral regions like Singapore or Finland have done in similar circumstances" (Financial Times, 9th of May 2005). And the regional government intends to help local businesses in Madeira to be more competitive and ready to compete in the global marketplace. However such noteworthy aims are not matched by an adequate level of funding. There is a clear and measurable vision for the region, and some policies needed to deliver such vision are outlined. However, it should not be expect a miracle for the next years, as some objectives must be interpreted as a 'moving target'. Further, the priorities outlined in the Madeira Development Plan are in line with those prescribed at a national level and by the European Commission and as a consequence are similar to those ones prescribed by other regions.

Thus a 'bottom-up approach' is needed in order to assess the viability of such an agenda; it is important to know how local firms understand such aims and if small-scale and innovative project are ready to be created in order to re-build the economic development capacity of the island. Relevant data should inform and influence the development agenda in such strategic areas. All evidence available suggests increasing difficulties to absorb 'non-traditional investments". Thus, it is important: to study the readiness to support collaborative activity amongst local business; the likelihood of develop economically viable projects in the new economy, connected and responsive to the international markets; and to assess the capability to develop new markets for and

add value to traditional products based on an increased efficiency of use of ICTs. The degree of readiness to invest in vocational training and development of skills to improve competitiveness and the degree of readiness to build on a new entrepreneurial culture should also be studied.

Table 2.4. Funding priorities for the 2007-2013 period (in millions of euros)

Priorities for the 2007-2013 period	Total Funding	Share
Innovation, Entrepreneurship and Knowledge Society	200	8%
Sustainable development – the environmental dimension	430	17%
Human capabilities and social cohesion	710	28%
Culture and heritage	110	4%
territorial cohesion and even development	215	9%
Tourism	210	8%
Agriculture and rural development, fishing, industry, commerce and services	240	10%
public infra-structure and collective facilities	340	14%
regional and sub-regional governance	45	2%
Total	2500	100%

Source: Madeira Development Plan

2.3.10 The University of Madeira: an increasing role in terms of R&D and policy links with the regional government

The University of Madeira was created just in 1988 in Funchal. It houses 12 departments (Art and Design; Biology; Educational Sciences; Medicine; Physical Education and Sports; English and German Studies; Romanic Studies; Physics; Management and Economy; Mathematics and Engineering; Psychology and Humanistic Studies; Chemistry) and one autonomous department (Nursing School). The university offers first and second cycle academic degrees in accordance with the Bologna process and it is frequented by 3.000 students. The Department of Medicine was created only in 2005. The Research Units of The university are the Maths Science Centre, the Centre for Teaching Portuguese, the Macaronésia Studies (a geographical denomination which includes Azores, Canary Islands and Madeira) Centre, the Centre of Applied Economy Studies of the Atlantic (a partnership between Azores and Madeira), the Centre of Chemistry of Madeira, the Astronomy Centre, The Lab-SDR (focused on communication networks), the Lab of Human Genetics, the LabUSE (focused on Software Engineering), The Centre of Anglo-Germanic Studies, the Centre of Studies in

Art and History and the Centre of Studies in Psychology of Education, Leadership and Development of Human Resources.

The Departments of Management and Economy has a growing experience in terms of research and publication in the labour economics fields, quite often in partnership with local government departments. Some projects were sponsored by the European Union. However the University of Madeira faces some handicaps in terms of staff available to pursue a research based agenda.

The University was affected by a lack of critical mass in terms of qualified (PhD degree) professors. About 60% of all staff members have now a PhD degree, but most departments don't have enough resources to accommodate research and teaching practice. Some staff members must accommodate an increasing number of students. The author of this research project is currently teaching one of the introductory courses frequented by around 640 students. The regional university is relatively small compared to the major university located in the mainland and it is not specialized in economics and management. The most resourced and experienced department is the Maths Department. Another problem relates to the lack of 'complexity' of the industrial base in Madeira, which is problematic in terms of research focus. Higher-technology and "technology-driven" firms are not predominant at local level, which constraints the transferability of knowledge and research skills developed elsewhere. A leading department in tourism is missing, which can be easily explained by the University young age and lack of density in terms of research interests and qualified teachers. However, the University of Madeira is about to re-orient their research goals to more mundane but regionally relevant interests such as SMEs, the commerce sector and tourism.

One of the main targets of the regional government in terms of R&D is to foster the institutional cooperation between the University and government departments. As a consequence, we should expect more funds and research projects focused on regional economic and social issues. However, until 2007, it was not a current practice to base policy measures on scientific research undertaken by the local university. Most programmes are based on the EU normative frameworks and most studies in economics and management are still commissioned to Universities or consultants located in the mainland. But other departments have been able to accumulate valuable research on local subjects (See Table below). As it can be seen gross expenditure on R&D is allocated primarily to the natural sciences and agricultural field. On the contrary, the

engineering and social sciences and humanities fields are clearly at a disadvantage. Madeira GDP accounts for 2,8% of Portugal GDP. However Madeira contribution for Portugal Gross expenditure on R&D is only 1,2%.

Table 2.5 Gross expenditure on R&D

Gross expenditure on R&D according to science and technical field (2003)							
	Exact sciences	Natural sciences	Engineering and technology	Health sciences	Agricultural and veterinary science	Social sciences and humanities	Total
Portugal	89.375	92.004	140.783	66.448	69.523	152.307	610.440
Azores	1.349	4.245	396	179	1.674	2.617	10.460
Madeira	1.108	2.145	577	246	1.316	1.078	6.470
Portugal	14,6%	15,1%	23,1%	10,9%	11,4%	25,0%	100,0%
Azores	12,9%	40,6%	3,8%	1,7%	16,0%	25,0%	100,0%
Madeira	17,1%	33,2%	8,9%	3,8%	20,3%	16,7%	100,0%

Source: Portuguese Statistic Office

The University of Madeira won its credentials in the recent years with some interesting projects. And in 2006, the University of Madeira (Mathematics and Engineering Department) has established an agreement with the Human Computer Interaction Institute (HCII) at Carnegie Mellon University and the now offers a professional Master's degree in Human-Computer Interaction. The program is offered as a double degree with the University of Madeira under a special agreement between the Portuguese Government and several Universities in the United States. This special agreement intends to attract experts (leading scientists) and high quality research to the Universities in Portugal.

2.9 Political confrontation, regional development strategies and public investment

Public investment has been one of the key strategies in RAM. RAM invested strongly in infrastructures, as do most LFR (Uranga and Etxebarria, 2000). The infrastructural network of roads has evolved significantly, being the *ex-libris* of the regional development strategy. It should be acknowledged that the European Commission regards transport as a strategic element in the development of the outermost regions, allowing substantial financial support in order to maintain and expand the transport resources intended to overcome the handicaps imposed by these regions' remote location (European Commission, 2002: pg. 9).

However, taking into consideration the starting point in 1976 and decades of marginalisation and poverty, the preference for public employment opportunities, protected from the vicissitudes of markets and from competition can be easily understood. In truth, the macro-economic policy followed after 1976 permitted protection of the region from adverse market conditions and for the first time, provided local solutions (i.e., employment, education/health services) for the young generation.

At least where political options are concerned, the insular population's manifestly different preferences from those in the centre (mainland Portugal), lead to a qualitative rupture in political and sociological terms as the same local 'prime minister' is in office in RAM since 1978. The devolution processes started in 1976 contributed significantly to the reinforcement of regional identity and to development choices in accordance with latent 'particular identities'. Political choices showed a certain preference for 'growth with equity (employment)', or at least, were translated into access to basic goods and services for the majority of the population (Josselin and Marciano, 2000).

The local voters clearly show a strong option for political stability and for the electoral program proposed by PSD (Social Democrat Party). The President of the Regional Government has governed the island since 1978, based on strong majorities since the 70s (Table 2.4). In some rural areas, support for PSD, accounts for 70%/80% of the vote.

And, in line with the Catalonia experience, the regional politicians in the National Parliament have been able to contribute towards 'governmental' solutions, obtaining extra access to funds, an action reflected in the local economy and quality of life (Guibernau, 2003). However, 2006-2007 saw increasing levels of institutional conflicts between Funchal and Lisbon concerning funding. As stated above island's social and political life is based and constrained by a cohesive space, theoretically a facilitator of institutional management processes, which makes possible collective action processes. However RAM is not specific or unique concerning the development trajectory. As observed by Uranga and Etxebarria (2000), political sectors supporting self-government projects tend to promote political projects based on improvement of the overall well-being based on the Keynesian type policies.

Some additional comments are now provided concerning the relationship between the island and Lisbon. This relationship is strongly affected by the personality of the local

Government President. Alberto João Jardim was first elected president of the Regional Government of Madeira in 1978, and he has since been successively and democratically re-elected. He is however one of the longest-serving democratically elected leaders of any region in the World. In 2007 he resigned from office in protest against a new understanding of the mainland-islands 'problem' (and against a new law on regional finance); the new Prime Minister at Lisbon said 'basta' (that's enough) about the easy access to financial transfers and a payment of public debt *a posteriori*), urging local governments in islands to comply with the 3% budget deficit rule and 60% public ceiling limit (or at least to take part in such a difficult assignment). His unexpected resignation resulted in elections, which were easily won with an even larger majority.

The following are some quotes of the President of the Regional Government, (see Wikipedia on the subject of Alberto João Jardim)

“There are some bastards, in the mainland media. I'll say bastards so I won't call them son of a b**ch” (Diário de Notícias. 5th of June). This is his comment on a controversy about the fact that he is receiving a pension (around 4000 euros per month) in excess of his salary as local President). Alberto João Jardim also declared that “although they [politicians on the mainland] are anti-fascist, without ever picking up a rifle, it was the people of Madeira and not those faggots who made the revolution for 29 days against Salazar [the dictator of Portugal between 1932 and 1968] (Diário de Notícias 31 st July 2006).

Alberto João Jardim is a controversial politician (to say the very least). He was labelled by the Spanish newspaper El Mundo as the “master of verbal abuse”. According to the El Mundo although most Portuguese individuals are quite diplomatic in their conversations, the President of Madeira is the very opposite: “dice lo que le lleg directamente al cerebro y eso no suelen ser ni halagos ni líneas curvas” (“he says whatever comes to mind”).

He is accused by his critics and the opposition of being a 'dangerous' populist, notorious for his offensive, insolent and quite often fierce remarks and comments about his opponents. Politicians based at Lisbon have been called 'mad people' and 'basically incompetent' individuals. However, it must be stated that in the 80s, the current President of the National Parliament at Lisbon called Alberto João Jardim the “Bokassa [a very, very controversial African dictator] of Madeira”.

Most critics agree that Alberto João lacks restraint in his comments, saying what other politicians are unable to think or reproduce. Quite often, Alberto João Jardim is in the

headlines for what his opponents view as another round of verbal abuse. For example in 2005, he asked people at a political rally: “are there any Chinese around? It’s better to tell me, as I don’t want them here [on the island].

However, Alberto João Jardim has many supporters in Madeira and even on the Mainland, who recognise his ability to improve the economy of the island. Alberto João Jardim has played a major role in attracting a large amount of financial transfers from the European structural and cohesion funds. According to the *El Mundo*, Alberto João Jardim is seen as a cacique, arrogant, authoritarian leader and populist. However, as recognised by *El Mundo*, “Alberto João Jardim was able to transform an impoverished region that had survived on the banana trade into a choice tourist area”

Alberto João Jardim has been elected president of the regional government in seven (local) consecutive elections, “making him by far the longest-serving elected leader in Europe” (*Financial Times*, 9th May 2006). If we take into consideration all elections cycles (regional, national, presidential, European and national referendums), Alberto João Jardim won 39 elections and lost one. The President is “controversial or seemingly oblivious to controversy”. As stated by the *Financial Times* “his detractors denounce him as an anti-democratic bully who harasses critics, smothers legitimate protests and makes xenophobic remarks”. However, most voters in Madeira “see him as an outspoken man of the people with a mischievous twinkle in his eye, battling for the good of the region”. Nobody doubts his ability to secure financial transfers from the EU and Lisbon. Mr. Blandy, one of the leading entrepreneurs in the island, recognises that Alberto João Jardim “reads Madeira society well and is a remarkable politician”. Mr Blandy also acknowledges that Alberto João Jardim “can stand on any platform and talk convincingly to anyone, from the highly sophisticated to the least educated”. Alberto João Jardim served in the psychological action team created by the Portuguese Army to “win hearts and souls” in Africa during the colonial war. Most experts believe that the local opposition (socialists, communists and leftist parties) has no real prospect of winning the next elections.

The RAM policies have been severely criticised in Lisbon by the media and left-wing parties, especially concerning the management of public finances. And, in line with Rodríguez-Pose (2000) concerning Galicia development policies, the predominance of the transport infrastructure investment is contested. Rodríguez-Pose (2000, pp: 106) is especially critical of the choice for a more traditional form of development policy by the Government of Galicia, as this is an “easy-if not innovative-way to spend the large

amount of development funds available”, as opposed to an alternative approach based on the reinforcement of SMEs’ competitiveness and local entrepreneurship.

Table 2.6: Election results (number/shares of MP)⁴

Year	PPD/ PSD	PS	CDS	UDP	Others	Total	%PSD	%PS	%CDS	%UDP	%Others
1976	29	8	2	2	0	41	70.70%	19.50%	4.90%	4.90%	0.00%
1980	35	5	1	2	1	44	79.50%	11.40%	2.30%	4.50%	2.30%
1984	40	6	1	2	1	50	80.00%	12.00%	2.00%	4.00%	2.00%
1988	41	7	2	3	0	53	77.40%	13.20%	3.80%	5.70%	0.00%
1992	39	12	2	2	2	57	68.40%	21.10%	3.50%	3.50%	3.50%
1996	41	13	2	1	2	59	69.50%	22.00%	3.40%	1.70%	3.40%
2000	41	13	3	2	2	61	67.20%	21.30%	4.90%	3.30%	3.30%
2004	...	...	...	...	...	...	...	...	...	...	...

Legend: PPD/PSD (Social Democratic Party); PS (Socialist Party), CDS (Social Democratic Centre); UDP (Popular Democratic Union)

Although it can be said that investing in infrastructures may be understood as a low risk strategy for regional politicians, it is important to recognise that for insular regions dependent on tourism, the supply of top quality infra-structures is fundamental.

The local government is also severely criticised in Lisbon by the media concerning cases of corruption and special links between local politicians and local businessmen. A broad picture about corruption in peripheral areas is provided in section 3.6.4. However some further information about the corruption topic must be provided in order to explain the political confrontation between Funchal and Lisbon (See Box 2.2).

⁴ The number of MPs increased over time.

Box 2.4: Islands attitude towards corruption

Islands are prone to corruption as a direct consequence of specific geographical, social and cultural effects. As acknowledged by an expert on the island economies subject (Briguglio, 1995, pg. 1617) "another public administration problem in islands is that people know each other well, and are often related to each other. This tends to work against impartiality and efficiency in the civil service and against a merit-based recruitment and promotions policy". Read (2004, pg. 370) also asserts that "small states, are not immune to... rent-seeking behaviour based upon family ties or clienteles; these are likely to have a greater adverse impact on growth and social cohesion in a small society". And Farrugia, another leading scholar in Malta (1993; pg. 222) states "small states tend to develop closely integrated societies containing an intricate network of personal relationships. These factors facilitate and hasten communication processes, but may also obstruct and complicate them. People know each other (or know someone who knows someone whose services they need) so cabinet ministers, parliamentarians, high government officials. Churchmen, influential business and their functionaries are know and reachable". In fact, "senior officials in small states form part of this social communication network and consequently can be met or accosted through official or unofficial channels" (Farrugia, 1993, pg. 222). And the smallness of most islands favours a kind of dissident control and 'an element of secrecy. As stated by Hampton and Christensen (2002, pg. 1664) "the political economy and culture of smallness feeds the element of secrecy", which is welcomed by the off-shore industry. The same authors also believe that in some islands hosting an off-shore centre, local governments can successfully control the dissent voices ("media independence is frequently partial or absent"), "so that individuals who go against the norm, that is, who critique the legitimacy of the OFC are in a sense, going beyond the community's shared values" (Hampton and Christensen (2002, pg. 1664). The "intricate network of personal relationships" effect mentioned by Farrugia in Madeira is compounded and increased by the concentration of around 50% of the local population in the capital city Funchal.

It is not an easy assignment to analyse the corruption problem in Madeira Island. The importance attached to this subject by the local and national media is not matched by official investigations, arrests and condemnations, the only way to produce a detailed and objective understanding of the phenomena. There is only one high-profile public corruption case under investigation.

The Portuguese society is characterised by high level of informality and importance attached to personal relationships which can be easily confounded with bribery.

The qualitative approach produced some material related to the corruption topic. However, most SMEs managers complain about the (negative) impact of informality and tax evasion (in terms of fiscal fairness, competition distortion, investment decisions) and not directly about corruption. Until 2005, the (very high) level of tax evasion was understood as critical to explain the Portuguese budgetary problem. Quite surprisingly (or not), the Portuguese Government at the time decide to hire an executive working for the private sector to run the governmental fiscal system. Concerning the fiscal evasion problem, a recent OECD Working paper (The fiscal challenge in Portugal, Working Paper No. 489 by Stéphanie Guichard and Willi Leibfritz) stated that "in the context of higher tax rates, continued efforts to fight tax evasion will be all the more important for increasing revenue".

It must be stated that most local inhabitants seem to accept a high level of 'informality', market distortions and government intervention in the economy. As stated by the Financial Times (9 May 2006), Madeira "was (in 1976) one of the poorest regions in the Western Europe's poorest country. Gross domestic product per capita was just 40 per cent of the Portuguese average". Madeira has succeed in catching up with mainland Portugal in terms of GDP per capita, and was able to go beyond the national average in 2001. From 1995 onwards, Madeira GDP growth has averaged around 5 per cent a year, and the local GDP per capita is about 80 per cent of the average level of pre-enlargement EU countries (EU15). As stated elsewhere, some 'dissidents' believe that such growth account is inflated by the off-shore centre. However, it must be recognised that in 1976, Madeira had only one secondary school located at Funchal and no University at all. As of 2007, there are 12 secondary schools and the University of Madeira is attended by about 3,000 students and offers 12 subjects. Substantial progress was made in terms of most social indicators and emigration is now concentrated in Europe. Until 2005 the unemployment rate was below 3 per cent, one of the best scores in Western Europe. As stated by Michael Blandy, chairman of the Blandy Group, the biggest of the British family businesses "the progress of recent decades is evident in the way people live in Madeira today" and "the island has grown a prosperous middle class at a phenomenal rate" (Financial Times (9 May 2006).

2.10 RAM political and administrative autonomy and the budgetary 'experience'

RAM has enjoyed a high level of political and administrative autonomy since 1976 guaranteed by the Portuguese Constitution (CRP), an autonomy which allows great leeway in terms of the definition of economic policy within infrastructural investment, culture, innovation policy, education and health. A strong sense of regional identity can be felt, recognized by the CRP and expressed by the political choices made since 1976. In fact, it is important to link political autonomy to regional development strategies to understand the society's idiosyncrasies and preferences concerning technological change. But firstly, a description of Regional Government's powers is provided.

The Portuguese Constitution guarantees political autonomy to the autonomous regions. According to the Portuguese Constitution, autonomy is the result of "geographical, historical, social, cultural factors along with the characteristically autonomous aspirations". Political autonomy, expressed through the ability to legislate in matters of regional interest, is shown through the exercise of independent executive power and tributary power and in the election of a Local Parliament. The Regional Government also has administrative and financial autonomy. In theory, the Autonomous Regions have true budgetary independence, although they do not possess the real power to shape the fiscal system. The financing of public expenses is, in theory, based on internal decisions. However, RAM has experienced chronic deficits in public accounts not entirely compensated by financial transfers granted by the CRP in the name of national solidarity. But Santos (1992) claims the Islands benefited from substantial financial transfers beyond those stipulated by the CRP, via access to multiple national/EU development programs.

It is important now to discuss one of the more sensitive aspects of the autonomy issue: the management of public finances. Regional government is basically accused by the media, some academics and left wing parties of wastefulness and excess personnel in the civil service. In fact, the management of public finances has been the target of ferocious criticism. The general idea is one of excessive and uncontrolled spending, resulting from the capacity to handle expenses without concerns about taxation (and elections). During the 80s and 90s, the Lisbon Government ended up paying for accumulated regional public debts. In this context, (payment of public debt *à posteriori*),

it can be suggested that the most sensible attitude was the maximisation of expenses without concerns about tax collection. Another criticism is in relation to the excess work-force in the civil service, without consideration for the principles of economic rationality.

Some studies published in the 90s suggested a strict compliance with sound budgetary management principles. However, even at the time, it was recognised that both the costs of the autonomy (costs of the installation of the political-administrative system) and the need to recover the back-log in terms of infrastructures could justify high levels of expenses/investment, i.e., budget deficits. Fortuna (1997) advocated debt management linked to the integral use of EU funds and not to a zero deficit goal. In fact, it doesn't seem difficult to formally recognise that a choice for a 'zero' deficit would not have allowed extensive application of EU funds neither the relative convergence process which has since occurred. In the end, financial transfers were translated into high levels of investment in traditional sectors, as can be seen in Figure 2.6. And an overwhelming focus on hard infrastructure is also seen since 1986 (See Figure 2.7).

Figure 2.6 Gross Fixed Capital by Sector in 2003

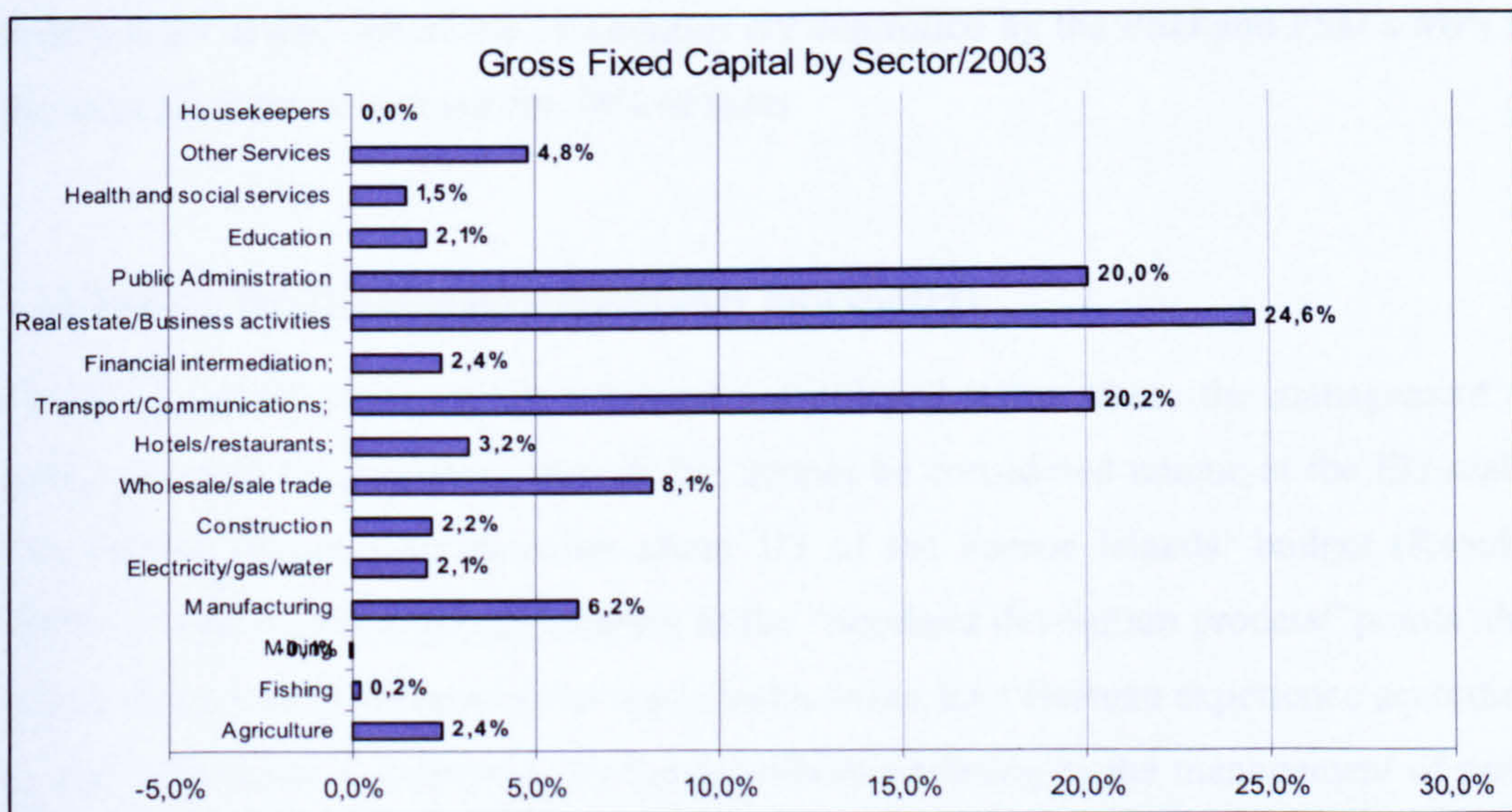
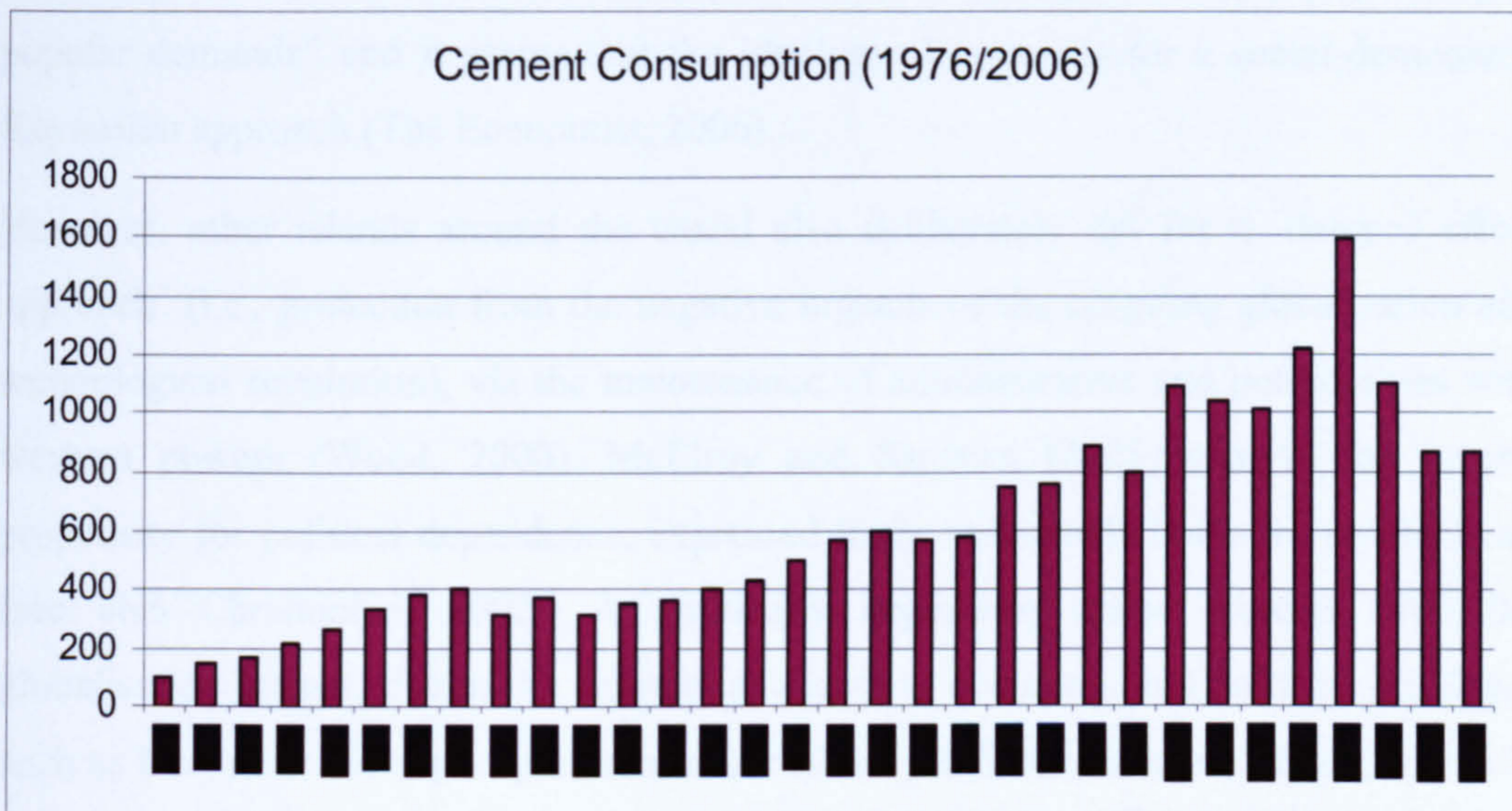


Figure 2.7: Cement consumption (1976/2006)



A final comment on RAM political and institutional background. The definition and implementation of regional economic programs depends on various government tiers (local, regional, national and supra-national) as is the case with most LFRs. However, the Regional Government takes on 'total' responsibility in the definition of economic policy at all levels. All of the 11 counties are controlled by the PSD and PSD's MPs in the local Parliament account for 70% of seats.

2.11 Putting RAM budgetary experience into context

The Regional Government has achieved a privileged status where the management of public finances is concerned, though this cannot be considered unique at the EU scale. The Danish Government provides about 1/3 of the Faeroe Islands' budget (Raoulx, 1999). A very recent criticism relating to the "Scotland devolution process" points also to excessive State intervention deemed similar to the East German experience according to The Economist. Concerning Scotland, problems relating to the management of post-industrialisation and the peripheral character were voiced to justify the political choice for a very heavy state intervention (The Economist, 2006 May 20th). The Government of Scotland is criticized, as is the Regional Government in RAM, for being slow to tax and quick to spend. Exception measures in terms of access to public services have also been verified: free care for elderly people and waiving student tuition fees. Similarly to

the RAM case, there is an excess of personnel employed in the public service. There also seems to be heavy dependence on social benefits by segments of the population. But also, as in the case of RAM, “many politicians see their job as simply responding to popular demands” and it seems that the ideological option is for a social-democratic Keynesian approach (The Economist, 2006).

However, other islands around the world also deliberately opt for a ‘delayed effect approach’ (i.e., protection from the negative impacts of the on-going globalisation and technological revolution), via the maintenance of administrative and political ties with western powers (Wood, 2000). McElroy and Sanborn (2005) analyse the insular propensity for political dependence, expressed in the reiterated choice for colonial ties (see also Christopher, 2002). A politically dependent status protects from the globalisation impact, due to the substantial access to economic and political privileges such as free trade and export preferences for island products and manufacture, access to metropolitan capital labour markets, subsidized provision of quality infrastructure, external/diplomatic defence and political stability, disaster relief, access to metropolitan citizenship and minimum wage and health care core-periphery parity. In fact, all available statistical evidence concerning islands states’ development prospects shows the noticeable impact of the political dependence option on the social-economic indicators.

Hence, the importance of the globalisation process on the local dynamics of societal change should not be exaggerated, as “trans-national forces are translated into particular meanings within national and local contexts” (Hoggart and Paniagua, 2001: pg. 63). In fact, the impact of the global effects depends on the capacity for interference and/or control of external shocks by the local governments and societies. Another example (besides that one provided by McElroy and Sanborn) of such interference is shown by Papadopoulos (1997) (quoted in Hoggart and Paniagua, 2001: pg. 64). Papadopoulos (1997) states that the EU’s agriculture policy cannot be understood to be an “anonymous extra-local force, as it is internalised (transformed) so as to be manipulated and utilised in ways that correspond with dominant local social relationships”. EU policies “rather than being simply an extra-local imposition, are also a resource” to be managed and manipulated (Hoggart and Paniagua, 2001: pg. 64). Sotiropoulos (2004a) also acknowledges the mediating effect of the domestic bureaucratic structures on the influences of globalisation and European integration.

It is evident that it has been possible to pursue a 'local agenda' in terms of development paths and political choices. However, RUPs are evermore subject to de-territorialisation processes (defined by Entrena and Gómez-Mateos (2000: pg. 94) as an expression of the fact that "social relations and socio-economic processes are being determined less and less by social actions and strategies springing from relations among autochthonous classes and are being increasingly influenced and decided on by interests based well beyond their territorial borders", which implies less capacity to regulate the local economic and social processes (see also Wood, 2000; Gottdeiner, 2004). Delhey (2001: pg. 222) also declares that "regional policy aid will not be as generous as in the 1990s". In fact, a severe reduction in the regional policy budget seems to be the norm at the European level. All regions have experienced a gradual reduction of traditional regional policy tools such as tax equalisation grants for local regions, automatic spending schemes and discretionary measures (Gren, 2002). With reference to the Italian Mezzogiorni, a paradigmatic case of an assisted development process, Guerrieri and Iammarino (2006: pg. 167) refer to the "end of special public support", with significant consequences in terms of income growth and unemployment. In relation to the UK, Armstrong (2001 pg: 247) remarks upon the "very low levels [of financial transfers] by historical standards" and a "chronic under-funding of British regional policy".

As a consequence, RAM should expect macro-economic and social crisis if alternatives to financial transfers are not found. Recent data has shown that local firms in RAM are facing decreasing levels of demand. Above 50% of firms recently reported 'stagnation' and 21% recession (Diário Notícias da Madeira, 28th April 2006).

2.13 Conclusions: a problematic background to welcome the digital revolution

Our analysis provided an example of a 'de-coupled' regional economy sheltered from the potential damaging effect of global trends. Instead, the local economic dynamic was fuelled by large amounts of financial transfers. A 'de-coupled region' may survive for years, even if it "does not produce or export anything and lives on imports, where income and internal purchasing power are ensured by various alternative possibilities: by the income of commuting workers, by the sale of wealth or capital assets to foreign residents (houses, land, properties), by public transfers (pensions, unemployment benefits) or private transfers (remittances from emigrants)" (Camagni, 2002: pg. 2403).

However, RAM is not a 'pure example' of assisted development. Local socio-economic actors have shown substantial energy and willingness to exploit investment opportunities. The Azores have also benefited from substantial financial transfers. However, the Azores growth record is problematic to say the least.

But the 'protected environment' albeit attached to impressive social and economic records and political and social stability, are 'intrinsically' problematic. Protected environments are usually characterized by stagnant institutions and learning capabilities. Hence 'obscure interests' in the prolonging of the existing structures and behaviours can exist. In the end, innovative approaches and behaviours may not be welcomed or supported at societal and institutional levels. As stated by Dimou (2003: pg. 9), based on an in-depth analysis of the economic and social background of Reunion, the need for the adoption of new lines of development will probably cause a violent reaction in "orphelins enr ges" (enraged orphans), that is, the social and economic actors, strongly benefited from existing political and economic choices.

What can be suggested from our account is that unless crisis events are experienced, there may be no business case for firms to pursue innovative approaches. The Economist (2006) states, in relation to the recent French social/identity crisis: "The conclusion; the core countries of Europe are not ready to make the economic reforms they so desperately need and a change, alas, will come only after a diabolic economic crisis". The Economist emphasizes the need to "widen agreement among firms, voters, trade unions" so as to recognise the existence of a serious economic crisis. The Economist (2006: pg. 11) states that "the real problem, not just for Italy, and France but also Germany, is that, so far, life has continued to be too good for too many people; there is not yet a consensus that their economies are in serious trouble". Hence, the solution must be, according to The Economist "to bring on a more serious economic crisis". Reference to The Economist serves to highlight the fact that up to very recently in the RAM, the social-economic regional context has been a relatively dynamic one (characterised by high levels of access to financial), but a protected one. In truth, only one year of recession has been registered for the 1979-2003 period.

In conclusion, it can be assumed, the RAM individuals, firms and political actors have not been desperately searching for 'technological solutions' and new development proposals to cope with negative events, despite local government enthusiasm for following the EU Information Society agenda. Such 'negative events' were understood

elsewhere as linked to processes of downsizing welfare states rights, fierce inter-territorial competition, increased competition for market shares, organisational and technological up-grades processes which have simple not been evident in RAM. Hence, as stated by Malecki (2001), it should be expected that too few dynamic individuals/firms are coming forward to take up the Information Society challenge. An analysis of RAM's recent economic and social trends substantiates the increased level of criticism regarding the Information Society Project, namely in terms the allegedly urgency to pursue an alternative growth path based on technological solutions.

But, is the current 'development trajectory' the only one available since 1976? Would it be possible to pursue a different growth path? Are islands entitled to pursue autonomous development trajectories de-coupled from international economic regimes? Chapter 3 provides an in-depth analysis of development options available in the island context.

Chapter 3:

Which regional development model for an RUP?

3.1 Introduction: globalisation and re-territorialisation

As shown above, there are serious challenges to the status quo of island as national governments and international donors are under pressure to cut financial transfers and political backup to 'problematic regions' and independent islands states. Islands are facing really stressful and potentially disturbing events. As seen in Chapter 2 the EU RUP policy which was in place for years, accepted the 'island penalty factor' discourse. As a result of the easy access to financial resources, unique development programmes quite distant from modern neo-liberal concerns, were applied in RUPs. Now, all the 'sympathy capital' (cf. relational capital) that sustained islands' way of life (based in financial transfers) is gone and RUPs are conceptualised as ordinary regions. Therefore it is crucial to analyse the likely impact of the changing EU policy towards RUPs, which entirely subscribes the competitiveness discourse and other fashionable regional development models (such as the clusters approach). But it is argued by this new regional development discourse that island economies can survive without significant financial backup, an assumption that this research will wish to challenge.

Chapter 3 intends to put into context the current theoretical and empirical developments in the regional science field that may help to understand islands' growth prospects. As the analysis of islands development prospects have been imbued with wrong assumptions, extreme approaches and politicised discourses, a critical analysis of various theoretical frameworks is developed in order to understand which options have been available. It really matters to ask if RAM development choices have been the best ones.

I now provide some comments about the outline of this chapter. In fact, in spite of the changing attitude towards islands heralded in the (new) EU regional development policy, the geographical and environmental growth constraints (used to give good reason for the past benevolent attitude towards islands) are still in place. As a consequence it is argued that islands cannot survive (that is, handle complex processes of regeneration and restructuration) without strong external support. It must be

acknowledged that a 'protective environment' sustained by substantial amounts of financial transfers has 'distanced' local policy-makers and the local society from neo-liberal concerns such as competitiveness, restructuring, privatisation and downsizing (see Section 3.2). As a result, policy makers and firms have not been anxious about islands' competitiveness levels or modernisation programmes. And as the RUPs were 'protected' from external shocks until very recently, both policy makers and OMs of SMEs have not been under pressure to find (technological and or R&D based) solutions for 'distant' problems (i.e., low levels of competitiveness in most sectors).

As stated above it is argued that islands cannot survive without financial backup. In fact, the data related to the convergence/divergence debate suggest that a catch-up scenario or the end of the core-periphery polarisation is not likely, even if the current levels of financial transfers are maintained (see Section 3.3). This is a disturbing observation as there is less and less tolerance for the 'Southern' problem. However I also suggest that the 'moral responsibility' of RUPs concerning the islands cultural and institutional lock-in phenomena must be qualified, since for decades any efforts on the behalf of local policy makers to minimize market and institutional inefficiencies would not have been rationale, given the high levels of financial transfers available de-coupled from any kind of conditionality.

Section 3.4 show how against all odds, some islands have been able to achieve high living standards, but quite often based on market (mass tourism) and non-orthodox solutions (such as rent seeking behaviour, Official Development Assistance and sovereignty selling). However this achievement does not mean that the 'theoretical' sustainability of the hegemonic discourse of the 90s (the neo-liberal-based competitiveness discourse) in an island and peripheral context should not be challenged (see section 3.5). Concerning solutions to the island and peripheral regions' problems, it is not easy to escape the 'one model fits all' curse that permeates the regional development literature. The 1990's were characterized by the take-off of 'fashionable models' (such as the cluster approach and learning region paradigm), which did not easily fit in with the islands' geographic, institutional and political context (see Section 3.6). As explained in section 3.7, many analyses of the 'wishful thinking' type resulted from the joint analysis of peripheral area problems and fashionable models. However, such analysis provide mainly 'eccentric' (irrelevant, misplaced and non applicable) solutions for unsolvable problems (such as geographical constraints). In fact, all

evidence available suggests that, at the level of firms, a 'selection mechanism' has been activated as a consequence of the declining levels of demand (as a direct consequence of the declining levels of financial transfers) and high rates of firms failures should be expected (see Section 3.5.5). Section 3.8 tries to add an ethical/positive discrimination factor to the debate suggesting that the Welfare System in place in islands compensates for the lack of viable market solutions.

While recognising the problems faced by islands, I do not subscribe to the 'indigent' (that is, emphasizing how bad things are discourse) approach that characterized the island discourse during the 1970s and the 1980s, when geo-strategic concerns allowed for an easy access to ODA not linked to any kind of conditionality. Although I do not support (due to ethical concerns) the type of assisted development without responsibility, I do recognise (based on my own personal experience) that islands face permanent (geographical) constraints besides contingent factors.

I try to avoid as much as possible an "anachronistic, inaccurate or misleading analysis" concerning islands development prospects" (Giordano, 2000: pg. 449; see also Giordano, 1999). In fact, an in-depth analysis of the standard neo-liberal discourse that is now underpinning the EU attitude towards RUPs should be provided. But such theoretical insights are quite often misleading at the island level, as islands do not compare with core regions. And the 'anachronistic' approach (in vogue since the 1960s') that acknowledges the 'old discourse' (articulated around the geographical constraints and the colonial history) should also be considered. In the end, the aim is to blend scientific rigor with ethical and non-discriminatory issues.

I must start our analysis of islands development paths showing that for many years it has been possible to delay the globalisation effect (understood elsewhere as linked to fierce competition at an international scale, unprecedented and relentless change, geopolitical turbulence) through a clientelist and/or isolationist approach. Based on implicit/explicit EU support, local governments built-up a unique institutional and political solution not available elsewhere in the OECD context. As a consequence, an aggressive strategy of up-grading firms and region competitive status was not, for years, on the OMs and policy maker's agenda. As stated in the introduction my research project revolves around the decision making process concerning the adoption of ICT tools on the OMs part. Consequently it matters to understand how the development trajectory in place for years affected the OMs decision making.

3.2 Globalisation and re-territorialisation: the RUP 'paradise' up to the 90s

As stated in Chapter 2, LFRs (and by extension all RUPs) are evermore subject to a de-territorialisation process (defined by Entrena and and Gómez-Mateos (2000: pg. 94), as an expression of the fact that “social relations and socio-economic processes are being determined less and less by social actions and strategies springing from relations among autochthonous classes and are being increasingly influenced and decided on by interests based well beyond their territorial borders”. However, despite the increased political and economic vulnerability underlying the new economic and political paradigm, LFR have been able to build up a 'local response' to the globalisation wave. This process of regaining control over socio-economic processes at work in regions (that may be termed as re-territorialisation) is sometimes based, concerning peripheral regions fighting for independence or autonomy, on the rhetoric of “insistence on diversity, resurgence of waning traditions, emphasis on cultural distinction, idiosyncrasies and ethnic or nationalistic differences” (Entrena and and Gómez-Mateos, 2000: pg. 95). However, in most cases (ordinary) peripheral regions are only interested in maximising the financial transfers and preserving the status-quo (Entrena and and Gómez-Mateos, 2000). In most cases this process of re-territorialisation cannot be classified as an experience of social reflexivity (i.e. defining a region's place in the world economy and/or critical reflection about international economic regimes) derived from social and political interventions strongly embedded in society and grassroots movements and ultimately linked to anti-globalisation protests. On the contrary, most regions pursue a neo-Keynesian based agenda and struggle to secure the maximum amount of financial transfers. As was exemplified by Entrena and Gómez-Mateos (2000, pg 108) concerning Andalusia in Spain, the local response to globalisation was transcribed in a set of neo-Keynesian type policies and not on “the reflexive reaction by local government to set their socio-economic position and increase their room of manoeuvre within the global system”. In most cases, the contestation to the globalisation project is not linked to a “socio-political project with aspirations to restore past ethnic and cultural identities and autonomies”, which is frequently a key concern of pro-independence movements (Giordano, 2000: pg. 448).

In the case of RAM, the devolution process initiated in 1976 enabled the build-up of a political and legal infrastructure, with substantial powers to manage the economic

development arena (with the exception of defence and international policy). The RAM government in the post 1976 period was able to design and implement specific and locally oriented policies aimed at 'counteracting socio-territorial inequalities' and built-up a political infrastructure and a 'grand' political project. The priority in terms of development policies was put on investment/public employment, access to health and education services and transportation infrastructures. In line with Hodge and Monk (2004: pg. 271), based on their analysis of rural areas in the UK, it can also be stated that: "local politics were dominated by employment concerns and the welfare of the community". As shown in Chapter 2, this type of political agenda was strongly supported by voters in RAM.

However, it is important to mention that the RAM 're-territorialisation' approach characterises other LFR as well (Dimou, 2003). For example, Hurst et al (2001: pg. 17) criticise "the impact of too much emphasis on public expenditure" in LFRs to the extent that the excess of public expenditure distorts private sector decision making. A subsidy-dependence mentality or phenomenon of the Dutch Disease type (the negative impact of a booming sector on the rest of the economy) may be undesirable but it is a frequent outcome of such approaches. Quoting directly from Hurst et al (2001: pg. 18):

"investment subsidies may be counterproductive when poorly designed. Especially when firms know that they are entitled to repeated regional support, resources may be shifted to rent-seeking activities such as (political) lobbying, rather than to investing in productivity improvements or in exploring new markets. The incentive for these rent-seeking activities increases in general with the size of the sunk-cost of the industry. This may partially explain why subsidies did not work very well in those regions with a bias towards capital-intensive heavy industries".

It must be recognised that until the 1990s, RUP concerns were well acknowledged at Brussels. And RUPs were able to influence the outcome of some key political negotiations (EU Structural Funds, Amsterdam Treaty) as they negotiate as a block. As a consequence, the on-going globalisation process in practice, 'echoed' as a distant phenomenon.

Concerning the globalisation process, Löfgreen (2000: pg. 510) asserts that the impact in "small, ordinary cities" and their "responses to the challenges they perceive" are necessarily different from what takes place at the national/international level. He argues

that the competitive approach based on export oriented projects, attraction of FDI, trade openness is only one of the possible copying behaviours (strategic responses to the globalisation challenge). In fact, most islands benefited from protective factors linked to distance/geography (local captive markets), local social and production specificities (local consumption/production habits) and local political and social models, which provided political resources until the 90s to produce a differentiated response to the globalisation effect. As a result, as Löfgreen (2000: pg. 510) mentions “smaller societies [such as RAM] neither want to, dare to, nor have the ability” to face the globalisation challenge.

According to Löfgreen (2000) there are 4 approaches concerning the management of the globalisation process, which may also be extended to the firm/individual behaviour level: the clientelist approach; the isolationist approach; the ‘doing nothing at all’ approach; and the competitiveness approach. Similarly Camagni (2002) also points to 3 strategies of development and survival in the LFR context: 1) a defensive approach based on political lobbying, which is similar to the clientelist approach identified by Löfgreen; 2) an endogenous approach based on the improvement of the local business culture; 3) the attraction of FDI. The clientelist approach (based on a strong dependence on state policies and public funding) is the most frequent one at work in LFRs. As far as the clientelist approach is concerned, “cities act as a kind of nation state government”, putting political pressure on “national governments to balance uneven development and to come to the rescue of less fortunate cities” (Löfgreen, 2000: pg. 507). This policy approach is based on the old (regional policy) regime, exemplified by “local politicians lobbying in the corridors and canteens of national parliaments” (Löfgreen, 2000: pg. 507). It seems however, that this is less and less a viable option. Although some peripheral/remote regions still maintain some negotiable power intact as they have been able to extend the protective environment in time, Terluin (2003: pg. 328) alerts us to the fact that “territorial units like rural regions are not significant causal factors in the global process of socio-economic change as the primary dimensions of behaviour are structured at a higher level than the community or regional level” (see also Hoggart and Paniagua, 2001).

The isolationist/regionalist approach is concerned essentially with the ‘preservation’ of the status-quo, but it can also be associated with anti-globalisation protests. However, the isolationist approach often includes an exclusionary/reactionary dimension,

expressed in attempts to counteract/deny the globalisation process via “introversion and to close in upon themselves” (Löfgreen, 2000: pg. 508). But Löfgreen (2000:pg. 508) also suggest that the patriotic approach underlying isolationist approaches “indicates a rather strong undercurrent of isolationist emotions among the inhabitants, with a major group being rather parochial and patriotic in their views on the city and a minority that is more internationally oriented”. Camagni (2002: pg. 2397) also criticises the “policy strategies oriented towards a defensive attitude, separatism and closure” as they may become examples of radical, separatist and xenophobe protests (see also Giordano, 2000).

On the other hand, some regions succeed in ‘doing nothing at all’ (inactivity in terms of innovation/strategy, concentration on daily management, response to immediate crises). This is ultimately a viable alternative if an ad eternum access to financial transfers is possible.

The intention to meet the challenge of globalisation via the offer or development of competitive factors is implicit in the option for a competitive approach. An example of a competitive approach is the design and implementation of regional development programmes intended to build up industrial clusters (that is, endogenous development programmes) from scratch (see Section 3.4). Other regions are concerned with an improvement of the local economic and social system and/or with the attraction of FDI. However, there are some doubts concerning the success rate of such approaches, as will be shown later in section 3.4.

3.2.1 Is the clientelist approach still available?

It is important to understand, from the local point of view, how it has been possible to pursue a clientelist approach. Until the 1990s most RUPs adopted defensive approaches as the ‘neo-liberal’ approach was not supported by local populations given the implicit social/employment cost. In fact, most local governments succeeded in exploring to the maximum all the old regime ‘political instruments’ available. And, in most RUPs local oriented sectors not subject to international exposure are predominant, which limits the amount of political support for alternative models (Giordano, 2000; Golden, 2004). As stated by Golden (2004: pg. 1243) “prices of local production (in peripheral LFRs) are not ultimately set by international markets but by domestic ones”, and “rent-seeking and

uncompetitive and inefficient domestic prices are sustainable and political regimes based on rent-seeking, or that permit local pricing above world markets, are viable". As a consequence, industries protected from international competition (public administration, state-owned industries, public works, retail, etc) stay 'competitive' even if they remained on average less efficient and less productive.

In fact, external shocks were 'refracted' by the sheltered local environment. At most, local firms experienced small disturbances in demands patterns as a result of international crises. As the social and economic payoffs of important social groups remained untouched, a rationale for different voting behaviour, as was the case in Italy in the 90s, which resulted in the ending of the "Christian Party" adventure, was absent (Golden, 2004: pg. 1243). The export-oriented sectors so important to trigger a political change in Italy as the OMs of such firms were interested in an up-grade of the institutional and political structure in place, are missing in most peripheral regions. On the contrary, in most LFRs, the predominant sectors and social groups are still lobbying for the unchanged policies (e.g. public spending).

Thus, there is no political background to expect changes in political and economic behaviours. On the contrary, most voters fear a substantial institutional or political change to the extent that the welfare state may be eroded. In fact, local voters are not interested in a revivalist experience' (back to the 60s/70s), when a mixture of extreme poverty and emigration pressed thousands of local inhabitants to leave the island (Cottino, 1999). That is, until now in most LFRs the interest of voters and elected policy-makers has been perfectly aligned, and as a consequence there are no problems of agency (Hansson and Stuart, 2003). The "incumbent ability to interpret and reflect such issues in its political discourse for its own political advantage" is untouched, as stated by Giordano (2000:pg. 227).

However, it is not possible anymore to pursue a development model based on extensive government intervention in conjunction with chronic overspending. Peripheral societies cannot ignore the mounting criticism concerning 'redistribution policies' in place to support problematic Southern Regions. Giordano (2000: pg. 449) states that the "regional development debate is increasingly politicised" as is well evident in Italy, Belgium, Spain and the UK. Concerning Italy and Belgium the project/discourse of Lega Nord and Vlaams Block respectively may be conceived as a "reaction against what is perceived as inefficient state centrality" (Giordano, 2000: pg. 444). Giordano

(2000: pg. 455) also states that “Italian citizens were becoming increasingly resentful at emerging economic and political problems”. Northern Italian citizens conceive the regional problem as a South of Italy (and specially Rome) problem, “which is the cause for all that is wrong with Italian society and politics” (Giordano, 2000: pg. 456). Financial transfers are conceived as the result of “a corrupt, bureaucratic and wasteful central State that is biased towards the South of Italy and Southern Italians” (Giordano, 2000: pg. 217). The ‘Mediterranean’ work ethic, allegedly based on corruption, a reliance on state transfers and a more relaxed attitude towards work” is also blamed (Giordano, 2000: pg. 456). Southern Italian citizens are perceived as only interested in claiming state benefits (Giordano, 2000: 459). The discourse produced by the Lega Nord is not specific to the Italian context. The same line of reasoning is now discussed in Portugal as islands are perceived a problematic in terms of reliance on state transfers and their overspending is severely criticised.

The changing political environment was reflected in the political discourse of some secessionist parties. Most secessionist parties (“supposedly left-wing parties and supporters of economically reactive and autarkic policies”) are nowadays pro-globalisation as they reach the conclusion that there is no space for ‘anti-capitalism’ stances (Sorens, 2004: pg. 728; see also Golden, 2004; Castles, 2001). It is acknowledged by such movements that the success of their grand political project is dependent on economic success and not in State-lead protection against externally induced economic fluctuations or political confrontation (Castles, 2001). As a consequence, secessionist parties are notably friendly towards international markets, as the neo-liberal discourse was re-conceptualised as a ‘enabler’ of the (political) independence project. This change of attitude on the ‘pro-independence’ parties show the limits of the traditional clientelist and isolationist approach. In fact, secessionist parties acknowledged that on-going processes of globalisation require an answer to the economic and political inconsistency trap (i.e., the gap between political aspirations and economic development) that caught many LFRs struggling to reach ever increasing levels of autonomy. It is now well understood that the only way to get extra political and cultural status is the economic one.

In conclusion, most LFRs such as RAM have been able to build-up a ‘local response’ to the development problem, which refracted and diverted global trends, and for decades, reasons for a different behaviour were missing. However, this is not without

consequences, as will be seen in Chapter 6. In fact, most OMs and policy makers had little experience in managing crisis events. As a consequence a state of un-preparedness and disorientation infect the political consciousness at local level, which results in further insistence in the old clientelist approach. But now a real challenge/threat to the insular status quo and all the political instruments conceived to maximise financial transfers must be admitted. However, before moving on, some theoretical/empirical insights from the convergence/divergence debate must be highlighted as it helps us to understand that both approaches (the clientelist and the anti-Southern 'attitude') are misplaced.

3.3 EU regional policy, EU Enlargement and the convergence/divergence hypothesis

The likely impact of the changing EU policy towards RUPs can be assessed based on an analysis of the convergence/divergence debate (Canaleta et al, 2002; Dunford and Smith, 2000). All evidence available about the on-going convergence process within the EU suggests that there is no 'natural tendency' to reach a spatial balance in terms of development as predicted by the neo-classic growth theory (Faiña and López-Rodriguez, 2004; Martin, 2001; Canaleta et al, 2002). On the contrary, the market mechanism in place seems to lead to persistent and cumulative differences in terms of GDP per head (Martin, 2001). As a consequence, a scenario of no catching-up and immutable polarisation between core regions and peripheral areas should be admitted (Martin, 2001). The likely stagnation of the GDP per head differentials between core regions and peripheral areas for the time being seems unquestionable. And it must be stressed that the relative stability in terms of differentials was only possible due to the substantial amount of financial transfers channelled to peripheral regions.

As a consequence, the on-going reduction of the financial transfers will lead, for sure, to an end of the catching-up process and to further divergence. Faiña and López-Rodriguez (2004: pag. 16) assert that "if there were a premature withdrawal of assistance to these countries this would undoubtedly have dramatically negative ramifications since this aid has come to constitute a source of growth potential and a means by which the cyclical nature of the economic lag might be overcome. In effect, withdrawal of funds would have markedly negative consequences for those regions

where the funds are at present most needed and most successful in fomenting growth". Camagni (2002) also acknowledges the likely perpetuation of the core-periphery imbalance in terms of GDP per head and growth prospects if financial assistance is withdrawn. Another issue to emerge from the convergence/divergence debate is that the negligible catching-up experienced by peripheral regions shows the major impact of the 'systemic forces' operating at a global scale, such as the post-industrialisation, technological change and globalisation processes, which can not be mitigated via financial transfers (Martin, 2001). Concerning remote areas it can also be asserted that the financial transfers were unable to counteract the impact of the geographical peripherality.

It is important to analyse in detail the importance of financial transfers in order to assess the likely impact of the on-going reduction in terms of financial transfers. Several studies corroborate the critical importance of the structural funds in the Objective I regions, in terms of supply-side improvements, strengthening of the productive potential, emergence of higher value-added sectors and support for marginalised groups. As a consequence, the EU Enlargement was understood in most LFRs as a threat to their status quo (Delhey, 2001). In fact, RAM will receive from 2007 onwards less than 50% of the amount available for the 2000-2006 period, which clearly poses a direct threat to the on-going dynamics of growth (Delhey, 2001; Hurst et al, 2000).

In fact, all forecasts concerning the impact of the EU Enlargement process seem extremely negative for Portugal. Breuss (2002) shows the critical impact of the EU programmes to boosting GDP growth in Greece, Portugal and Spain. According to Delhey (2001) the EU financial transfers implied, where amounts relating to GDP for the 1994-1999 period are concerned, 3,3% of the GDP of Portugal. The financial transfers had contributed for the catch-up process, as it is estimated that the Portuguese GDP is 6,4%-8,8% higher than it should be expected without financial transfers. And Breuss (2002) considers Portugal one of the most negatively affected countries by the EU Enlargement. The loss in terms of GDP growth is estimated at 1.5% for Portugal, 1% for Greece, 0.75% for Ireland and 0.4% for Spain. Thus, the EU Enlargement should be understood as a "potential external shock hitting the EU asymmetrically" and, in particular, the RAM and RAA can be expected to be particularly badly hit (Breuss, 2002: pag. 270; see also Bateira and Ferreira, 2002). The problem attached to the on-going reduction of financial transfers is well pictured by North and Smallbone (2006:

pag. 44) when they declare that "in Greece and Portugal there are few policies at the regional and local level other than those funded by the EU programmes". As it seems consensual that LFRs development problems have no short term solution, Faiña and López-Rodrigues (2004) and Martin (2001) suggest a kind of compensatory mechanism so as to keep the on-going growth dynamic. In fact, the most underdeveloped regions exhibit a great potential for economic expansion. Data concerning the 1989-1999 period show that the Objective I regions shared a growth record that outperformed the EU average.

However the current political-ideological context does not favour the LFRs agenda. The old EU regional development policy has been harshly criticised especially concerning the low effectiveness of the EU programmes in activating the valorisation of local resources. The alleged 'transformation' of the financial transfers intended to foster investment and economic growth into income transfers policies is severely criticised as it is understood that such income transfers have now become structural and permanent. The misallocation of resources via promotion of capital intensive industries is also severely criticised. Another kind of criticism is related to episodes of corruption and even crime. Camagni (1992: pg. 365) asserts that "bureaucratic or political rents are, in fact, one of the ways in which, in some static societies (as in some Mezzogiorno regions) old types of feudal rents have re-appeared, touching new classes or social groups".

Although these criticisms are quite often well placed, it is important to keep in mind the LFRs dependence on the EU normative frameworks concerning regional development plans. Morgan (1997: pg. 496) asserts that for years the "EU regional policy was mainly addressed to fighting symptoms (like high unemployment) rather than causes (like low innovation potential)". On the other hand, Hospers (2003: pg. 642) asserts that until very recently the "EU innovation policy was a supply-side phenomenon", disconnected from the social and institutional background and commercial dimensions of innovation. One of the most criticised aspect concerns the focus on infrastructure, defined by Rodríguez-Pose (2001) as "low risk strategy for regional policy makers". However, such criticism seems misplaced in most peripheral regions. Tourists seems to prefer "perfect islands fantasies", as experienced in "Labadde, a piece of Haiti, surrounded by a ten-foot-high wall, patrolled by armed guards", (Wood, 2000: pg. 361). As a consequence, islands must offer top-quality infra-structure in order to attract large

numbers of tourists. But it is true that the traditional infra-structure approach allowed the "creation of public sector jobs, sheltered from the ups and downs of the market and from competition", and the rescue of "troubled companies". Helg et al (2000: pg. 84) declares that for the 1970-1989 period 2/3 of the creation of employment in Sicily was explained by the increasing number of public servants, which seems to be the norm in most LFRs (see also Lovering, 1999; Giordano, 1999). In fact, public spending emerges as a critical source of creation of employment (directly via public administration expenses) and indirectly via income transfers, growing demand for non-tradable local services, public works, etc.

As seen above the divergence gap is still in place. Only a few regions have had success in reduce in a significant manner the GDP per head differential. As a consequence it can be asserted that the on-going stream of financial transfers was only capable of stopping the divergence process. According to Martin (2001) the EU financial transfers only "prevented further regional economic divergence from taking place, with impact on poor regions in fact marginal". Some LFRs were able to reach impressive levels of economic performances but as a direct consequence of all the financial transfers channelled to those regions (Armstrong and Read, 2003; Fothergrill, 2005). In fact most LFRs don't have any kind of advantage in terms of labour costs or preference of multinational companies to locate in this area. Hence, the EU financial transfers can be conceived as an inter-regional stabilisation mechanism with marginal impact in terms of convergence (Rodriguez Pose, 2002; Rodriguez Pose, 1998; Fortuna, 1995; Martin, 2001). As stated by Delhey (2001: pg. 220) "the EU membership does not guarantee catch-up, but makes catch-up easier". There are no doubts that the convergence process constitutes a long-term objective, however impacted by intermediate turbulence and stagnation phases. Some development constraints are permanent in character and do not disappear instantaneously, especially concerning geographical constraints.

It is obvious that "pouring huge quantities of concrete in lagging regions" is not a viable option any more (Hurst et al, 2000: pg. 9). As a consequence all attempts to postpone some painful decisions should be reject as unacceptable. However, it must be acknowledged that most LFRs face multiple challenges such as the on-going reduction of the financial transfers, institutional and political inertia and exhaustion of the traditional development models. Depressing familiar challenges may be faced by most LFR if alternative solutions are not devised: "mass employment, environmental

degradation, uneven economic development, social polarisation, shallow democracy" (Morgan, 1997: pg.492).

3.4 The specific economic/social dynamic in islands: limits to growth

Economic analysis concerning island regions and states (as a special topic in economic development literature) was focused for a long time on growth limits and development constraints (Cross and Nutley, 1999). Most studies produced in the 70s/80s commonly included an extensive account of restricted comparative advantages, diseconomies of scale, oligopolistic market structures, high transport costs, high level of openness to international trade, tendency to be price-takers, limited natural resources and small labour markets (Armstrong et al, 1998; Briguglio, 1995; Read, 2004). Until the 90s (i.e., before the end of the Cold War), due to historical/strategic reasons, islands received high levels of ODA per capita without strings attached to aid programmes (Bonnemaison, 1997).

But in the 90s it became quite clear that successful development experiences were in fact possible, which led to an extensive re-appraisal of the insular penalty factor. Some authors strongly deny the more problematic version of the insular development discourse. In fact, some authors provide an alternative account - the insular advantage hypothesis (Mehment and Tahiroglu, 2002). The island advantage hypothesis asserts that islands access to tourism resources material provides many opportunities to develop an internationally competitive sector. Given the conflicting arguments concerning the islands' growth limits, it is important to provide a scientific account of the real impact of remoteness and smallness in islands' economic performance. An understanding of the viability of traditional development models in an island context should only be assessed in such a rigorous analytical framework.

3.4.1. Limits to growth in islands: the distance/transport cost factor, size and colonial past factors

The set of geographical/historical development restrictions can be categorised as a) geographical (distance and natural ecosystems specificity) based; b) size factor based; and c) colonial dependence based. The distance factor significantly affects the development outcomes and growth paths. In fact, air and maritime transport costs

seriously limit the options in terms of productive specialisation, and are a fundamental obstacle to economic growth and take off (Brueckner, 2003; Cukrowski and Fischer, 2000; Nakamura, 2000). However, the accessibility factor is even more important than geographical distance alone, as accessibility depends on several factors such as the supply of top quality transport infrastructures and economies of scale (Enoch, 2003; Fischer, 2000; Luís, 2004; Luís, 2002; Pagliari, 2003; Vickerman et al, 1999). The real importance of the transport cost factor can be seen by the fact that the islands which have managed to reach impressive socio-economic levels (Malta, Cyprus, Bahamas, Bermudas, etc) are located within close proximity of key markets (North America, Europe) (Bossogo and Mendis, 2002; Bowen, 2004; Lakshmanan et al, 2001; Veenstra et al, 2005).

The size factor (in terms of area, population, natural resources) is translated to a reduced market potential and external dependence on key raw materials. Islands cannot benefit from economies of scale (as most production volumes are below the minimum efficient scale). Critical mass needed to initiate a development process is also missing as there is no viability for higher volumes and large numbers of firms. The economies of scale problem also affect the provision of public services given the indivisibility of the social infrastructure (infrastructural waste) (Weisser, 2004; Winters and Martins, 2004). As a consequence of the lack of economies of scale, local prices above the international market prices (due to above average production costs) are the norm in most islands. In a general way, local productions is characterised by higher costs, and lack of internal/external competitiveness.

The colonial dependence factor is obviously linked to a history of colonisation, which is the origin of serious handicaps in terms of development (Alonso, 2002; Alonso and Hicks, 2002). We must bear in mind that the massive investment programmes in infrastructures in RAM since 1976 was the only credible response to the incredibly low levels of access to basic public services which in turn stemmed from the island's neo-colonial status. The underdevelopment problem in 1976 (defined as the initial conditions) conditioned the nature of the subsequent development process. The efficiency and priorities of the whole development strategy were clearly affected as initial investments were channelled to fill the gap in terms of social and transportation infrastructure, which is a basic prerequisite for economic and social development in any context.

However, as seen above, some islands have managed to reach impressive levels of economic development. Even though we must agree with the fact that there are in fact comparative advantages (mainly in the area of tourism), it seems that an excessive emphasis on the comparative advantages topic can obfuscate the growing level of vulnerability experienced in islands, especially in the context of climate change (Méheux and Parker, 2005; Shareef and Hoti, 2005; Sinclair, 1998). In theory, the local constraints and limits may trigger efforts to be creative in searching for solutions. According to Copus (2001), development constraints can be mediated by technological innovation and human capital development. For example, labour constraints may encourage the development of highly skilled human resources, and immigration programmes in order to overcome labour market shortages. Scarcity of arable land limits the size of the agricultural sector, and, consequently, the extension of a low productivity sector. In fact, the size effect may be conceived as a relative/contextual measure; some authors even consider the country size a non-issue in terms of economic theory (Looney, 1989).

3.4.2 Limits to growth: other specific problems of islands

The insular penalty factor does certainly have consequences. The smallness of local market (low domestic potential/demand) imposes quite specific problems and development constraints; basically, difficulties are found in the emergence of clusters due to the absence of critical mass and large scale industries (Eriksson and Chetty, 2003; Blanchet, 1997). Quite often, local levels of demand are below the minimum efficiency scale and the local prices do not match international standards. The 'island factor' is associated, therefore, with a sub-optimality scenario. The small market potential limits the number of firms that can emerge in a given niche, and, consequently, the degree of rivalry between them. The large number of monopolies or oligopolies limits the viability of aggressive growth strategies as competitive pressures are below average. And most firms, due to financial constraints (which result from the lack of scale in terms of volume of production), are more akin to applying a reactive approach towards innovation. And at the same time, as productions volumes are small there are limits in terms of accumulated learning. In conclusion, the 'size factor' constrains islands' diversification strategies and the emergence of clusters. And the limited size of

the local industrial base also limits the capacity to develop and exploit indigenous R&D programmes.

Thus, underlying the few stories of successful development lies a reality of extremely fragile economic and social structure (Felsenstein and Portnov, 2005). Export capacity depends more and more on absolute competitive advantages in international markets (Deng et al, 2002; Dentinho, 2003). As most islands only produce small volumes they are price takers. And as only a limited number of products/exports are produced, some authors suggest a trade-off between diversification and growth. Quite often the maximisation of islands' income demands an extreme option - the exclusive production of one product/service. In such circumstances, islands are forced to apply a neo-liberal trade agenda as there is no room for "import substitution policy or protection for infant industries" (Armstrong and Read, 2003: pg. 121).

As stated above, islands face increased external competition. Traditional agriculture and manufacturing sectors are under pressure as a consequence of difficulties in reaching scale/volume productions which is further compounded by the end of the regime of preferential access to EU markets. Most agriculture/industry firms are in fact small scale units constrained by narrow profit margins and low investment capacity.

3.4.3 Islands development models: market based approaches

In relation to the development options seen in insular regions, it seems that there are only a few viable options: a) a market based model; b) a rent based model, and; c) a 'non-orthodox' approach. Most islands end up choosing an integrated mix, although one of the development options may predominate. A market based model may be conceived as an export-led one (and, therefore, as an attempt to face the global economy dilemmas) as it is focused on the exploitation and 'commoditisation' of natural local advantages. Many islands have also built-up an 'FDI friendly' approach via the development of economic free-zones (off-shore based approach). There is evidence to suggest that export-led strategies and export processing zones may trigger higher growth rates (Kinunda-Rutashobya, 2003). But export-oriented services are based on artificial comparative advantages. All industry free-zones are necessarily based on a specialization in production well suited to the exploitation of economies of scale. And the adoption of a wide range of measures of exception at legal, fiscal and sovereignty

levels is also required. As far as the off-shore financial zones are concerned, FDI depends strongly on low labour costs, “fiscal holidays on output and profits, free repatriation of dividends” (Kinunda-Rutashobya, 2003: pg. 227; see also Mullings, 2004).

However, the experience of Mauritius shows the possibility of a progressive endogenisation of the development programme, via re-investment *in situ* of retained profits/rents on the part of the local elites (Dimou, 2003, Freiss, 1997). However, the potential for industrial development is mainly cost-based being under growing pressure from other competitive free-zones in China. In most cases, implicit to industrialisation success, there are a wide range of artificial competitive advantages: low production costs, preferential access to external markets, currency devaluation and no fiscal policy. However, the increasing pressure on nominal wages (a sine quo non condition for higher living standards) and the erosion of the preferential access puts the market based strategies under pressure.

Due their efforts to promote exports, most islands pursuing this strategy are at risk of an over-exploitation of natural resources and are tempted to invest in polluting industries (Miller, 2000: pg. 251; see also Bramwell, 2003; Brau et al, 2003). Another problem with export-led strategies is that “the interests of these small states have been subsumed to the needs of global capital, in a way analogous to the experience of many less developed countries (such as some independent islands states) being penetrated by transnational capital with resultant issues of loss of control, and overdependence upon one firm or sector” (Miller, 2000: pg. 240). Miller (2000: pg. 240) also points to the fact that international organizations, such as the World Trade Organization, the International Monetary Fund and the World Bank also “undercut states' authority and control”, as they “reflect the structural advantage of the industrialized states, and they provide avenues for intrusion into the economic life of developing countries, as decisions at the international level diminish states' control over their economies and decrease their development options”. In fact, MNCs can ignore national policies as they wield the economic power and political influence needed to encourage or impose corporate-friendly policies” (Miller, 2000: pg. 239; see also Miras, 1997). That is, given islands dependence on ODA and MNCs/global markets, local development strategies are largely determined by the global economy interests.

As a consequence islands have no capacity to alter and contest the international economic asymmetries (Miller, 2000). Independent island states may be labelled as 'fluid sovereign states' meaning that they have "limited ability to exercise authority, autonomy and control within its territory" (Miller, 2000: pg. 235). In fact, most islands 'accept' now the neo-liberal discourse and the slogan "export or perish", whether they like it or not (Murray, 2001: pg. 138; see also Miller, 2000). However, other options have been available namely for autonomous but not independent islands such as RAM.

3.4.4 Islands development models: rent based approaches and non orthodox solutions

The rent-based approach, frequently adopted in insular regions, is based on the exploitation ad nauseam of financial transfers (social payment, financial investment) or natural/strategic resources. Underlying the rent-based approach there is a Keynesian development agenda based on the multiplier effects of public expenditure. An easy access to income transfers was translated in explosive levels of consumption and high number of public employees. Most firms/activities are exclusively focused on the local market. As a consequence, two groups of firms dominate the local market: a) industrial firms linked to the import-substitution sector and; a) commercial firms linked to import-distribution. As most firms are exclusively focused on the satisfaction of local needs, an exclusive focus on local economy/mainland links is quite normal. The lack of interest on the part of policy-makers on alternative growth paths (e.g. the development of a sustainable local tax base) is also a consequence of a rent based approach. As a consequence of the rent based approach in place for years, some islands both autonomous and independent (especially those less favoured by geography) seem locked into a MIRAB structure (acronym based on migration, remittances, aid and bureaucracy) dependent upon remittance inflows and unable to stimulate economic growth.

The non-orthodox approach includes activities such as off-shore financial centres (banking, financial and trading services) and/or the exploitation of 'strategic assets' (military bases, radar installations and nuclear testing grounds). Some independent island states succeed in "selling or rent out some of these sovereign rights (e.g. selling international phone codes, country internet codes, passports, flags of convenience for

commercial shipping) to meet development goals” (Sharman, 2005: pg. 311; see also Miller, 2000).

Other islands have been able to excel in “actively manipulate dependence on larger countries in order to create a local advantage for themselves”, via “opportunistic pragmatism with microstate governments seizing passing opportunities in a similar manner to which islanders have historically been pirates and privateers in many parts of the world” (Hampton and Christensen, 2002: pg. 1663). However, there are growing risks linked to the exploitation of ‘rents’ and non-orthodox approaches. Overdependence is one of the risks as the British Channel Island of Jersey demonstrates: (90% of government revenue and 20% of the employed local labour force depends on the off-shore financial sector) (Hampton and Christensen, 2002). But the most threatening challenge (discomfort) is posed by some recent initiatives against the Off-Shore Financial Centres (OFCs) (Sharman, 2002). Hampton and Christensen, 2002: pg. 1658) state that “island hosts of OFCs face a volatile and increasingly unpredictable international context over which they have neither influence nor control. Their destinies therefore depend to a considerable extent upon decisions that will be taken by international fora at which they are not directly represented”. In fact the attraction of the OFC was based on low taxation, banking secrecy plus minimal banking regulation and political stability, ‘advantages’ now subject to increased scrutiny from international organisations. Thus, the development perspectives of independent islands states based on non-orthodox solutions are increasingly at risk, especially concerning the OFC sector, as most OECD countries express concerns about harmful tax competition, money laundering and criminal activity. As noted by Sharman (2005: pg. 321), “Pacific islands now find it much more difficult to barter away their sovereignty to overcome (development) constraints” (see also Bonnemaision, 1997). As islands hosting an OFC are not interested in being classified as pariah states, they try to comply at least with some financial measures. But the erosion of the specific advantages is quite a serious threat to the OFC sector, as a transfer of most off-shore finance activities to on-shore finance areas may occur. In fact, islands hosting an OFC do not offer any top talent advantage as in the London case. However, despite all ethical, moral and legal concerns, most independent islands states do conceive the external pressures as unfair treatment.

But the most disturbing problem concerning the OFC sector is not linked to an eventual disappearance of one of the few ‘competitive’ sectors. As stated by Hampton and

Christensen (2002: pg. 1664), islands hosting an OFC share in common “partial or absent media independence; general absence of higher education institutions or an intellectual community to criticise policy; suppressed whistle-blowing due to insularity and inward-looking focus common to small island communities; few democratic checks and balances upon the executive power wielded by key individuals; lack of an effective formal opposition as in the case of the British Channel Islands at parliament (which have never held a general election)”. A kind of institutional and political inertia and the incapacity to unlearn and diversify is the corollary of most non-orthodox paths to development. Such islands are dependent on OFC sector political interests being dominated by ‘outsiders’. The overdependence upon a single sector means a “risk of that sector becoming a ‘cuckoo in the nest’ crowding out the pre-existing sectors and controlling the state apparatus, to secure favourable tax and regulatory legislation and use the sovereignty advantages to fight back OECD pressures” (Hampton and Christensen, 2002: pg. 1668).

There are reasons to believe that non-orthodox solutions produce strong path dependencies. The OFCs set limits to the country’s stock of human resources, skills and competences, technology accumulation regimes, political and institutional solutions, etc. Consequently, the islands export structures are strongly “path dependent and difficult to change” (Lall, 1999, pg. 1772). Therefore it is quite difficult to diversify away from traditional sectors, and proceed with an up-grading of economic and entrepreneurial behaviour (Sharman, 2005). The OFC sector ends up ‘crowding-out other industrial sectors’ due to inflation pressures caused by the demand distortions exerted by the ‘booming’ sector. The existence of OFC also implies unsustainable social and economic aspirations on the part of the local labour force.

However, despite all the international pressure, local politicians frequently attempt to fight back all international pressure as they do not perceive any alternatives. The end of the off-shore sector may produce catastrophic consequences in terms of unemployment, rising local expenditure on social benefits, falling real estate prices and “downstream effects with reduced spending effects within the economy” (Hampton and Christensen, 2002: pg. 1668).

3.4.5 Similarities and differences between autonomous islands and independent islands states

Although affected by a common universe of problems and/or advantages, there are significant differences between independent island states and islands which are autonomous regions within other states (Amdam, 2003; Armstrong and Read, 1995; Gray, 2002). Contrary to sovereign states, which can use the macroeconomic policy as a policy weapon, most autonomous islands such as RUPs have no capacity to design/implement alternative fiscal models to attract FDI. But in compensation, RUPs have been sheltered from political/economic pressures, as automatic and discretionary fiscal transfers, automatic stabilizers, and discretionary spending are still available (Armstrong and Read, 2003: pg. 122). RUPs have 'room for manoeuvre' in terms of welfare policies (Löfgreen, 2000). However, their growing political/environmental vulnerability is a matter of fact. In the near future most RUPs will share some SIRS constraints such as having 'little option but to comply' with international standards (Murray, 2001; Meng and Li, 2002). In fact, voices critical of the status quo (in terms of an easy access to financial transfers) urged LFRs to increase the effectiveness of development projects funded by donors (Hurst et al, 2001; Santos, 2000).

An example of such changing attitudes towards dependence on high levels of ODA is provided by Burnside and Dollar (2000) with respect to LDCs. These authors strongly recommend the application of neoliberal agenda to the LDCs (which includes some independent islands states), arguing for the application of the right mix in terms of macro-policy mix in order for a given country be allowed to benefit from ODA programmes. The 'sound economic policies' package obviously includes the control of deficits/inflation, trade openness, privatisation, etc. The analysis of Burnside and Dollar (2000), though strongly criticised, seems to corroborate a strong correlation between 'sound economic policies' plus ODA and economic growth. As a consequence, Burnside and Dollar criticise all institutional/policy distortions (such as an excess of governmental consumption) and the erroneous channelling of ODA from productive investment to public consumption, considered as non-productive.

Concerning the EU context, Hurst et al (2000) also suggest a conditionality approach, as a way to increase the impact of EU aid, due to the correlation seen between poor regional growth, poor administration and lack of transparency and the 'unconstructive'

influence of local interest groups. Hurst et al (2000) also strongly recommend a 'supervision from outside'.

It is quite evident that hard lessons must be learnt by all SIRS including RUPs. In fact, according to MacCarthy (1998: pg. 12) there seems to exist a consensus in relation to the advantages of applying a macroeconomic policy based on a) an effective use of restricted domestic policy portfolio (eg. non-intervention in key policy variables such as monetary policy best determined exogenously, avoiding, in this way fatal temptations), b) plus free-riding and rent-seeking behaviour in the international economy and c) "judicious use of the available policy portfolio by technocratic decision making based on high-quality human and social capital". Evidence from successful independent islands states points to the importance of pursuing a logic of exploring all the opportunities available and optimal policy formulation and avoiding the idiosyncrasies evident in some failed states in Africa. In any case, it is undeniable that an option for macroeconomic stability, inflation/exchange rate under control; lower levels of social and political instability; stable democratic institutions; and a decreasing dependence on the agriculture sector, is a winning one.

3.4.6 Islands' development models: a critical analysis

Having reviewed the constraints faced by islands economies, we can conclude this section with an overall assessment of the viability of the alternative development paths islands have pursued. The market approach imposes an extreme openness to international trade flows, which implies severe constraints in terms of monetary and fiscal policies and a limited capacity to handle key macro-economic parameters (Felsenstein and Port, 2005). Most independent island states abdicate from all intervention in macroeconomic parameters (exchange rate, domestic price levels, and inflation rates). In fact, some islands choose to lock-in their own currency to an international currency. A special fiscal policy is needed as 'industrialisation' is based on a reduced fiscal burden. And as islands are primarily spaces of consumption, the impact of an expansionist budget policy is quite often limited by a reduced income multiplier. On the other hand, the dependence on imports increases the exposure to adverse exogenous forces. However, despite all disadvantages, a market based approach is

linked to higher levels of well-being and a degree of agency in pursuing development goals.

The development programmes based on income transfers do not trigger a self-sustained development process. If access to structural funds is restricted, the entire local economic structure may be seriously affected beyond recovery. The lack of a state-of-the-art sector leaves the role of engine of growth to final consumption, as it is well described by Dimou (2003) concerning Reunion. And as some sectors are protected, oligopolies and monopolies are frequent in the market, which limits development options and imposes unfair entry barriers (Dimou, 2003; Freiss, 1997). Another problem is linked to the fact that most local sector leaders are in fact SMEs. And as suggested above, the traditional clientelist approach (based on income transfers) pursued in RUPs is subject to increasing pressure.

I believe that a relatively rigorous account of all constraints faced by island/peripheral areas has been established. It is important to recognise all the growth success stories in the independent island states (e.g. Caribbean Basin) results from strategic advantages in terms of tourism resources and geographical advantages. And it must be acknowledged that most islands suffer from a limited capacity to handle all challenges they are facing. In fact, there is no 'error margin' in the RUP as they are increasingly dependent on global economic conditions and international regimes (Miller, 2000; Armstrong and Read, 2002).

It can be concluded that few island states can survive without any kind of ODA (Hoyle and Biagini, 1999; Hunt, 2003; Huskley, 2006). Data concerning the USA and Japan shows that beyond all neo-liberal rhetoric, the lack of economic viability of island regions is well acknowledged and translated into substantial financial transfers (Baird, 2000 and 2001). And contrary to what should be expected by the neo-liberal paradigm, it must also be acknowledged that any successful insular development model implies high levels of state intervention. The exploitation of natural advantages in the tourism sector demands top quality infrastructure, besides social, political and economic stability. The FDI approach demands a welcoming legislation and a relatively qualified/docile labour force. And the option of offshore centres requires the ultimate example of an over-interventionist state, 'ready' to backup non-ethical solutions.

As acknowledged in Chapter 2 the EU normative discourse concerning regional development models is focused on a narrow range of regional development theoretical models such as the competitiveness discourse and the development of clusters. We start now a critical analysis of these 'fashionable' development models to see how they fit with the geographical/economic profile of islands as addressed before.

3.5 The response of the competitiveness discourse for island

3.5.1 Is there a place for the competitiveness discourse?

As mentioned in Chapter 2, the 'competitiveness discourse' now shapes the EU RUPs policy. RUPs are expected to live up to international standards of productivity, growth and competitiveness. The EU urges RUPs to develop competitive factors, 'awaking the business spirit' and the build-up of strategic and innovative high-tech sectors. And the EU also suggests an export oriented strategy, via access to external markets, and/or the development of complementary markets at a local level. As a consequence, it is important to analyse the possibility of "widening the circle of winners (competitive regions) in all regions and communities" even in the RUPs context (Bristow, 2005: pg. 286). Data concerning the process of convergence/divergence and island development constraints raise serious doubts regarding the 'everyone a winner' scenario (Kitson et al, 2004; Bristow, 2005; Lovering, 2001; Waesche, 2003). However, as the competitiveness discourse is hegemonic in the regional development field, a wide discussion about key assumptions of such an approach must take place (Kitson et al, 2004; Lovering, 2001). As the competitiveness theme is so popular, there are numerous examples of 'competitiveness index' and 'competitiveness league tables' in the literature/local media based on successful regions such as Silicon Valley (Kitson et al, 2004; Bristow, 2005). It is assumed that 'high competitiveness scores' provide a 'external validation' of regional performance. However, as RUPs differ from core regions in many aspects, it is important to analyse to what extent the 'competitiveness discourse' may be applied to such a distinctive and problematic context. It is also important to understand the new regional development paradigm behind the competitiveness discourse, as it determines the relationship between RUPs and the EU.

There are several definitions of competitiveness. Storper (1997: pg. 20) defines competitiveness as "the ability of an economy to attract and maintain firms with stable

or rising market shares in an activity while maintaining or increasing standards of living for those who participate in it". The UK government defines regional competitiveness as the "ability of regions to generate high income and employment levels while remaining exposed to domestic and international competition" (DTI, 2003: pg. 3; DTI, 2001; DTI, 2004). Storper's definition (1997) is a well accepted one in academia as it acknowledges an interdependence between regional competitiveness and regional prosperity, avoiding a more simplistic approach (equivalence between competitiveness and productivity) as is the case with Porter's analysis. As stated by Huggins (2003: pg. 89) 'although low labour costs may initially contribute to the attraction of business investment to an area, such costs are in many ways a 'double-edged sword', resulting in employees working for lower wages than their counterparts in other localities and regions". Thus, Huggins (2003: pg. 89), considers that "true local and regional competitiveness occurs only when sustainable growth is achieved at labour rates that enhance overall standards of living". In fact, micro-economic productivity (at the firm level), despite being a necessary condition, is not a sufficient one to increase the levels of prosperity. However, a more restrictive microeconomic approach (productivity based) has frequently been opted for at the higher political level. An influential report in the UK, for example, produced by H.M. Treasury (2001) directly links competitiveness and productivity. According to the H.M. Treasury (2001) Report productivity differences are the key to understanding regional disparities in terms of economic growth. Therefore policy intervention should target the productivity drivers (such as skills, investment, innovation, enterprise, competition).

Although the competitiveness discourse may be branded as the hegemonic discourse, there are quite serious conceptual flaws that must be acknowledged as well as definitional inconsistencies explained. According to Bristow (2005) the design and operationalisation of development policies should be based on previous discussion and consensus in terms of meanings and definitions. However, according to Kitson et al (2004: pg. 992) the territorial competitiveness concept is a highly problematic one, as the "notion is contentious and far from well understood" (see also Lovering, 2001; Bristow, 2005). Bristow (2005: pg. 289) argues that "there is some confusion as to what the concept actually means and how it can be effectively operationalised". Bristow (2005: pg. 289) is especially critical of the "lack of a clear, unequivocal and agreed

meaning within the academic literature”, that translates into the “confused and chaotic political and academic discourse”.

Nevertheless, the multiplicity of definitions is not the key problem. The key concerns evolve around the fact that the competitiveness discourse is based “on relatively thinly developed and narrow conception of how regions compete, prosper and grow in economic terms“ (Bristow, 2005: pg 291). That is, the ‘competitiveness discourse’ acknowledges a kind of conceptual universality (i.e., ‘one size fits all’ approach) concerning development trajectories, which excludes an in-depth analysis of the spatial and historical background and growth paths in peripheral regions. In fact, most development programmes assume that the processes of regional growth are governed by a “series of universal economic rules” in any context/scale (Kitson et al, 2004: pg. 996). As similar growth strategies are (implicitly and explicitly) encouraged, the competitiveness discourse assumes a ‘policy universalism’ that cannot exist given the sharp differences between core regions and peripheral/marginalised regions in terms of resources and historical background. One example of such policy universalism concerns the emphasis on development events such as science parks and/or the creation ex-nilo of high tech sectors. However, all evidence available (see Section 4.6) suggest that high-tech ventures are not suitable for most islands and peripheral regions, as they are not resourced enough to handle a direct competition approach with core regions (Kitson et al, 2004; Lovering, 2001; Park, 2001).

3.5.2 Is there a place for the competitiveness discourse in islands? Competitiveness indexes and islands welfare

Some ‘technical background must be provided to understand why most RUPs will ‘fail the test’ (i.e., low scores in competitiveness indexes). Here I am more concerned with the empirical relevance of the competitiveness concept to understand islands development dilemmas than with theoretical flaws underlying the concepts.

Several comments can be provided in order to understand the inapplicability of such indices. It is stressed that the common indexes in operation fail to provide a rigorous account of the methodological and theoretical options underlying the computation of the competitiveness score. In most cases an identical weight is attributed to all competitiveness drivers, considered equally important in any territorial context.

According to Kitson et al (2004) there is no a coherent theoretical justification for a particular choice of drivers; in fact, there are a multiplicity of drivers, competitiveness indexes, etc. Deas and Giordano (2001) criticise the tendency towards a generalised checklist of relevant determinants of firm competitiveness, without a clear understanding of the degree of importance attaching to each determinant. Nevertheless, there are common factors shared by most 'index studies', such as indicators of quality of the business environment, business density and clustering, and/or knowledge intensity and R&D (DTI, 2003; Huggins, 2003). As seen in the previous section, most islands are exactly characterised by a lack of critical mass in terms of number of firms operating in the local market. Consequently the scores computed for business density, clustering and the number of 'knowledge intensive firms' are necessarily low.

As suggested above, it is quite evident that there is no room (economic space) for more than 1 or 2 sectors in islands. Quite often the maximization of the islands' export levels implies a specialization in natural resources, which have been affected by decreasing trade terms. As a consequence, most islands, even if quite successful in terms of export ratios and HDI scores, will remain 'uncompetitive' forever as their success is not based on high tech sectors and innovative activities such as nanotechnology, genetics, etc. What is evident is that some LFRs are extremely efficient but in the 'low tech activities', such as tourism, as can be seen in the Balearic Islands.

Another criticism concerns the equivalence between competitiveness and productivity. In fact, productivity is only one of the factors affecting standards of living; the regional employment rates and value added per worker also affect the output per worker (and by extension the standards of living) . That is, the relative and absolute levels of productivity are not necessarily positively related to standard of living scores. In fact, the regional productivity index results from the weighting of the region's different economic activities. A difference between two regions in terms of industrial structure and pattern of specialisation may imply a different competitiveness score, even if the GDP levels are quite similar (Markusen, 1994; Markusen, 1996). Even concerning core regions, high productivity sectors sit 'cheek by jowl' with low productivity activities. That is, the RUPs problem may not result from inefficient firms. Most LFRs are characterized by large numbers of efficient firms (from a micro-economic point of view) but operating in low productivity (value added) sectors. As most LFRs are dependent on absolute competitive advantages, there is no other solution except to

develop low productivity sectors such as tourism, the primary sector and public administration. As mentioned before, being the most efficient in the wrong (i.e., low value-added) activities would lead to low competitiveness scores. However, the improvement of quality of life also depends on economic activity and employment rates, which are dependent on multiple economic, social, cultural and political factors, etc. As shown in section 3.6 below, specialisation in a traditional low productivity sector (tourism) does not impede Cyprus achieving an impressive levels of GDP per capita, well-being and employment.

Another theoretical flaw concerns the link between competitiveness and globalisation. Lovering (2001), Kitson et al (2004) and Krugman (1997) criticize the excessive emphasis on the globalisation effect (see also Morgan, 1997). In fact, the competitiveness discourse is based on “pervasive beliefs” that the globalisation effect has definitively changed the competitive status quo to a higher level of intense competition and rivalry between corporations, regions and countries. Lovering (2001: pg. 351) criticises the “historical assertion that changes in the market system have created new challenges for regional development”. In fact, in most islands, the locally oriented ‘non-globalised’ sector is predominant in terms of GVA/employment. In fact, a large part of the regional economy is only vaguely impacted upon by economic globalisation. As a consequence the future survival of local firms is not dependent on external competitiveness but on: a) evolution of macro-economic parameters (financial transfers/economic growth) to the extent that it impacts on the demand potential and; b) firms’ degree of monopolistic power. Most LFRs may survive a chronic deficit of the balance of payments (given the lack of exportable products) via credit facilities, financial asset sales and government fiscal transfers. But the economic structure may collapse if financial transfers are reduced. Another valid criticism related to the emphasis on external links concerns the development from scratch of an export sector. There are only a few examples in the literature pointing to success in such a venture.

In conclusion, given the existence of strong spatial effects (i.e., economies of agglomeration), a scenario where all regions contribute positively to the nation's competitiveness scores is not possible namely concerning business density and the share of knowledge intensive firms. A homogenous industry mix in every region should not be expected. The competitiveness rhetoric also ignores the fact that a given industrial

composition may result from a 'historical accident' and/or 'government intervention', as is the case of Silicon Valley.

3.5.3 Is there a place for the competitiveness discourse in islands? Regional policy philosophies and 'political interests'

It is important now to turn our attention to a 'dangerous liaison' between academia and corporate interests. The competitiveness discourse is a direct result of the mediatization process of a set of assumptions attached to the 'business discourse'. The competitiveness discourse is not dissimilar to the language of the international corporate culture, as competitiveness may be defined as the "external validation of the firms' ability to survive, compete, and grow in markets subject to international competition" (Bristow, 2005: pg. 287). In fact, the apparent success of the competitiveness discourse witnesses the 'increased control' of the academic research agenda by the business community (Burt and Sparks, 2003: pg. 275). However it must be acknowledged that the 'success' also results from the capacity to produce a seemingly comprehensive discourse well understood at the firm's level. The success amongst journalists and policy makers was crucial to boost the influence of the competitiveness discourse (Bristow, 2005: pg. 298). In fact, Martin and Sunley (2001) acknowledge that the complexity of several non-policy oriented theories and methodologies produced by academia in the 1970s/1980s facilitated the widespread diffusion of such a 'seemingly comprehensive discourse' (see also Bristow, 2005; Lovering, 2001).

As suggested above in section 3.3, another reason for the success of the competitiveness discourse results from the interest shown by some parties fighting for autonomy in some European regions. The competitiveness discourse is attractive to some political clienteles as it can be related to the decentralization/devolution process. In fact the competitiveness discourse was translated into a set of agendas potentially managed by local governments such as the development of university-business relationships and innovation networks. As a consequence the competitiveness discourse was often welcomed in peripheral regions areas struggling for further economic/political autonomy.

Underlying the competitiveness discourse there is also a 'new' regional policy philosophy, which emphasizes endogenous development approaches such as the

development of regions' micro-business environment as a critical input to firm/region competitiveness (Taylor and Wrent, 1997). For example, the EU Commission (2004: pg. 13) suggests that regional competitiveness depends on "... encouraging the development of knowledge-based economic activities and innovation" in the sense of efficient institutions, productive relationships between the various actors involved in the development process and positive attitudes towards business and enterprise". The UK government also acknowledges that regional policy must be based on "strengthening the capacity of regions to build on their own competitive advantages by boosting regional capacity for innovation, enterprise and skills development" (DTI, 2001: pg. 4; see also Bristow, 2005).

Underlying the competitiveness discourse there is also distrust in the redistribution effect, and, thus on the old regional policy regime, which was characterised by a strong public sector intervention in backward regions via public investment absolutely central to economic fortune of such regions (Fothergill, 2005). Nowadays, in line with the neo-liberal approach, the rationale for government intervention is to overcome market and institutional failures as they are now perceived as the key constraint on local competitiveness. But concerning RUPs, there are still old bottlenecks in terms of infrastructure and transport facilities that must be addressed before any 'soft intervention' based on slogans such as 'making markets work better', 'ensure an efficient functioning of markets (product, labour, capital), and 'increased competition'. And the neo-liberal discourse also implicitly assumes that weaker regions are doing badly because they do not provide the right business climate, and as a consequence, they are to blame (Fothergill, 2005).

The overwhelming supply-side emphasis at the expense of the demand side cannot be applied to the island context: the basic idea of the competitiveness discourse is that if (supply-side) drivers are in place such as infra-structure, demand follows (Porter, 2001). But a declining local demand limits the viability of the development of high-quality cultural and infrastructural capital, as there will be no firms to use such facilities. The supply factor is on 'insufficient condition'; without local demand stimulation, locally oriented business may fail to survive and as such, the territorial dynamics of the peripheral regions is put under pressure (Morgan, 1997; Terluin 2001). That is, as stated by Roberts and Thompson (2003: pg. 69) concerning the Western Isles "the main sources of structural change have been due, directly and indirectly, to changes in export

demand. It follows that macroeconomic policies that affect aggregate demand patterns are highly influential in shaping the development path of the region”.

3.5.4 Is there a place for the competitiveness discourse? Conclusions

The competitiveness discourse doesn't provide useful grounds to understand the RUP development dilemmas, as a direct translation of the concept is not possible in the island context. Contrary to what would be expected, one of the basic sectors that is channelling financial resources to such regions is exactly the public administration sector. As seen in section 3.4 the growth record of most islands has been based on financial transfers. Most islands lack export oriented sectors besides the tourism sector and in the short term a self-sustained growth based on another export-oriented sector seems rather impossible. The competitiveness discourse based slogan “export or perish” cannot be applied given the lack of ‘exportable’ products/services (Murray, 2001: pg. 138; see also Miller, 2000). Consequently, the EU approach towards RUPs can be severely criticised as it assumes a ‘one size fits’ all approach concerning growth paths.

Some islands have been able to achieve high scores in the HDI ladder but are not well positioned in the competitiveness tables given their lack of knowledge intensive sectors, a buoyant cultural life, cosmopolitan cities, etc. The ‘ideal’ growth path and the ‘ideal’ efficient productive base from the competitiveness discourse point of view may never exist in most islands. Consequently, trying to understand the islands’ development dilemmas based on the competitiveness discourse will be necessarily inaccurate and misleading.

The competitiveness discourse also ignores outside influences, social relations and networks of power shaping regions’ development (Mullings, 2004; Wood, 2000). As shown by Bristow (2005: pg. 294) “regions should be conceived as open, discontinuous ‘space of flows’ influenced by a variety of social relationships”; but the competitiveness discourse ignores the fact that national and global forces are key drivers of the regions’ prospects concerning macro-economic regulation and terms of trade.

In conclusion it can be said that most independent states would be ‘uncompetitive’ in a hypothetical competitiveness index but are not underdeveloped or impoverished (Sharpley, 2003). This is a crucial but controversial assumption. Although most theoretical models are not applicable to LFRs there are quite often interesting theoretical

insights that provide scientific background to learn development lessons and build up a 'new generation' of theoretical models. For example, it is evident that islands must try to solve the market inefficiencies they face and at least try to apply the 'EU normative framework' concerning development plans. But other development models have also been propagated as the ultimate solution to the LFRs and it is to these that we turn now.

3.6 The response of learning regions and clusters agenda

3.6.1 The learning region paradigm

Besides the competitiveness paradigm, two models of territorial development have attracted the media/policymakers' attention in the context of peripheral areas. Both the clusters concept and the learning regions paradigm have been propagated as the future concepts for the successful economic development in Europe (Hassink (2005: pg. 524; see Bellini, 2001; Boschma, 1999; Boschma, 2004). Due to the enthusiasm for these concepts shown in some RUPs by policy makers an in-depth analysis of the 'concept' viability in the LFR context should be pursued. As an example, it must be mentioned that the former Portuguese President was delighted by the 'learning region concept' based on a 'first hand experience' during a visit to the Nokia headquarters in Finland. Of course, a strong presidential recommendation to replicate the Finish experience was heralded as the ultimate solution to all of Portugal's industrial problems.

But policy-makers must be pardoned for the misapplication of the concept, as the meaning of 'learning region' seems problematic (Boschma, 2005; van Geenhuizen and Nijkamp, 2000; van Gelderen et al, 2005). For Boekema et al (2000: pg. 3) the learning region is the "physical expression of the understanding ... that economic growth is dependent on innovation, which in turn is dependent on the creation, dissemination and application of knowledge. The latter is usually referred to as learning, and learning processes are generally believed to be connected to space. Hence learning regions". Van Geenhuizen and Nijkamp (2000: pg. 49) acknowledge that the "study of learning regions is relatively new, lacks a proper definition of learning region as analytical and testable. Various cause-and-effect chains have not been very well tested". Hassink (2005) suggests that rare examples of learning regions can be shown. Boekema et al (2001) consider that the expression learning region "understands more a regional policy paradigm than theory", due to its dependence on multiple theories and concepts which

have the focus on the learning process in common. And Fürst (2001) considers the learning region to be an eclectic concept strongly linked to several existing theory-led development models such as system-based innovation theory, institutional approaches and revived thinking on geographical agglomerations, and policy oriented innovation concepts (see also Lovering, 1999; Moulaert and Sekia, 2003; Lagendijk and Cornford, 2000).

A good synthesis of the theoretical background underlying the learning region concept is provided by Oinas (2000: pg. 54):

“under the condition of globalisation, flexible specialised networked actors, involved in collaborative and competitive relations, are embedded in local social relations, characterised by institutional thickness, where interaction is governed by conventions, and results in learning, within localised relations due to its tacit elements, and enables the creation of unique assets for competitiveness of both firms and their regional environments”.

In fact, most concepts critical to the learning region paradigm have been the object of the individual analysis in the literature. But it's argued that their joint analysis from the learning perspective “makes their interconnectedness even more clear” (Boekema et al, 2000: pg. 3). In fact, though there is no consensus about the learning region concept, there is widespread consensus about some of its key assumptions. Firstly, it is assumed that we are witnessing a structural change in the economy, due to a shift from a labour and capital based economy to knowledge based one, where knowledge is the most important resource and learning is the most important process (Hassink, 2005; Park, 2001; Hassink, 1998). Secondly, it is considered that knowledge and innovation is the critical competitiveness resource due to the process of the ubiquification of technology and organization of production processes on a global scale, which limits the impact of all previous traditional competitive advantages. Therefore, human skills and knowledge are understood as the critical success factor and not price competition (Geenhuizen and Nijkamp, 2000; Maskell, 2001; Amdam, 2003; Scott, 1994; Scott and Storper, 2003).

Third, underlying the learning region discourse, there is the assumption that competitiveness in global markets is a matter of survival (Geenhizen and Nijkamp, 2000; see Asheim, 1999; Audretsch and Keilbach, 2004). There is a pervasive consensus that success in international markets results from developing and nurturing of

more strategic advantages such as enhanced knowledge creation, firm specific competences and first mover advantages. It is assumed that static price competition is untenable, namely concerning manufacturing products. The learning region paradigm privileges, therefore the development of intangible resources embedded in human knowledge, skills, and experiences, organizational routines, absorptive capacity in terms of new technologies, and marketing advantages such as advertising, design and reputation.

The learning region concepts also draw attention to the change of the paradigm as far as the innovation process is concerned, as most authors acknowledge that innovation is embedded in social-cultural processes, institutions and networks. Therefore, local authorities and supporting organizations rooted in the region, also qualify as participants in learning (Morgan, 1997; Sornn-Friese and Sorensen, 2005). The importance attached to the “social embeddedness of economic interaction” is linked to a “recognition of the region as a main territorial framework for learning and knowledge based economic growth” (Boekema et al, 2000: pg. 9; see also Geenhizen and Nijkamp, 2000). In fact one the key assumptions is the well established belief that in the context of globalisation key resources for the regional/urban competitiveness stem from localised processes of knowledge creation (Kitson et al, 2004; Lovering, 2001; Scott and Storper, 2003).

But the universality and theoretical validity of the region-firm competitiveness link within the learning region paradigm can also be criticised. In relation to some sectors, firm competitiveness does not depend on regional knowledge/relational assets but on the affiliation to international networks and/or OMs attitudes/growth objectives. Malecki (2002) draws attention to the importance of global networks as sources of knowledge in shaping firm competitiveness in backward regions of a given area. Malecki (2002) points to the fact that internal factors to the firm may be more relevant than regional factors in explaining firm competitiveness. Sternberg and Arndt (2001) in an analysis of the drivers of SME innovation, score the importance of firm-level factors (eg. market position, organisational status, staff competencies and financial resources) as more important than region based determinants. Hence, the region’s influence on firms’ competitiveness depends on the industrial structure, the share in global/locally oriented firms, the degree of internal cohesion and homogenisation of the economic space and local richness in terms of innovation/cultural assets to the extent that they may interest firms.

The learning region discourse also emphasizes the development of soft/dynamic competitiveness factors instead of the traditional 'hard' productivity approach (eg. infrastructure, natural resources). The softer dimension highlights intangible factors, such as quality/skills of labour force, the depth and orientation of social networks and institutional forms (social and institutional capital), top quality cultural facilities, amenities and public infrastructures, presence of an innovative and creative class, regional governance, etc (Gradstein, 2004). The 'soft factors' approach is akin to the 'untraded interdependencies concept' developed by Storper, which involves flows of tacit knowledge, technological spill-overs, networks of trust and cooperation, local systems (norms and conventions) (Storper, 1997; Storper and Bennet, 1994). The idea that the key ingredients shaping firm competitiveness are predominantly endogenous to the region and stem from the institutional environment constitutes one of the key assumptions underlying the learning region paradigm. Amin and Thrift (1994) suggest that regions 'institutional thickness' is the secret ingredient found in successful places and absent in others. For Amin and Thrift (1994) institutional thickness means complex of strong, viable and interacting institutions.

3.6.2 The cluster approach

Lagendijk and Cornford (2000: pg. 214) branded the cluster concept as "one of the most successful regional development scripts". Martin and Sunley (2002) also consider the cluster concept "one of the most influential -indeed, the most influential" of the territorial development models. Lagendijk and Cornford (2000: pg. 215) suggest that "one cannot deny the strong mobilising force of the concept". The OECD, World Bank, national governments, regional development agencies, local/city governments and policy-makers have adopted/promoted the clusters concept. In fact, there is a generalised assumption that regional competitive advantages result from the presence of geographically localised or clustered activities (Kitson et al, 2004: pg. 994; see also Giuliani, 2005).

Before making some comments about the validity of the concept, it must be stated that all the hype around the cluster concept is related to what Lagendijk and Cornford (2000: pg. 216) call "a busy and fascinating tour", which allow it to be associated with multiple concepts, field research and academic audiences. In fact, reasons for its success can be

found in the production of special links/appeals to specific audiences. A quite successful blend of corporate interests and theoretical advances in the regional development field was produced. For example, the link between the cluster approach and the competitiveness discourse (expressed in cluster maps) “paved the way for the successful career of clusters as a regional development concept”, as it was appealing to the policy-makers as it was understood as easy to implement (Lagendijk and Cornford, 2000: pg. 214; see also Becattini, 1994; Benko, 1994; Dunford, 1994; Ganne, 1994). For policy-makers, the cluster approach represented an advantage as the financial demands were not unsustainable at all. But the real secret behind the cluster approaches’ success in academia lies in its capacity to create a bridge between development agencies and research organizations. The ‘compatibility’ linking the cluster approach and the EU regional policy paradigm also contributed to the success of the concept.

But maybe the most critical advantage underlying the clusters approach may be found in its strict compatibility with the neo-liberal paradigm and the new regionalism approach. Martin and Sunley (2002) suggest that the Porter's cluster analysis is rooted and promoted within an overarching focus on the determinants of ‘competitiveness’. In fact, both the cluster approach and the competitiveness discourse were born in the late 80s (Lovering, 1999; Storper and Bennet, 1994).

The appeal of the clusters approach results from its emphasis on microeconomic supply-side intervention. However, the success of the clusters approach is not only based in its ‘inherent advantages’. According to Martin and Sunley (2002) other regional development models did not have so much success in influencing policy making, in part due to their plurality of research aims and lack of concern with performance, productivity, competitiveness of firms and policy formulation, which were exactly the policy-makers’ hot issues in the 90s.

However, despite all the recent interest in clusters, the fact it is that is not easy to replicate ex nihilo all the key features of one typical cluster. The emergence of clusters is based on a quite demanding set of economic/cultural pre-conditions, such as: a) social embeddedness and social capital, existence of facilitative social networks, institutional structures, b) a sizeable mass of indigenous firms, and a network of forward and horizontal linkages with other firms within the cluster, and c) a dense web of technology/information flows based on strong patterns of reciprocal trust; and d) strong

private support services (Armstrong and Read, 2003: pg. 125; see also Amin and Thrift, 1995; Keeble et al, 1999; Ganne, 1994; Garofoli, 1994; Veltz, 1994; Veltz, 1999).

3.6.3 Clusters and learning regions: a critique

The criticism directed to both concepts (the cluster approach and the learning region approach) concerns mainly to issues of semantics and methodological/scientific rigour. Concerning the cluster approach it seems that the concept of cluster is not rigorously *tested and evaluated*, but on exercises of faith (blind acceptance) on the political/academic community's part (Palazuelos, 2005). The confusion in terms of meaning is natural given the variety of uses, definitions and meanings (Belussi, 2005). However, besides concerns underlying the semantic methodological rigour, other theoretical flaws that may impact the definition of development plans in RUP should be analysed (Boschma and Lambooy, 1999; Palazuelos, 2005). A brief analysis of such theoretical flaws is provided now, as the regional development literature suggests that most regional plans incorporate insights from the learning region paradigm without a correct assessment of the degree of success of some policy measures included in such plans.

The basic problem underlying both the cluster and the learning region approaches consists in a one-size-fits-all trap, i.e., acceptance of 'universal policy models'. In fact, not all firms/niches/sectors depend on a process of clusterisation. Data concerning some independent and autonomous islands show that sector specialisation in non-clustered industries did not prevent such islands from reaching impressive levels of growth/development. Rodriguez-Pose (2001) draws attention to the evolution of the Algarve, and the Balearic Islands, the Ionian Islands which, despite having low technological and clustering scores, reached high levels of growth and development based on a dynamic tourism sector. As a consequence it can be said that the cluster model is only one of the possible options to growth and that it is necessary to analyse the cluster approach within a more holistic theory of regional development. In fact, the cluster approach ignores other forms of regional and local economic development and growth, such as those prevailing in most SIRS.

There is evidence to suggest that the cluster approach is not (always) the best development strategy to be pursued. Clusters are not immune to cognitive and mental

lock-in effects. The affiliation to a given cluster may not represent the best strategy as, according to Pouder and Saint John (1996), competitive strategies of firms in clusters tend to converge through mimetic and normative isomorphism and to be less innovative over time (Lorenzen, 2005; Giuliani, 2005; Hassink, 1998). Still according to Pouder and Saint John (1996) a restricted collective perspective that results from a process of lock-in may well be a competitive blind spot which limits the innovative potential of firms and the ability to anticipate and react creatively to industry-wide shocks. In such a case, the non-clustered firms will have fewer restrictions, and, thus, are more ready to pursue adaptative strategies. The affiliation to networks of interdependence may constitute sources of inertia, inflexibility, replication of old models and consequentially, a limit to the external competitiveness of all firms in the cluster.

Tödtling and Trippi (2005) states that the cluster approach has little to offer to regional policies focused on the specific problems of old industrial areas and peripheral areas. In fact, the regional development models based on the cluster and learning region concepts were translated in 'ordinary ready-to-apply measures', such as science parks and technology transfer. Most of such measures (such as science parks) ended in 'cathedrals in the desert' (Hospers, 2003). Hospers (2003: pg. 635) gives an example of the result of the application of 'non-localised models': "as a consequence of the lack of embeddedness with the local economy in Sardinia's, one did not notice the cumulative causation process policy-makers hoped for". As a consequence, the application of top-down approaches resulted in a cathedrals in the desert, that is, in a "changed island's landscape rather than in a modern economic structure".

This is not to say that we contest the existence of territorial structures that may be labelled as clusters. Markusen (1996) witness the existence of multiple types of clusters, which means that the Third Italy model (the most studied and celebrated one) is only one variety. What is contested is the generalised belief that all national/regional policies must promote clusters. In relation to the RUPs, the cluster approach is inapplicable, due to the lack of a quite demanding mix of social, historic and industrial pre-conditions. In relation to certain sectors/industries, the predominant ones in the RUPs, the globalisation/industry logic favours the attraction of FDI and MNCs, for whom the localisation decision making does not depend on the existence of local clusters, but on environmental and fiscal/labour advantages. The primary industries and service sectors (tourism) show little need to cluster. On the other hand, most cluster analyses are

centred on manufacturing industry which is relatively absent in the LFR/RUPs. And the cluster literature is based on few successful stories (the inevitable Third Italy and Silicon Valley) based on qualitative and discursive studies.

Armstrong and Read (2004) argue that a 'direct' cluster approach offers little interest in the RUP context. Basically, it is argued by the authors that the critical characteristics underlying the learning region and cluster analyses are absent, namely a network of independent SMEs based on interdependent specialisation of tasks; a network of formal and informal institutions, relationships and norms; local technical and industrial culture and institutional thickness; and a web of external trade/commercial relationships. Although most SIRS have strong commercial relationships, they lack density in terms of export oriented firms and inter-industry links; as manufacturing firms import raw materials and export their final product, strong local horizontal intra-industry linkages don't exist. On the other hand, the small labour markets do not allow the development of more than one industrial cluster; and it seems also impossible to sustain many business services in a small island.

A key problem concerning the learning region approach relates to the rationale of innovating in LFRs (Cuadrado-Roura et al, 2000). There are reasons to suggest that some LFRs should avoid a R&D investment strategy. In most cases there is a strong rationality to pursue traditional and non high-tech investment strategies. The viability of R&D and innovation programmes demands a minimum threshold in terms of human resources and technical specialisation. If this is the case, LFR do not benefit from a limited R&D investment approach, given the lack of economies of scale and the lack of impact in terms of increasing returns (Rodríguez-Pose, 2001). Consequently, in the LFR the appropriation of and access to technology depend more on technological spill-overs, technology free-rider behaviour and imitation processes, rather than the development of internal R&D capabilities (Keller, 2002; Fagerberg et al, 1997; Fagerberg and Verspagen, 2004; Rallet and Torrer, 1999). However, the option of the free-ride approach, even if it permits an immediate access to cutting-edge innovations, depends on a minimal capacity to acquire and absorb innovations (Fagerberg and Erspagen, 2002; Faína and López-Rodríguez, 2004; Karp and Lee, 2001). That is, a series of other structural factors must be in place. But besides optimal resource allocation there is a societal problem. In fact, most RUPs may be branded as innovation averse societies, which may prevent both innovation creation and the diffusion and adoption of

technologies (Rodríguez-Pose, 2001; Prastacos and Papadakis, 2001; Spencer and Gómez, 2004).

What's important is to circumvent a double scenario of no absorptive capacity and no R&D capability, defined by Rodríguez-Pose (2001: pg. 281) as a 'kind of growth limbo'. And there is evidence to suggest that the access to minimal absorptive capacity in terms of codified/tacit knowledge depends more on skilled labour and aggressive entrepreneurial orientation than university research or industry research. The problem in LFRs is linked to the fact that most firms localised there do not have the required minimal threshold to pursue a free-riding approach, as will be shown in Chapter 5.

There are reasons to suggest that there is limited opportunity in most islands to pursue high-tech/research programme strategies. As the development of strong flow of indigenous technological progress depends on a critical mass of high-tech firms, highly specialized private and public institutions (such as R&D laboratories, technical universities), large pool of highly qualified personnel and a history of technical industry, a collaborative environment, and international market orientation, most RUPs are out of the game.

But the critical theoretical flaw of the learning region approach concerns the management of unfavourable business culture. Local governments must handle problematic issues concerning islands cultural/historical paths. For example, as far as the rural/peripheral OMs profile is concerned, the profile highlighted by several authors/studies is problematic. The local OM is not well educated, is older than average, with 'life experiences' concentrated in their island. But that doesn't mean an absence of successful examples of entrepreneurial and innovative capacity. There are in fact two sub-populations of firm and strategic behaviours: a) the multiple innovators and b) the old traditional firms. According to Vaz et al (2006) the multiple innovators, a minority, are characterised by younger management; higher scores of inter-firm cooperation and external relationships; higher capacity to access governmental support/subsidies; higher R&D experience (Skuras et al, 2000). The non-innovators, a majority, are characterised by a low level of innovativeness capacity and almost no R&D expenditures. Most managers have no post-school qualifications, are older than average and have been managing the firm for a long time; the OMs educational/professional backgrounds is also paralleled by their employees' academic and professional background. The non-innovative group OMs avoids training and is deeply involved in other activities,

carrying out other parallel businesses. The non-innovative firms are also characterised by a closed attitude towards the outside. Firm's relationships are restricted to contacts with equipment suppliers or customers outside the region. Contacts with local research institutions and/or high-tech specialists are rare (Curran et al, 2002). Given the lack of a critical mass of entrepreneurs and the profile of the average OMs, North and Smallbone (2006: pg. 56) concludes that "it is unlikely in these situations, therefore, that the required animators will emerge from within the indigenous population".

It must be reiterated that rural areas are not deprived of successful examples of entrepreneurial capacity and innovative experiences. But there is no critical mass to trigger a self-sustained mechanism of change in terms of industry mix, business culture and growth/development prospects. And as most innovative projects are carried out by multiple entrepreneurs, the real number of OMs involved in innovative activities is very low. And most peripheral regions face a 'problematic' institutional and political background.

3.6.4 Clusters and learning regions: social capital in islands and government intervention

One of the key features of the Third Italy's typical clusters concerns social capital. Armstrong and Read (2003: pg. 134) are "sceptical of the relevance of the social capital theory for microstates and smaller regions". Although the social/cultural features alleged existent in the clusters (that is, a highly complex web of social relationships and information and knowledge flows) appears not to exist in islands RUPs display some interesting social and cultural characteristics. There is a widespread belief that most RUPs societies share higher social, cultural and economic homogeneity as well as strong government (Armstrong and Read, 2003; Felsenstein and Portnov, 2005; Srebrnik, 2004). In fact, small groups share some interesting benefits such as the potential for an immediate response to external shocks as it is easier to build up a social consensus (Felsenstein and Portnov, 2005: pg. 650). Farrugia (1993) highlights the issue of accessibility to decision-makers as a factor which may facilitate greater social consensus and solidarity. However, the intimate relationship between voters and local politicians may prevent a professional approach in terms of public administration management.

Most studies do agree that SIRS benefit from major social, cultural and economic homogeneity, social cohesion and solidarity and valuable psycho-cultural factors (such as community attitudes, community values and social norms). A stronger central government may also facilitate the application of unpopular macro-economic programmes. This may be an advantage in a period of crisis when an up-grade of technological, organisational, institutional capital is required (Armstrong and Read, 2004; Felsenstein and Portnov, 2005; Hampton and Christensen, 2002; Felsenstein and Portnov: 2005: pg. 651). But Hampton and Christensen (2002: pg. 1664) provide us with an interesting account of how the existing social and cultural background may result in an easy 'buying-in' of controversial ideas and concepts not accepted elsewhere except in some independent state islands (e.g. general acceptance of the legitimacy of the OFCs' activities). It is also suggested that the excess of proximity facilitates a tight control of dissenting voices as the critics' voices may be understood as "going well beyond the community's shared values" (Hampton and Christensen, 2002: pg. 1664). Hampton and Christensen (2002: pg. 1664) also consider social capital in place in islands is helping to create a benign milieu quite attractive to international financial institutions "since the political economy and culture of smallness feed the element of secrecy which is a pre-requisite for OFC".

Still concerning the political and cultural aspects of islands, Hospers (2003) provides a vivid account of the specific local institutional and political reasons behind the failure of Sardinia's development plans in the 1970s/1980s path. Hospers (2003: pg. 636) criticises the largely discretionary policy making. According to Hospers, the lack of responsibility and accountability, and the occupation on the part of local parties of the public space, limited the capacity of civil society to intervene, a process which in this way, may have frustrated the intended 'localisation', i.e., "the mobilisation of the region's assets by civic and entrepreneurial spirit in Sardinia's local communities". Hospers believe that all other negative influences and constraints cannot compare to the negative influence of the political and cultural dimension. Hospers (2003, pg. 636) declares that "perhaps, the discretionary policy of the *Cassa* in combination with the regional lobbies have more explanatory power here than the social norms of the population in local communities themselves". That is, compared to core regions, state systems in some peripheral regions have a central position in the economy of a more intense and more enduring kind than elsewhere in the EU context.

Sotiropoulos (2004b, pg. 407) classifies the intervention of the state in the Southern economies as 'assisted development', that should be differentiated from a more modern version of 'competitive capitalism'. The local State promoted economic development via 'patronage' of certain industrial sectors and business interests, frequently based on an extensive public ownership of important corporations. For Sotiropoulos (2004b: pg. 408) the state intervention in Southern Countries was characterised by "protectionism, autarky, transfers, subsidies and control of specific industries", however based on "very particularistic, if not personalistic fashion". Sotiropoulos (2004b: pg. 408) also asserts that corporate governance was based on close personal relationships, developed by membership in closed elites. Concerning Andalusia, Hoggart and Paniagua (2002: pg. 65) mention the privileging of the "small manufacturing bourgeoisie, with a historical legacy of non-democratic politics, that relied heavily on clientelism and repression".

But there are additional problems besides the lack of transparency and rationality. The beneficiaries of assisted capitalism were mainly unrepresentative groups such landowners, (new) industrialists and bankers. Public sector employees have also been privileged via better social insurance, careers and wages compared to private sector employees. Guillén and Matsaganis (2000: pg. 122) acknowledge the "generous retirement benefits for 'protected categories' at the expense of modest benefits for the rest plus a very low social pension for those with insufficient contributions are key characteristics of the welfare system in place. And the excessive number of public employees is also criticised. In fact, in most LFRs the public administration sector is a kind of 'social shock absorber' (Guillén and Matsaganis, 2000). As a consequence of heavy state intervention, a process of acculturation to subsidies, (that is, a subsidy-dependence state of mind) was generated.

Additionally, Golden (2004: pg. 1241) highlights bureaucracy problem in southern countries: the "excess of legislation, a predominance of pork barrel allocations targeted at specific clienteles over broader redistributive policies, and endemic bureaucratic patronage and corruption and a highly stable electoral system due to the fact that incumbent parties systematically and successfully used the resources of government to reinforce their own electoral advantage". Santos (1986) declares that the excess of formality (legislation) is paralleled by informality and discretionary measures. Santos (1986: pg. 188) declares "the Portuguese state is an informal state, a state in which hyper-formalisation breaks into available informality. In a sense, there is an unofficial

state that acts in parallel to the official state”. The excess of legislation coupled with an excess of informal and discretionary measures usually discriminates negatively against micro and small firms.

But the most serious consequence of the dependency of unrepresentative groups on financial transfers, government contracts and a preferential welfare system is the limited political interest in a modernization process and up-grade of public investment strategies. The majority of voters remains suspicious about ‘unknown’ concepts such as rationalisation, efficiency and evaluation (Guillén and Matsaganis, 2000; pg. 137). In most cases, efforts to rationalize bureaucracy do not have electoral support since the modernising elites “had no wider political/social support to promote administrative reform let alone to change the first thing which most analysts associate with Southern Europe, namely clientelism” (Guillén and Matsaganis, 2000; pg. 137). However, such problems do not only concern the Southern Europe case. Hodge and Monk (2004: pg. 271), concerning the UK countryside suggests that “because farming can only be sustained by state subsidy, State agencies and agricultural interest groups frequently work together in close relationship. Local politics is dominated by employment concerns and the welfare of the community”.

In conclusion, the economic and political/cultural background strongly diverges from the ‘normative framework’ underlying both the clusters and the learning region approach. As a consequence, a ‘one model fits all’ based on such approaches would not succeed in solving island development problems as there is no political willingness to apply some measures that are usually suggested in the ambit of the learning and cluster approach such as modernisation of the public administration.

3.6.5 Clusters and learning regions: contributions to inform the definition of islands development plans

Although the application tout court of both the learning region and cluster concepts is not viable in the island context, there are, however, theoretical insights that should not be put aside. Lagendijk (2000: pg. 176) asserts that the learning region concept means a “great contribution to the study of regional development” namely concerning the social embedding of economic activities, the role of proximity in interactive learning processes, the spatial embedding of innovation systems and the significance of regional

governance systems in building new associational forms of economic development. But the most important theoretical insights maybe related to cultural and political aspects. In fact, both the cluster and learning region approach draws attention to a 'set of conditions' needed to sustain a growth dynamic in every context including islands. Both the cluster and learning regions literature highlight 3 serious handicaps in LRFs, namely political and institutional lock-in, innovation averse society and non-competitive behaviours that impede further growth. Appropriate policies to overcome obstacles to learning and to find new ways of mobilising regional resources should be actively promoted, even if a direct translation of the learning approach is not viable (Colletis-Whal and Pecqueur, 2001).

And both the clusters and the learning regions approach also reminds all policy-makers that the new EU regional policy has suffered a 'fundamental change' in relation to the design and implementation of regional development programmes that should not be ignored. The key words of the new regional approach must be learnt: competitiveness, institutional capital, social/cultural coherence. RUPs are now required to define a set of development aims, social and cultural conventions and socio-economic behaviours similar to those ones in place in core regions. Although a one size fit all approach (namely concerning the development from scratch of high tech sectors and development of a cluster) must be rejected as RUPs social/political background strongly diverges from the 'normative framework' underlying the cluster and learning region approach, some development aims (such as decrease in the levels of illiteracy, reforms in the public administration sector) and policy measures require further attention and can be simultaneously applied in both LFRs and core regions. As suggested in section 3.4 measures such as the effective use of the restricted domestic policy portfolio; the "judicious use of the available policy portfolio by technocratic decision making based on high-quality human and social capital", try to pursue a logic of opportunity approach in order to seize all the development opportunities available; optimal policy formulation and efficient application of all funds available; low levels of social and political instability and corruption; a decreasing dependence on unrepresentative groups such local economic groups and public servants; as and a decreasing dependence on the agriculture sector, is a winning one (Maccarthy, 1998). Not all regions can pursue a high-tech venture; but all regions may excel in a judicious and long term oriented use of the financial resources available and eradicating perverse market inefficiencies. A direct

an integral application of the learning region concept is not possible at all. However, some concepts underlying the learning region approach should inform any regional development programme.

The learning paradigm also draws attention to 'participatory decision making' and new models of regional governance (Grandstein, 2004). An up-grade (modernization) of the institutional and political conventions at work in most peripheral regions demands an overall consensus and political support from the majority of voters. As suggested above most voters fear the neo-liberal agenda and prefer a 'business as usual scenario'. As a consequence a key regional development champion (natural leader) or public-private agency must be in place to eradicate obstacles such as a reform averse society and market inefficiencies (i.e., 'illegitimate' financial and political interests on the part of unrepresentative groups).

And both the cluster and the learning region approach may be used stimulated the development of collaborative projects. Most SMEs operating in LFRs are characterized by a deeply rooted mistrust vis a vis collaboration projects, which makes difficult the development of alternative growth paths based on inter-firm collaboration (Cottino, 1999).

3.7 Is there a solution for islands development problems? An alternative growth path

As the limits to the application tout court of the cluster/learning region models have been established, it is important to explore alternative solutions for the rural/peripheral areas. The do nothing option (see section 3.2) appears less and less feasible due to the progressive reduction of financial transfers and political support. As a consequence LFRs must pursue alternative growth paths and try to develop new sectors and niche markets even if a solution is not already clear.

However there are some difficulties underlying the identification of alternative development paths in LFRs as, according to Gatrell, (1999: pg. 624), "by privileging the core, peripheral development concerns have either been ignored all together, dismissed as insignificant, served to illustrate what urban areas are not, or any of the concerns combined". One of the reasons to 'avoid' peripheral areas is probably a consequence of the complexity underlying the dynamics of the rural/peripheral areas (Ferrão and Lopes,

2004). In fact, the LFRs economic and cultural context cannot be inferred from what is in progress in core regions, since most generalisations are inaccurate, misleading and unhelpful (Hodge and Monk, 2004).

Based on Lovering's analysis (1999: pg. 7) of the New Regionalism, rural/peripheral development models may be categorised as 'Sophisticated Models' or 'Vulgar Models'. According to Lovering (1999: pg. 7), 'Sophisticated Models' are defined "as self-consciously abstract models concerned with the logical implication of assumptions and the invention of ideal types". Therefore, the Sophisticated Models are 'unaffected by claims concerning the real world'. Under this label are included all development approaches based on the fashionable models/concepts (such as learning regions and cluster approaches). Most examples of Sophisticated Models in the LFR context are in fact efforts to catalogue all prerequisites needed to reach the ideal type of development. But the Sophisticated Models abstract themselves from the economic, social and cultural background of LFRs and ignore the crossing of the conceptual analysis with the "dangerous empirical claims" (Lovering, 1999: pg. 7). Most of them also avoid rating the probability of success of the 'ideal solutions' they propose. And any effort to provide a likely temporal horizon needed to achieve results is also avoided. The 'Vulgar Model' approach, in contrast assumes that theoretical categories can be "read-across to real-world empirics and derives its force from concrete empirical claims (Lovering, 1999: pg. 7). If "the vulgarity arising from the fact that many of these (empirical analyses) are crude, over-generalised, or just plain inaccurate" is circumvented, it is possible to discuss alternative paths which are compatible with the initial conditions in peripheral regions (Lovering, 1999: pg. 7). What is important is to avoid 'empty discussions' based on a simple checklist of pre-requisites that cannot be developed for the time being.

Above all, it is important to provide a sound theoretical framework to produce a prospective analysis so important to the design of the policy making (Waesche, 2003). Curiously, most EU commissioned studies provide ample evidence to suggest that the emergence of high-tech clusters, learning regions and long-term convergence is unlikely. From the analysis of the empirical-based analysis provided in some studies, it can be concluded that there are no short term sophisticated growth alternatives, due to the lack of pre-conditions similar to those ones existing in the model regions (Silicon-

Valley based). But what can be done, if a prestigious and 'modernist' solution is not available?

3.7.1 'Low order solutions' to peripheral problems

Based on the Product Cycle Model (PCM), Gatrell (1999) analyses the potential decentralisation of the new service industry to rural/peripheral areas. Gatrell assumes that the production of new products/services/innovations is initially developed in the core industrial spaces, due to the advantages resulting from agglomeration effects; however, as cost increases (e.g. real estate, labour, etc) are experienced, a decrease in profitability ratios is likely, which may trigger a process of decentralisation. But the decentralisation of the production of services follows a strictly business/capitalist logic based on profitability ratios. Therefore the re-localisation of firms to remote locations results from efforts to "achieve a competitive, if only temporary, advantage, based on a search for less expensive labour, which is possible due to the on-going process of 'de-skilling', standardization and routinization of basic administrative tasks (Storper and Walker, 1989). However, headquarters/decision-making centres have not been included in the process of decentralisation (Gatrell, 1999). As the impetus for the decentralisation process is located in core regions and the diffusion is linked to a de-skilling process, the economic development in peripheral regions is characterized by 'low order' economic activities (such as back offices and/or branch plants). In consequence, and according to Gatrell (1999: pg. 629) LFRs may be branded as "the repository of excess, unskilled and cheap labour as they are excluded from higher order economic activity". Thus, economic development in non-urban areas is decidedly limited and only possible in "poorly segmented, cheap, and low skilled labour markets" (Gatrell, 1999: pg. 629). Data concerning the spatial patterns of R&D provide evidence to support Gatrell's analysis (Rodríguez-Pose, 2001).

In line with Gatrell (1999: pg. 629) it can be asserted that we should not distinguish between 'good jobs' and 'bad jobs', in the sense that islands don't have choice in the matter. And the economic development pundits should not exclude/privilege any specific 'style' or 'type' of development. 'Lower order' development should not be discounted. In fact, some core regions are now competing with less accessible areas for some low end solutions such as call centres (Suss, 2002).

In fact, the 'low order solution approach fits in quite well with all the empirical data available concerning the industrialisation process in peripheral areas. The fact that LFRs are restricted to the less attractive segments of the industrialisation of services and manufacture, at least in the initial phase, is also accepted, in the Greek context, by Komninos and Sefertzi (1998). Komninos and Sefertzi (1998) assert that there is more likely to be an industrialisation process of the 'neo-Taylorist' type in Greek peripheral regions based on larger companies and MNCs interested in the exploitation of mass production technologies and cheap and un-qualified labour than based on high-tech sectors. Of course, this is a 'low-order solution to productive restructuring' as it is based on traditional inter-industrial specialization oriented towards labour-intensive production, low-quality (and low-margin) products (Komninos and Sefertzi, 1998; see also Camagni, 1992; Grimes, 2003a). Komninos and Sefertzi (1998) have doubts about alternative development models such as industrial development based on the 'sunrise development approach' (focused on R&D projects and high tech industries) or territorial development models based on clusters. Consequently, Komninos and Sefertzi (1998) assume as probable a widening of the technology gap between core and peripheral regions and, as a consequence, the maintenance of regional disparities in the short term. But in the short term it is possible to provide employment opportunities and develop an industrial culture. As seen later in Chapter 4, there is evidence to suggest that high tech solutions are not possible in LFRs. As a consequence, most studies based on fashionable models can be criticised as they privilege unviable types of development ignoring all other viable solutions.

Our discussion about the available options in islands can be exemplified by the tourism sector. The tourism sector is one of the few viable sectors in most SIRS. Sharpley (2003: pg. 246) asserts that "in an island context, reliance upon tourism as a means of development is almost universal" (see also Briednhann and Wickens, 2004; Vanegas and Croes, 2003; Carey, 2004; Cánoves et al, 2004; Ghosh et al, 2003a; Ghosh et al, 2003b). In fact, most SIRS are confined to maximizing opportunities in the sectors not constrained by market proximity, as in the case of tourism. Given the utmost important of the sector, some authors have suggested the development of niche markets, based on 'soft' and post-modernist approaches (Ball, 1996; Briednhann and Wickens, 2004). As far as the rural/peripheral development prospects are concerned, William and MacLeod (2004: pg. 2) asserts that the 'commoditisation' of rural intangible dimensions may

provide an alternative in terms of development (Chhetri et al, 2004; Cave et al, 2003). In fact, underdevelopment has favoured the maintenance of unique landscapes, environmental features, culture and tradition, which have been re-valued by post-modern society (Ray, 1999). Therefore, from a theoretical point of view, the regeneration process of peripheral areas could be based on the commoditisation of less tangible aspects (William and MacLeod, 2004; Ball, 1996; Briedenhann and Wickens, 2004; Cánoves et al, 2004; Waitt et al, 2003; Taylor, 2001).

However, Hospers (2002) mentions the lack of alternatives in Sardinia to mass tourism. Hospers (2002) examined the likely impact of post-modernist solutions (e.g. eco-tourism) in Sardinia. As a conclusion, Hospers (2002) admitted that a full replacement of mass tourism by eco-tourism solutions is unlikely as it is based on an undersized although affluent market niche. In order to mobilize local resources (with measurable impacts in terms of employment and income) a scale effect is needed (Gabbay and Ghosh, 2003). In fact, one of the crucial constraints in islands comes exactly from a lack of market potential that hampers local firm's developments prospects. For that reason, Hospers (2002) only ascribes a complementary and additional role to eco-tourism. The real answer to the regional development problem needs to provide a solution for unemployment.

Other authors also point to the exploitation of market niches in order to exploit the few local advantages available in peripheral regions. However, most studies are impregnated with the 'Sophisticated Models' syndrome. Dinis (2006) defends an approach based on the exploitation of market niches directed to the urban markets. Local firms are told to explore the uniqueness of each region and products specific to the rural world, where there are real competitive advantages not easily explored/imitated by the MNCs. Dinis (2006) also recommends the 'commoditisation' of the local culture based on a re-valorisation of places through its cultural identity. Dinis (2006) proposes the exploitation of niche goods/services that involve 1) natural resources, (2) tradition and cultural heritage and (3) environment and amenity resources. Firms are also told to incorporate new technologies as well as intangible factors such as design, presentation, image, organisation and innovation. Labrianidis (2006) also appeals to the identification of consumer target groups to attract the desired high quality consumers as a viable solution for rural/peripheral areas.

One doubts, however, that this 'crafts economy approach' can provide a critical mass in terms of employment, entrepreneurship and business opportunities that may change the status quo in terms of industry mix and business culture. Dinis (2006) recognises that enthusiasm concerning the niche options should not forget the rural liabilities. However, Dinis (2006) defends, as it is usual, the creation of network structures, the affirmation of a strategic vision of the territory, the promotion of entrepreneurship and inter-firms collaborations. That is, Dinis (2006) proposes and demands a 'global solution' for peripheral areas' development constraints, even though helping some craftsmen to reach core region markets is unlikely to make sufficient impact. The improbability of the success of such a demanding approach is well acknowledged by Dinis (2006: pg. 10) when he acknowledges that this quite demanding sets of requirements "can represent a problem for backward rural regions where this positive relational dynamism (ie., demanding set of requirements) does not exist". In fact, rural areas are at a disadvantage concerning the availability of both tangible (factors of production) and intangible resources (knowledge infrastructure). And both accounts of Dinis (2006) and Labrianidis (2006) fail to understand that 'resource constraints' and growth objectives "may be of little consequence for those enterprises which are not pursuing growth or change" (Kalantaridis, 2006: pg. 62). In fact, it is asserted in Chapter 5 that most firms in LFRs may not pursue growth. The accounts of both Dinis (2006) and Labrianidis (2006) also fail to add a temporal dimension to the development equation. A change in cultural and social constraints (that is, the creation of network structures) demands decades. And, in the meantime, solutions must be ready to face real threats linked to reduced financial transfers, macro-economic shocks and mass unemployment.

Further, efforts to attract external advance sectors are generally unsuccessful due to their deficiencies in terms of location factors (skills, business services and infrastructure) (Copus and Crabtree, 1996; Copus and Shuras, 2006). If successful, 'an FDI event' may provide short-term options, but 'low end solutions' to the development problems (Gatrell, 1999; Komninos and Sefertzi, 1998).

In conclusion, we can say that peripheral areas are cursed to 'survive' based on short term, fragmented and opportunistic solutions, and on the exploitation of temporary advantages, based both on traditional sectors and new niche solutions (Courlet and Pecqueur, 1994; Crevoisier, 1999; Paraskevopoulos, 2005).

3.7.2 The importance of traditional sectors

As there are few viable development opportunities, most RUPs have no alternative but to accept 'low end solutions' and/or non-orthodox solutions as they provide development opportunities and welfare solutions and are quite often the only one available. Growth paths available in the island context are more linked to 'feasible solutions' than optimal or ideal solutions (Copus and Crabtree, 1996). In fact post-modernist models based on the exploitation of intangible assets available in LFRs and alternative accounts to the capitalist system may be accused of inapplicability for the reasons included below.

For example, Sharpley (2003: pg. 247) opposes the idea that "island tourism development inevitably follows a vicious circle of dependence", as is implicit in the "centre-periphery dependency model of development". Dependency theory, based on Marxist principles, defines dependence as "a conditioning situation in which the economies of one group of countries are conditioned by the development and expansion of others" (Sharpley, 2003: pg. 248). In fact, there is point in common between the development path of the tourism sector (as the sector is dominated by global tour operators) and what is stated by dependency theory. Lea (1998) quoted by Sharpley (2003: pg. 48) observes that "tourism has evolved in a way that closely matches historical patterns of colonialism and economic dependence". But Sharpley (2003) strongly believes that 'dependency' (understood as underdevelopment plus exploitation) is not an inevitable result as far as island development is concerned. But it must be acknowledged that in fact tourism industry development follows a 'circle of dependence' as the industry is tailored to the interests of large groups.

However, the tourism sector, even if dependent on external markets/MNC, has been "an effective growth pole", underpinning both economic growth, structural modernisation, full employment and low levels of poverty (Sharpley, 2003: pg. 248). Most mass tourism islands exhibit high HDI indexes despite the fact that the development of tourism is affected by dependency, a condition that is widely understood as preventing or retarding development (Daniel and Ramos, 2002).

Sharpley (2003) provides an interesting account of the transformation of Cyprus into a relatively wealthy, modern state since the 1974 war thanks to mass tourism (see also Nancy, 2003). According to Sharpley (2003) tourism revenues contribute some 20% of

the GDP, to the stimulation of other sectors and to revitalisation/regeneration of traditional services. In most islands the tourism sector is the dominant source of employment, contributing to the maintenance of full employment, entry of women into the local labour market, and, consequently to the social/cultural development of peripheral areas. Given the overall positive impacts of tourism, Sharpley (2003) contests alternative development programmes that emphasise specialist and niche markets. According to Sharpley (2003: pg. 261) such approaches not viable “given the multiplicity of the offer of upmarket destinations, that offer vastly superior products” (see also Nash and Martin, 2003).

That is, development in islands must be understood as a ‘multidimensional process’ linked to improvement in multiple indicators: social, political, cultural and environmental ones. However, the economic growth dimension is a fundamental prerequisite to the up-grade of all the non-economic factors. As stated by Sharpley (2003: pg. 248) “the pollution of poverty, must first be addressed before development in any form can occur” (see also Carlsen, 2003a; Carlsen, 2003b; Singh, 2003).

Concerning RAM it can be seen that mass tourism represents approximately one million tourists per year. On the contrary, eco-tourism represents only 40,000 tourists per year. By all means, it must be recommended to “achieve commercial success in ways that honour ethical values and respect people, communities, and the natural environment” (Våland and Heidi, 2005: pg. 495; see also Falcón-García and Medina-Munoz, 1999). Given the severe environmental constraints, all business operations must minimise or reduce the negative impact on the environment. The solution to the environmental problems is to be found in the up-grade of the tourism product and strict obedience to environmental legislation. As suggested in Section 3.4 the problem concerning the enforcement of law in Portugal is that hyper-formalisation breaks into available informality. In a sense, there is an ‘informal’ state, which acts in parallel to the official state, protecting some ‘controversial’ projects (Santos, 1986).

In conclusion, alternative solutions such as the niche type may be conceived as temporary and partial solutions however unable to provide a global answer to the real development problems. And initial conditions do not favour “radical/innovative solutions” such as high-tech clusters. In the short term, it seems more reasonable to pursue well-founded growth paths based “on existing valuable capacities and institutions” and low end solutions. Trying to start afresh in some unfamiliar field is

unlikely to be a successful adventure (Maskell, 2001). However, in the meantime, all programmes based on alternative projects (such as eco-tourism) may permit some experimentation with elements of innovation and change. And extra employment creation in niche solutions may compensate some inevitable losses in traditionally protected sectors. But the critical problem with all niche solutions is that a scale effect can not be reached which places clear limits on the probability of the success of such revolutionary approaches.

3.8 Short term concerns: management of sensitive sectors

As stated above, an up-grade of some critical social/cultural characteristics at work in peripheral areas demands an enlarged temporal horizon. Processes of economic restructuring and 'cultural up-grading' are only viable in the long term. But in the meantime, local governments must manage short term risks.

The LFRs are characterised exactly by the small number of firms resourced enough to explore economies of scale and to take full advantage of opportunities to invest in alternative sectors, as for example in 1992 with the Single Market (Camagni, 1992; Quevit, 1992; EU, 2004; Furceri and Karras, 2006). In fact, LFRs are characterised rather by an excess of sensitive sectors, i.e., traditional sectors, sheltered until now against external competition by import restrictions, export subsidies and by 'regional preference' (Flaten, 2002). Firms belonging to these sectors are under-resourced and are highly vulnerable to external shocks, but they are decisive in terms of employment and political influence (Floyd and Mercado, 2003; Foley and Griffith, 1992). The short term problem in most regions consists of how to manage the evolution of these sensitive sectors. If local governments do not apply short term management procedures, there is an obvious risk of massive loss of entrepreneurial activity, which is not possible to recover or "that could only be recreated in the future at a high cost" (Camagni, 1992: pg. 366).

Instead of pursuing only high-tech solutions (or, on the contrary, be exclusively focused on the traditional sectors), local governments must manage a 5-fold problem as there are 5 relatively distinct sub-populations that contribute to the regional equilibrium condition (Camagni, 1992). Camagni (1992) defines the first four and I added the fifth: exposed and competitive sectors; non-competitive sectors; non-exposed sector; informal sector

and; the innovative and non-traditional sector. Concerning a) the exposed and competitive sectors, it is well accepted that policy strategies should promote an increase in the number of firms operating in such sectors (i.e., maximum expansion) (Camagni, 2002). However, the exposed and competitive sector comprises (almost) only tourism firms (Frochot, 2005; Frisch and Mueller, 2004). And the tourism sector is constrained by growth limits as the environmental carrying capacity must be carefully managed (Gil, 2003). The b) non-competitive sectors linked to an easy access to financial transfers, will be severely damaged by the on-going process of globalisation and technological modernisation and by the end of the 'regime of exception' in terms of financial transfers (Jassen, 2000; Mastromarco and Woitek, 2006; Philips and Swaffin-Smith, 2004; Pietroforte et al, 2000; Dixon, 2005; Hall et al, 2004; Vias, 2004). There is a clear risk of failures and explosive unemployment rates; in relation to this sector Camagni (1992: pg. 366) recommends "not to offer rescue and financial assistance, but to save the potential entrepreneurship that this sector provides, assisting the reorganisation of inefficient firms or opening other business opportunities through ad hoc agencies". The c) non-exposed sector, which comprises non-market services and public administration, it is crucial in terms of social and political stability as the sector absorbs tensions in the labour market. However, public administration is characterised by a tendency towards over-employment and reduced productivity, a fact that might be detrimental to macro-economic stability as it may be understood as a source of inflationary pressures and budget deficits. Concerning d) the 'informal or black sector' there is little to say at least concerning RAM. The e) innovative sector comprises innovative firms operating in new market niches. The policy strategy should also promote an increase in the number of innovative firms operating in strategic niche markets. It is obvious that strategic interests/objectives, short term risk and political influence of the different groups of firms is quite dissimilar. Not surprisingly, it is sectors b) and c) that provide critical political support for most RUP governments.

Concerning the strategy to transform a 'problematic' economic base into a dynamic/diverse economic landscape, there seems to be widespread consensus in proposing an integrated strategy which takes into account: a) attraction of FDI and/or the development of endogenous potential; b) the up-grading of human resource, competences and skills; c) the adoption/diffusion of innovation/technology and the development of ICT infrastructures; and d) the exploitation of advantages in the so-

called 'quality of life' assets linked to eco-tourism (Gatrell, 1999; Camagni, 2002). In fact, there is a consensus in relation to the set of pre-conditions that must necessarily be in place, namely a) the existence of basic pre-conditions in terms of key location factors such as infrastructure endowment and human capital; and b) the existence of natural resources or technical/industrial 'vocations' developed historically. A rich set of localized know-how is also important in order to achieve a competitive advantage.

What must be done to up-grade the industry-mix is quite evident. The problem is to assemble the political support needed to pursue such a strategy. As it is quite difficult to meet all the preconditions, Morgan (1997) advocates capitalizing on the existing service base in peripheral areas, taking into account the local economic and institutional particularities. Camagni (1992) proposes a small step strategy, that is, the progressive up-grade of attitudes (eg. attitudes towards entrepreneurship) and the progressive adoption of organizational and technological innovations.

However, concerning RUPs, it is not possible to depict a development model de-linked from a strong emphasis on the leadership role of the state (Amin, 2001). Concerning state intervention, Gatrell (1999) advocates development plans outside of fiscal years and electoral cycles in order for a long term vision to be promoted (see also Darby and Muscatelli, 2004).

In the meantime, local governments must manage the non-exposed/sensitive sectors as far as possible. The existence of sensitive sectors draws attention to the macro-economic context as the driving force behind changes in local demand patterns. From a local point of view, macro-economic shocks are more relevant to the viability of local firms/sectors than technological turbulence (Roberts and Thompson, 2003). In fact, in the absence of an easy access to external resources, localised micro-policies are unable to mitigate the adverse impact of a macro-economic shock. Another 'problem' that must be added to the equation concerns the on-going transformation in the key local sectors such as retail and construction. Such traditional and slow-growing sectors have reached their growth limits, and are subject to increased competition (Guerrieri and Iammarino, 2006).

The implementation of a new regional policy takes time, and extra financial support towards RUPs may be required (Quevit, 1992). It is not possible to expect results from a process of endogenous economic growth (based on an entrepreneurial attitude on the

local firms' part) in the absence of a favourable macro-economic framework; however, and due to the widespread adoption of budgetary controls, there is no political willingness and legal support to design, launch and implement inflationary and deficit-inducing expenditure programmes (Amin, 2001). If RUPs cannot manage to stabilise the macro-economic context, a catastrophe may be unavoidable, as theorised by the ecological approach to which I now turn.

3.9 A realistic scenario: an ecological population approach

As suggested above, the 'Sophisticate Models never rate the probability of success of the ideal solutions they propose. And any effort to provide a likely temporal horizon needed to achieve results is also ignored. All the evidence available seems to suggest that an up-grade of certain cultural traits (such as a positive attitude towards intra-firm collaboration) demands an enlarged temporal horizon. For that reason it is important to devise scenarios of what can happen in the next few years. The ecological approach provides a useful theoretical framework to understand and conceptualise the LFR's short term prospects.

The ecological approach applied to the organisational field provides a theoretical framework to analyse the mechanisms and processes governing the establishment, growth, change and decline of organisations such as firms, which is quite useful to understand the dilemmas faced by RAM and what to expect in the face of a sudden fall in the amount of resources available. The organisational ecology literature is concerned with which factors "internally in a population and externally in the environment determine the entry of new organisations and the survival, change and failure of existing ones" (Hjalager, 2000: pg. 11). Although firm's choices and efforts to increase survival odds in the face of adverse events are acknowledged, it is accepted that firms survival odds "come out as probabilities" and in face of negative events such as falling demand and macro-economic shocks a high rate of failure is inevitable.

According to Hjalager (2000: pg. 11) the 'organisational ecology' thinking is "accused of being deterministic, inasmuch as it tends to ignore firms' strategies and actions, and fails to maintain the idea of unique compositions of competencies and resources in individual enterprises". But the organisational ecology thinking recognizes that threats, such as macro-economic shocks, new societal trends, the introduction of new business

concepts, competences, cognitive frameworks and technologies may result in 'tragedy' for firms still reliant on old concepts and technologies. It is also acknowledged that changes in government regulation and macro-economic policies, shifts in technology and societal trends affect firms' survival, entry and failure rates. It is also accepted that firms' survival is linked to their capacity to adapt to the changing environment. But the capacity to adapt is not only dependent on soft measures such as up-grading of human resources, or introduction of new business concepts, but is also related to access to political resources.

Organisational theory emphasizes the importance of environmental resources and accepts that the characteristics of the environment determine entries and failure rates. It is also accepted that environment changes in terms of increasing economic pressures (fallen demand) as a result of an adverse political environment may result in high levels of failure rates, low entry rates and as a consequence, in high levels of unemployment and social crisis. And it is accepted that organisational survival is partially "beyond the control of any individual organisation or population of organisations" (Nyhan, 2000: pg. 111). The organisational ecology field sees 'selection pressures' as the main engine of change and accepts that the organisational outcomes (growth, stagnation, failure) are largely determined by environmental forces. In conclusion, a firm's survival is not guaranteed no matter what strategies are in place. It can also be asserted that on-going access to financial and political resources is critical to maintain a certain degree of stability in the population of firms.

In face of a demand crisis, concepts such as selection pressure, survival and failure appear more relevant than strategic management issues, staff empowerment issues and learning capabilities (which are critical issues to the fashionable discourse). In a crisis scenario, the selection mechanism is activated and as a result, failure rates may be high. In such a crisis scenario, carrying capacity limits are reached, and firm's strategies will not assure firm survival. In such a scenario, firm survival depends on traditional assets such as an easy access to financial and political resources, and the reputation, image and visibility of OMs. What is evident from most ecological studies is the negative impact in terms of firms density rates of dramatic changes in the environment.

An example of the efficacy of the ecological approach to understand the likely evolution of the traditional sectors is provided by Hajlager (2002). Based on an analysis of the evolution of the food and beverage sector in Denmark, Hajlager (2002: pg. 271) asserts

that he “was not able to conclude that successful enterprises pay significantly more attention to managerial and competence issues than new or unsuccessful enterprises”. On the contrary, he concluded that learning, development and survival “take place the hard way: by trial and error, by entrepreneurship and failure”. The analysis of Hajlager (2002) points to the importance of a firm’s credibility and its access to resources (linked to group affiliation and reputation) in terms of survival odds (see also Kearns, 2003; Ward and Lusoli, 2003).

Although the ecological approach does predict high failure rates in the face of macroeconomic shock as ‘normal’, it is still possible to cope with distressing events in order to improve survival odds. However, a mechanistic link between management upgrade and a firm’s survival should not be expected. Kearns (2003), in an analysis of the public sector unions’ evolution in the USA indicates that in spite of an unfavourable political and cultural environment which has diminished the sustainability of the trade unions, it has been possible to adapt/cope with such an adverse environment. Some unions work to manage/influence the changing process, assuring the survival and the legitimacy of the organisational form. Kearns (2003) shows the importance of coping responses that influence the institutional environment and political context via definition of optimal strategic choices, often quite distant from their historical path (see also Gambaroto and Maggioni, 1998).

It must be recognised that the population ecology analysis has been criticised as it ignores firms’ strategy actions and the character of the unique compositions of competencies and resources in individual SMEs. The population ecology analysis is more akin to the Darwinian hypothesis of change and selection, than to Lamarck’s conceptualisation of human/firms as learning subjects able to incorporate learning outcomes in their behavioural repertoires. As stated by Durand (2001: pg. 400) “In the Darwinian mode, the fitness of adaptation critically depends on the environment selecting organizational forms. Thus, in the competitive Darwinian process, if there is a *rationality* in play, it is the rationality of natural selection”. But the ecological population approach provides us with a ‘strategic’ theoretical ground to understand regional development prospects and local government intervention to manage crisis events. The ecological approach clearly suggests that a crisis event is unavoidable if financial transfers are reduced, which is carefully ignored by most sophisticated model

approaches. Hence, local governments should adopt a damage control approach to avoid a sudden decrease in the level of financial transfers (Taylor and Tricker, 2006).

3.10 A balancing between continued aid and market solutions

As seen above, most regions have applied efforts to replicate fashionable regions. But the current conceptualizations of peripheral economic opportunities and economic development programmes were inherently 'event oriented' and linked to 'development episodes', such as university research complexes, tax incentives, or worker retraining (Gatrell, 1999). However, this kind of 'magic bullet' approach based on 'development episodes' will never replace a long term strategy or the impact of historical paths (Gatrell, 1999).

Despite the difficulties underlying the take-off of alternative growth paths, there is no space for an isolationist or 'do nothing' option as a crisis event is unavoidable if financial transfers are reduced. Thus, it is important to support any kind of initiatives (such as FDI attraction, education programmes, and/or the adoption/diffusion of ICT tools) that may transform an island into a 'more developable' place able to pursue development opportunities when they arise (Porter, 1998). However EU bureaucrats and mainland policy makers must recognise that quite often a (high-tech) development solution for islands is not available. This section intends to provide some comments about how to conceptualise options available in islands such that both local inhabitants concerns (i.e., access to minimum standards of well-being) and EU/national interests (i.e. the on-going reduction of financial transfers) are incorporated in a long term strategy.

To build up a long term development strategy, local government must manage a complex web of temporal, political and cultural demands. The 'do nothing at all' options is not available any more as it is not possible to circumvent (deny) the institutional and political stagnation which makes difficult the development of alternative growth paths. As stated in section 3.2 concerning Italy, "Italian citizens were becoming increasingly resentful at emerging economic and political problems" in Southern regions (Giordano, 2000: pg. 456). Local governments in some LFRs must handle a damage control approach in order avoid both a sudden fall in the level of the financial transfers and criticism coming from core regions' citizens concerning LFRs'

'work ethic'. In fact, the most dramatic problem faced by some islands concerns 'credibility' and a lack of evidence to sustain local governments protestations concerning the particular nature of the island's problem. Most traditional accounts still acknowledge that islands suffer from lasting problems (eg. distance, transport costs and limited market potential). But as seen in Chapter 2, now proofs to sustain the assertions concerning the insular problem are required. A technical solution to handle the conflicting evidence and interests may lie in an old concept from the neoclassic mainstream: 'potential GDP' (meaning the maximum amount of GDP that is possible to reach). All RUPs should target the maximum growth rate given all non-contingent geographical and economic constraints. All market imperfections and management errors should be minimised in order to get a real 'picture' of the macro-economic potential.

However, even if all market imperfections and management errors are minimised or corrected an extreme scenario of no economic viability (without strong financial support) must be recognised as possible. In such a scenario, a high level of financial transfers must be provided to assure the economic and social viability of islands as there is no market solution to the unemployment problem. But it must be reiterated that market inefficiencies are no longer tolerated. In fact, most LFRs need renewed political legitimacy to engage in political confrontation with national governments and EU institutions in order to secure extra-financial transfers.

It is possible to develop a conceptual framework based both on the old regime dimension (focused on claims about the disadvantages face by islands) and on the competitiveness discourse (i.e., centred on market efficiency and export oriented strategies). In order to determine LFR's real development prospects, policy-makers must try to minimize all contingent factors namely particular economic, institutional and political characteristics that may be outdated. Data concerning the geographical constraints faced by islands must be integrated in an analysis of island's growth prospects as they are permanent in character. As stated above a high level of transport cost imposes limits in terms of growth dynamic. Hence, all analysis based on an 'a-spatial perspective' which excludes from the analysis geographical constraints may provide a misleading account of local development potential. If this double approach is taken into consideration it is possible to define 4 scenarios.

Figure 3.1 Categorisation of RUPs in terms of development potential

(+) market inefficiencies (-)	<p>Legitimacy scenario</p> <ul style="list-style-type: none"> .Incapacity to sustain high rates of employment solely based on market solutions .Political legitimacy to negotiate extra financial transfers .Need for (however minimal) ad eternum financial support .Compensation for the absence of employment, cultural opportunities 	<p>Winner Scenario</p> <ul style="list-style-type: none"> .Development prospects based on market solutions namely in the tourism sector .Risks of over-exploitation of natural resources .Increased competition (in the tourism sector) from exotic places
	<p>Un-sustainability</p> <ul style="list-style-type: none"> .Incapacity to sustain high rates of employment solely based on market solutions .Lack of political legitimacy to negotiate extra funds .Political stagnation; incapacity to handle complex process of mitigation of the adverse impact of lock-in processes .High levels of influence of non-representative groups .Progressive degradation of living standards .Activation of the selection mechanism (high rates of failure) 	<p>Inefficiency</p> <ul style="list-style-type: none"> .Incapacity to handle complex process of mitigation of the adverse impact of lock-in processes .Existence of idle resources and potential to explore and transform in entrepreneurial vocations, employment and rising standards of living . High levels of influence of non-representative groups .Activation of the selection mechanism (high rates of failure)
(-)self-sustainability(+)		

The *legitimacy scenario* acknowledges that an on-going financial support must be admitted. In fact, despite the fact that market inefficiencies are at their lowest level, there are insufficient market potential and endogenous resources to sustain an export-led strategy. But, as such islands manage to correct the level of market inefficiencies there is room of manoeuvre to be granted financial assistance. However, islands' development programmes should not be based on the exploration ad nauseam of the geographical/economic constraints discourse as an attempt to ignore the market inefficiencies and political/institutional stagnation as it may be the case in the *un-sustainable scenario*. Sooner or later, the anger and resentment on the 'donors' part will be felt, as in consequence of the high levels of transfers required to sustain welfare in such territories. But, the maximum that can be done is to reduce market inefficiencies and thus the amount of the financial transfers. The *inefficiency scenario* concerns islands able to pursue an autonomous growth path as they have resources to pursue export oriented strategies. But, there is no political willingness to start a programme of

reforms. The *winner scenario* concerns islands that have been able to reach impressive levels of economic growth not fuelled by financial transfers.

I also assert that an analysis of islands' growth prospects should be subject to some basic principles:

a) a 'scientific analysis' as a way to reduce to the minimum the political rhetoric that pervades the debate; what most RUPs need is a dispassionate and de-politicised analysis of their development prospects; a recent suggestion emanating from the European Commission seems quite useful, as it recommends more 'science' in order to compute the real cost associated with remoteness/insularity; without reliable data concerning the potential GDP, institutional and political inefficiencies and market inefficiencies, all assumptions and development programmes may be understood as plausible; a better understanding of RUP issues "can contribute to increased scientific consensus and consequently political consensus in the long term" (Schenk et al, 2006: pg. 2); the EU institutions must orient the discussion about RUP development prospects towards a more technical basis;

b) principle of local responsibility and 'ownership' as a way of persuading peripheral regions to minimize all market inefficiencies; local governments should strive to achieve the maximum GDP growth; due to the growing resistance to further financial transfers, a minimum level of legitimacy must be achieved to facilitate a 'new agreement' between islands and the mainland; a principle of technical assistance plus a conditionality factor may be integrated in regional development programmes in order to put local governments under enough pressure to pursue painful reforms; and local governments must take on the responsibility of managing critical incidents and short term prospects;

c) principle of 'solidarity'/'territorial cohesion', as it is believed that some regions may not ever reach minimum levels of economic and social viability; national governments should define minimal levels of access to key public services (relative to the EU average); however it must be acknowledged that it may eventually be impossible to compensate all the geographically based handicaps; in any case it is important to introduce an element of positive affirmation as local populations face permanent obstacles (Cross and Nutley, 1999).

In conclusion, I acknowledged that in some islands as there is no market potential and resources to sustain high order growth paths. And it can be suggested that a sudden reduction in the amount of financial transfers in the middle of an on-going process of modernisation may stop the momentum in terms of economic and institutional modernisation. In fact, ad hoc and stop-go policies should be avoided as RUPs need coherent long-term strategies. Stop-go policies, defined by Schenk et al (2006: pg. 2) as “a result of over-enthusiasm (hype) followed up by reduction or removal of financial incentives resulting in a retreat of investments, followed by the next hype” may hamper development perspectives in RUPs as an up-grade of islands’ social/cultural background demands time and resources (Amin, 2001).

The next section is designed to show that a sudden reduction in political and financial support may put islands on the brink of another cycle of poverty and despair (Raoulx, 1999). And it is also shown that the pressure put on islands to apply a neo-liberal agenda at the expense of the neo-Keynesian policies in place ignores the fact most European states themselves try to avoid painful decisions in the same way that islands try to avoid a sudden fall in terms of financial transfers.

3.11 What about an end of financial support and ‘non-orthodox sectors’?

As seen above, most islands affected by recent developments in international trade regimes (concerning the OFC industry) sense a feeling of anger/unfair treatment. In fact, some independent islands states offered “a spirited defence of existing offshore sectors, as alternative prescriptions for economic viability have been lacking” (Sharman, 2005: pg. 312). All efforts to attack the OFC industry have been conceived as ‘neocolonialist in intent’ as they were understood as a serious threat to local livelihoods. The efforts to impose on islands higher standards than those ones applied by OECD countries are also criticised (Sharman, 2005; pg. 318). The UNDCCP report (1998) (*Financial havens, banking secrecy and money laundering*) acknowledges “a real danger of economic collapse” if current levels of OFC activity and ODA are reduced. Despite all criticism directed at the OFC industry based on the ‘large tax losses’ and ‘serious criminal activity’, OECD states and multilateral institutions “have been remarkably reluctant to invest the tiny sums necessary to create incentives for compliance, or simply buy out these jurisdictions’ offshore sectors altogether” (Sharman, 2005: pg. 319). The ‘buy out’

idea is not so eccentric. For example, the Australia Tax Office claims that Vanuatu's offshore financial industry implies tax losses to Australia of \$169 million a year. But Vanuatu receives less than \$1 million a year in fees. For Sharman, 'side payments' are conceivable as the "Australian government paid Nauru \$29 million to take unwanted asylum seekers". And both the Financial Times (14 May 2001) and The Economist (27 January 2000) supported the 'buy out idea' as both economically efficient and fair. Oxfam in their 2000 report, Tax havens: Releasing the hidden billions for poverty eradication, also suggested financial assistance and reforms to the international trading system in return for tax haven compliance.

The point to be made is: if both the OFC industry and the financial transfers are eliminated, local economies may collapse and, contrary to what was initially expected, higher levels of ODA may be required in the future. In fact, most SIRS have no short term capacity to up-grade products and services in order to trigger self-sustained growth programme based on exports. And in most cases the amount needed to buy out territorial cohesion, positive affirmation and compensation for historical and geographical constraints is perfectly feasible. For example, concerning Vanuatu \$2 million dollars would compensate the \$1 million dollars a year in fees.

As stated by Sharman (2005: pg. 321) "the least bad solution looks likely to be a steadily increasing aid dependence for the states of the South Pacific. Offshore finance has thus not proved to be the answer, or even a significant part of the answer, to the development imperative in the South Pacific, but in the absence of compelling alternatives it is in some ways not surprising that small island states in this region have held on to this hope for so long". In fact, the buy out idea translated in "financial and technical assistance to encourage alternative development programmes" seems viable and fair and would provide the moral justification for extending the range of defensive measures in place against the OFC industry. What should be avoided is to deprive islands of all kind of alternatives.

The line of reasoning provided above concerns islands hosting an OFC. But the buy out idea may be extended to any dependent islands' context. In fact it can be suggested that the financial transfers in place compensate for the lack of economic viability.

It can be shown that the buy-in idea of territorial cohesion and minimum levels of welfare in peripheral regions via financial transfers is not so eccentric or indefensible. In

fact, all the criticism around the excess of government expenditure in RUPs seems to be quite exaggerated. According to the neo-liberal rhetoric the expectation should be “progressive tendencies towards the internationalization and globalization of national economies”, “ineluctable processes of welfare state down-sizing and public sector retrenchment” and “little option but to cut back on taxing and spending programmes in order to compete in world markets effectively” (Castles, 2001: pg. 195). A ‘race to the bottom’ in social provision and a widespread privatisation of public services was also predicted. However this has not been the case as national governments have continued to pursue traditional Keynesian approaches (i.e., demand-side policies). Most national welfare systems exhibit high levels of resilience. In fact, Kuhnle argues that evidence supports the conclusion that “European welfare states have ‘survived’ the 1990s and remain institutionally strong with solid basic support from voters and major political parties” (Kuhnle, 2000: pg. 235).

From the analysis above we reach the conclusion that RUP development choices show striking similarities to what has happened in ‘southern countries’. Most Southern Countries experienced a phenomenon of ‘expenditure catch-up’ after decades of undeveloped welfare systems. In fact, southern countries tried to catch up with the European Union in terms of social as well as economic standards. Most citizens believed that standards of social protection ought to converge with the Europe standards. As stated by Guillém and Matsaganis (2000: pg. 135) “there appeared to be a consensus among all political parties and shades of opinion that high standards of social protection represented a legitimate aspiration”. As a consequence, the social convergence goal was strongly supported by policy makers and voters. Even today, “welfare is the foremost priority of the vast majority of governments in industrially advanced societies” (Castles, 2001: pg. 201; see also Matsaganis, 2000)

It is evident that, despite the neo-liberal rhetoric, social/economic stability and political willingness were more important to define ‘development strategies’ than international political economy concerns. In fact, any neo-liberal based policy that severely affects large groups of voters is political unsustainable and has been avoided. Consequentially, governments try to adopt only piecemeal approaches in order comply with supra-regional demands, but avoiding as much as possible substantial political reforms. And as far as possible most governments approach an all-party consensus before launching

any substantial reforms of welfare policies. To blame an external scapegoat (such as the EU budget policy) was also politically rewarding.

Although the average level of government expenditure is quite stable, priorities have changed in order to cope with the increased costs of the social assistance and social security entitlements. Consequently the 'other public spending' (investment) category is adjusted to compensate for the increasing levels of social transfers (Guillén and Matsaganis, 2000). In most countries a retrenchment of other public spending categories is possible as infra-structures are already in place; this is not true in most RUPs. As argued by Almeida (2004) the extent of government intervention in islands surpasses the traditional government involvement in the OECD context as local governments must replace private investment. And given the initial starting point, large amounts of funds have been channelled to the provision of infrastructures. Huge amounts of money were also diverted to reduce the high levels of poverty and emigration. As a consequence, RUP welfare regimes should be understood as a 'special' given the extent of the government involvement and the specific development trajectory.

In most Southern regions there is no a large number of market based activities to provide employment opportunities for less qualified individuals. In such a scenario, social policy is instrumental in providing access to minimum levels of income. Trifiletti (1999: pg. 52) show how (fake) disability pensions were the only effective way to allow "older, uneducated southern women who had worked as casual labourers in agriculture" to access an old-age pension as most of them were unable to find a full-time job (see also Guillén and Matsaganis, 2000). Trifiletti (1999: pg. 52) concludes that "this tacit policy of a disguised minimum pension is not so rare in Mediterranean countries. Scarcity of resources is often combined with a generous distribution of low benefits". Thus, the neo-Keynesian approach in place may also be conceived as a form of social protection (i.e., unemployment benefits) and positive discrimination. RUP development strategies were concerned firstly with the equalisation of social and educational opportunities and secondly with infrastructure development. Competitiveness dilemmas were placed in third place.

In fact, even rich countries struggle to avoid social catastrophes and a fragmented society. As a consequence social expenditures are conditioned rather by unemployment concerns than by trade openness. Guillén and Matsaganis (2000) shows that both left-wing and right-wing parties are more concerned with economic/social issues than with

competitiveness concerns. As stated by Guillém and Matsaganis (2000: pg. 137) radical reform “seems to cause terror at the heart of most politicians”. As a consequence, it is not a surprise that the competitiveness discourse was not translated into a ‘social dumping nightmare’ or in ‘a race to the bottom’.

Of course all the ‘theoretical reasoning’ stretched above fits the interests of the ‘orphelins enragés’, basically interested in a ‘business as usual scenario’. But what’s pursued was not a theoretical framework to sustain the on-going ‘state of affairs’. Instead, it should be conceived of as an effort to add an element of positive discrimination. Populations living in RUPs have been affected by excess costs that must be minimised and compensated as far it is possible.

3.12 Which regional development model for an RUP? Conclusions

Chapter 3 has intended to put into context the current theoretical and empirical developments in the regional studies field that may help to understand islands’ growth prospects. As a consequence a critical analysis of various theoretical frameworks was developed in order to understand which options have been available. It can be stated that,

- as seen in section 3.2, for years, the economic rationality faced by policy makers didn’t favour the implementation of a development strategy based on efforts to increase island competitiveness (Golden, 2004). As stated by Giordano (2000: pg. 451) “what matters politically is not so much the changes in the global economy as their impact in particular places”. In fact, local governments succeeded in delaying the adverse impact of the globalisation process based on a clientelist approach. However, it has not been possible to avoid the “resentment and anger” of core region inhabitants that are “seeing their taxes siphoned off to the less productive, less efficient, and supposedly parasitic southern regions” (Golden, 2004: pg. 1240). Painful decisions must be taken (or else avoided if possible) as RUPs are expected to live up to international standards of productivity, growth and competitiveness as suggested in section 3.4.

- However as seen in section 3.3 there is no reason to expect substantial changes in the established spatial hierarchy of regions in Europe; it was suggested that the policies in place only contributed to avoid higher levels of divergence;
- section 3.4 suggests that islands cannot manage to develop, from scratch, export oriented sectors the outside traditional sectors as they face geographical and historical constraints;
- as a consequence it was suggested that a direct application of the competitiveness discourse is not possible in islands; Section 3.5 tried to understand the likely impact of a cluster based approach in a peripheral region. It is evident that most islands lack a set of critical characteristics namely a network of independent SMEs based on interdependent specialisation of tasks; networks of formal/informal institutions/relationships/norms; a local technical and industrial culture and institutional thickness; and a web of external trade/commercial relationships;
- still in section 3.5 it was suggested that 'isolated development events' such on university research complexes, tax incentives, worker retraining should be promoted all measures that may "help to safeguard existing jobs, embed existing foreign plants, promote more robust linkages between these plants and indigenous firms, and help to disseminate 'best practice' throughout the regional economy should be promoted, although they may not be translated into high-tech clusters (Morgan, 1997: pg. 501); however it was asserted that it is impossible to gather all pre-conditions needed to succeed in the cluster or learning region fields; as a consequence an approach was advocated that capitalizes on the existing economic structures and takes into account the local economic and institutional particularities, instead of projects based on non-feasible regional development models; in practice this still means a strong emphasis on the traditional sectors; a partial solution may come 'isolated events' such as the eco-tourism. However, such developments should not be expected to change in a dramatic way the fortune of peripheral regions; still in section 3.5, it was asserted that local governments must focus on short term damage control; the existing economic/industry background must be managed to avoid a crisis scenario, which may imply the destruction of valuable assets in terms of entrepreneurship and the reverse of the process of catch-up that has taken place;

- section 3.6 provides a contribution to understand development prospects in islands; it was admitted that some islands cannot survive without external assistances; however they should be required to erase all market inefficiencies in place in order to buy political legitimacy to confront national governments and the EU institutions in their quest for extra financial support.

Thus, the LFR challenge is linked to the management of a time period between the 'initial conditions', i.e., the current economic background and a 'historical accident' that hopefully may happen. For the moment, it is evident that a full replacement of the industry-mix and business culture is not possible. As stated by Morgan (1997: pg. 501) concerning Wales, "70 years of economic decline cannot be reversed overnight".

In the end, it must be acknowledged that most RUPs are too 'immature' today to succeed in a new cycle of development as they were unable to explore the Single Market benefits (Golden, 2004: pg. 1246; see also Camagni, 1992; Quevit, 1992). And nothing has happened to suggest that a different outcome may be possible now. Some LFR regions stay ahead in the race to the top as they exhibit higher catching up potential. But others may experience crisis events that must be avoided or managed (Delhey, 2001).

In fact, there is no room for 'every region a winner' scenario (Delhey, 2001). From an analysis of the convergence/divergence process, the incapacity to manage structural change and reverse historical growth paths in the short run can be clearly seen. Some LFRs are on the brink of another cycle of economic and social marginalisation as sensitive sectors predominate.

What results from this account is that RAM has been able to maximise all the opportunities available including financial transfers based on a continuous political confrontation with the central state, mass tourism, hosting an OFC and trying to delay as much as possible the adverse impact of the globalisation process. It was asked at the end of Chapter 2 if a different growth path would be possible. The answer is probably a negative one.

Chapter 3 has provided a general account of development options available for islands. However, this research project intends to provide an answer concerning a more specific question: is there a digital solution available to solve islands development problems? Chapter 4 is focused on the analysis of peripheral regions in the digital era.

Chapter 4:

Regional development in the Information Society

4.1 An introduction to the Information Society phenomena in an island context

We should now extend our analysis by studying the theoretical insights offered by the 'Information Society' paradigm to understand islands' development prospects. As seen in Chapter 3, the 'development of the periphery' topic is still a pressing issue in most developed and developing countries as it has been not possible to solve the divergence gap in terms of GDP per capita between core and peripheral regions (Malecki, 2003: pg. 201; see also Kiiski and Pohjola, 2002). As acknowledged by political economy rhetoricians "material inequalities and socio-spatial differentiations remain pressing issues in contemporary western societies", especially concerning remote and peripheral areas (Valentine, 2001: pg. 169). And as seen in Chapter 3, the future prospects are worrying for RUPs. As stated by Entrena et al (2004), LFRs (and by extension all RUPs) face an intensification of some key socio-economic processes at work in such regions as a result of the on-going process of globalisation. A key result of the convergence/divergence debate is that the 'old' clientelist approach (based on income transfers) is no longer sustainable. RUPs must now implement "restructuring and readjustment process" based on neo-liberal policies to "foster economic growth and reduce disparities" (Shefer and Rietveld, 1999: pg. 11; see also Armstrong, 2004; Malecki, 2003; Entrena, 2000). However, as seen in Chapter 3, RUPs' growth options based in the classic 'material' geography are limited and as a consequence most RUPs cannot support the 'welfare system' on place solely based on market solutions (i.e., without external support). As a consequence, policy-makers in LFRs become to be interested in alternatives models in the 80/90s as local governments experienced increasing difficulties to sustain the neo-Keynesian policies in place.

During the 1980s and the 1990s new concepts and models emphasizing intangible factors and processes (such as learning, inter-firm collaboration, governance, etc) emerged in the regional studies arena to offer development alternatives to peripheral and underdeveloped areas. One such concept, the 'knowledge economy', was especially appealing, as it emphasised the creation of economic value (economic growth) from the "manipulation of ideas, rather than exploitation of energy and materials" (Berkhout and

Hertin, 2004: pg. 914; see also Park, 2001). Still in the 1990s, the on-going process of de-materialisation allegedly made possible by new developments in the ICT field was understood as linked to a structural change away from materials intensive activities towards service-based and information-intensive activities, i.e., "clean and weightless activities" (Berkhout and Hertin, 2004: pg. 914). In fact, the developmental and technological discourse based on such concepts was overtly optimistic about the multidimensional prospects and promises for the rural areas and peripheral regions. Another such concept, the concept of an Information Society, was linked to opportunities for peripheral areas concerning: a) industry (as smaller optimal size of plants and a reinforcement of the competitive edge of SMEs in relation to giant competitors was deemed possible); b) geography level linked to a decrease, if not eradication, of the tyranny of space and consequently, to the mitigation of the remoteness/peripherality issue; c) demography and entrepreneurship, via attraction of skilled in-migrants and entrepreneurial capital in high-tech sectors. As a consequence, the concept of an Information Society was warmly welcomed in the development arena, especially in regions touched by a series of failures of conventional development strategies (Bertrand, 2001). As stated by Heeks (2002: pg. 1): "other [international institutions, policy makers, academics, etc] like serial divorcees, who were convinced that this marriage will be the one that works, were drawn in by the hope that this time, a real answer to the problems of development has been found". Some policy-makers seemed to believe that the ICT Revolution would be the 'one' that would solve the development problems in LFRs. And the European Union strongly advised LFRs to approach such a promising development route. Therefore, most regional development plans of the 1990s advocated an 'aggressive information infrastructure policy' seeking to make the region the most connected one by the year 2000 (Ramirez, 2001).

However, this over-optimistic discourse was not translated into radical changes in the status quo (Bertrand, 2001; Join-Lambert, 1996). In fact, soon after the ICT promise was identified, followed the disillusion phase with a repositioning on the old growth models ('doing nothing at all' and/or defensive approaches). It soon becomes clear that the ICT revolution was less of an opportunity than a threat to small business located in rural areas (Meng and Li, 2002). As a consequence, most policy-makers now approach the ICT Revolution in a dispassionate and indifferent manner as a result of such disillusionment. Now, 10 years after the eruption of the Internet in the world scene and

experimentation with 'Information Society projects', it is possible to avoid the 'messianic' and hyper-optimistic approach that conditioned the debate in the 1990s, as there is plenty evidence to understand the real contribution of the ICTs and the Internet for the development prospects of LFRs.

This chapter intends to provide an in-depth analysis of several strands of theory related to the debate about the alleged promises of the Information Society for peripheral areas. As we should not understand the Information Society paradigm as led by some determinist forces triggered by "a social and technological meteor hitting our planet from outer space" (Graham and Marvin, 1996: pg. 410), I try to analyse the likely impact of the Information Society project taking into account the specific political and cultural context in place in peripheral areas and by extension in islands.

4.1.1 Outline of the chapter

As stated above, this chapter intends to provide an in-depth analysis of the likely impact of the Information Society Project especially regarding a possible recovery from underdevelopment and 'peripheralisation'. Although most reports, studies and press releases emphasize the Information Society project as a potential driver of the economic and social regeneration of peripheral areas, a more nuanced approach should be provided. As stated by Dabinett (2002: pg. 323) a "critical commentary must be added to this exciting but often misunderstood set of phenomena". Although 'aggregated' relationships between ICT adoption/diffusion and regional development prospects must be analysed, an individual agency perspective must also be added to the debate. Local policy makers and voters' concerns about the Information Society Project may be dissimilar from the European Commission or academia points of view. As seen in Chapter 3, as most regional strategies are based on fashionable models (such as the cluster approach) without a proper examination of specific spatial and social processes at work in peripheral regions, the relative inefficacy of some EU regional development programmes should not come as a surprise.

In order to understand the potential contribution of the Information Society project, a holistic approach is opted for. Most studies adopt a micro level based analysis assuming that potential adopters of ICT tools are fully rational actors and in a certain way 'emotionally' attached to the Information Society Project. Consequently, a 'non-

adoption' scenario is understood as an irrational and/or a transitory phase. Further, the micro level analysis provides only limited information concerning the impact of societal and political influences in the adoption process. And a full understanding of aggregated behaviours such as those expressed in collective political support for the Information Society Project is missing from the account (Schenk et al, 2007). Macro-level analyses of ICT phenomena, in contrast, are based on high level aggregation, international comparisons and usually adopt a top-down point of view. In fact, most regional development plans are informed by EU policy (which may be studied from a macro perspective) but they are refracted by the "distorting effect of national institutions on global innovation opportunity" (Waesche, 2003: pg. 5; see also Labrianidis and Kalogeressis, 2006). Most local agents do not interact directly with external global shifts but via "local understandings (refraction) of such events" (Waesche, 2003: pg. 5). Thus an intermediate level between the micro (individual) level of analysis and the macro (global) level of analysis will be needed. This meso-level tries to understand the local political fabric of the Information Society Project.

It must be assumed from the start that quite often individuals are interested in a "business as usual" scenario, as they are "unfamiliar with computers and find the need to interact with new information technology as undesirable" (Wheeler, 2003: pg. 632). As a consequence, "more efficient forms of doing business and administration are not necessarily welcome", nor politically supported (Wheeler, 2003: pg. 632; see also Corti and Torello, 2002). The existence or absence of collective political support (and policy makers' understanding of voters' interests in the topic) must also be analysed, to the extent to which policy priorities and funding are affected. As seen before, regional development programmes frequently assume an 'incantatory' and 'ritualistic' character needed to satisfy EU demands. In fact, despite the lack of political willingness and/or economic rationality to pursue a high-tech route to solve the development problem, policy makers in RUPs try to comply with the EU normative framework in order to guarantee access to financial transfers.

After this quite extensive introductory note (Section 4.1), it is important to outline a road map for our theoretical journey. As stated before, the fundamental concern of the thesis revolves around an analysis of the Information Society Project as a potential driver of a societal and economic 'revolution' in RUPs, specifically in RAM. But an analysis of the Information Society Project is quite a messy subject, as it has been

infected by extreme assumptions about its alleged potential. And quite often, the multimedia dreams attached to the Information Society project were 'translated' in a very messy and 'nebulous' way (Hampton and Chrirstensen, 2002). Thus a qualified analysis of the reasons behind the ICT enthusiasm seen in the 1990's in RUPs is provided in Section 4.2. Other reasons concerning the attachment to the Information Society Project are also explained, especially with regard to the impact of the EU normative framework. As stated by North and Smallbone (2006: pg.44) "in Greece and Portugal there are few policies at the regional and local level other than those funded by EU programmes". In fact, the RUPs' Information Society policy is mainly defined at a supra-regional (national/EU) scale. Section 4.3 thus provides both a brief summary of the evolution of EU IS policy and a critical evaluation of the Information Society Project as it is understood at Brussels.

Section 4.4 provides a relatively exhaustive analysis of the ICT and regional development nexus. The over-optimistic assumptions about the Internet's potential in the economic field (which provided the theoretical background for the debate in the 1990s') were contested by dystopian analysis. The 'critics' understood the ICT Revolution as an extension and intensification of the capitalist system. Given the conflicting evidence about the likely impact of ICT tools in terms of regional development, Section 4.4 then tries to analyse the likely impact of the Information Society Project in a peripheral region. Section 4.5 asserts that the translation of the EU policies to the local level is neither automatic nor deterministic. Most EU's directives and policies are refracted and re-interpreted and local agents may understand global shifts such as developments in the technological sphere in unexpected ways. Quite often individuals contest, ignore and/or 're-formulate' global policies delineated by supra-national institutions as they are empowered with a degree of agency. Section 4.5 thus tries to understand the impact of the individual agency factor concerning Internet adoption rates. Finally, all the dilemmas and contradictions linked to the Information Society Project are subsumed in the 'call-centre industry' topic analysed in Section 4.6.

4.1.2 Some clarifications concerning key concepts

Despite the fact that the Internet Revolution is a new phenomenon, there are about 20 years of EU projects and experimentation in the telecommunications field which makes

it possible to undertake a critical examination of the Internet's impact. However, as demonstrated by Dabinett (2001: pg. 168), the concept of an 'information society' is still strongly driven by theoretical and policy discourses rather than being empirically proven. As a consequence it is important to clarify the concept of Information Society. The European Commission links the information society to an "extensive use of information networks and information technology, the production of large quantities of information and communication products and services, and a diversified content industry" (Dabinett, 2001: pg. 168). Wheeler (2003: pg. 628) defines the Information Society as "a form of social and economic development where the acquisition, storage, processing, assessment, transmission and diffusion of information leads to the generation of knowledge and the fulfilment of needs of individuals and firms and thereby plays an important role in economic activity, the generation of wealth and the quality of life of citizens". The Information Society Project is thus linked to an emphasis on knowledge, information and to a large scale adoption and use of ICT tools and Internet based technologies and e-business models (Castells, 1996; Castells, 2001). And it is also expected, in the ambit of the Information Society project, a broader pattern of structural change in terms of industry mix and substantial organizational, behavioural and lifestyle changes.

However, more important than definitions, is to acknowledge that extreme theoretical assumptions make it difficult to make a neutral and dispassionate analysis of the likely impact of such a promising 'revolution'. Much work in the field was infected by technological determinism or dystopian visions. The first theoretical accounts written in the 1980s were overtly optimistic and deterministic. The technological determinism approach suggested a mechanistic understanding of "technology as a positive, liberating force, a powerful and exogenous force, ushering in new actors, new rules and the demise of dinosaurs" (Waesche, 2003: pg. 6). Adam (2001: pg. 239) states that technological determinism understand developments in technology as driving society (See also Graham and Marvin, 2001). In such accounts, 'impacts' is often the term used to introduce the ICT/society link. Such 'impacts' are believed to be inevitable as the relationship between technology and society is regarded as linear and mono-directional, i.e. from technology to society. An example of such an over-optimistic and radical stance is provided by Winner (1997: pg. 14–15) (quoted in Adam (2001). He declares that "the dynamism of digital technology is our true destiny. There is no time to pause,

reflect or ask for more influence in shaping these developments. Enormous feats of quick adaptation are required of all of us just to respond to the requirements the new technology cast upon us each day". Such rhetoric was also expressed in cyber-libertarian approaches celebrating a kind of (US) right-wing liberalism, pledging for a pure free market approach, extreme individualism, and egalitarian and democratic experiments (Adam, 2001). One of the consequences of such approaches consisted of a rejection of the non-adoption status, which was understood as abnormal and/or irrational. As a consequence of the technological deterministic approach, many loosely constructed concepts such as the 'new economy', 'e-cities' and 'smart-homes' suffer from ambiguity and inconsistency (Dabinett, 2002).

However, and in spite of the apparent antagonism between the deterministic approaches and the dystopic analysis (based on neo-Marxist approaches), Webster (2000) and Waesche (2003) find similarities between both approaches as they exclude individual agency choice (individual choice about adoption/non-adoption), and understand the technology to be an exogenous, pre-determined and unavoidable phenomenon.

Other characterisations are available to understand experts and commentators' attitudes towards the Information Society Project. Miles (2001: pg. 38) argues that perspectives surrounding the ICT debate may range from continuism ('more of the same') "a view which stresses the limited extent of ICT-related change and economic innovation in an Information Society" to 'transformism', "which stresses that the Information Society is fundamentally new and that ICT has an all-pervasive revolutionary potential". For example, Gordon (2000) may be labelled as a 'continuist', as he argues that computers may provide nothing more than better ways to do things that could already be done. The 'continuism' approach contests the idea of an alleged computer/Internet based Kontradief wave (Devezas et al, 2005; Gordon, 2000). It rejects the notion that computer-based innovations may be comparable to previous inventions such as the internal combustion engine, the TV set or the telephone. Authors in the ICT field may also be labelled as either 'concordist' "as they see the Information Society as being characterised by greater democracy, decentralisation, self-expression and personal choice" or as 'antagonists' "that stress the threat of greater surveillance and control on political and personal activities by a centralised state" or by MNCs (Miles, 2001: pg. 38).

4.1.3 The ICT Revolution: a messy and contested subject

From the start it must be acknowledged that it is not an easy assignment to study the ICT Revolution. As the debate about the 'Information Society project' is recent, there is no consensus in the academic field about the meaning and the impact of such a project (Dabinett, 2002). As stated by Grimes (2000: pg. 15) "the recency of these developments and the paucity of solid empirical investigation of trends to date, the difficulty of placing the new technologies within the overall historical process of technological change, the fact that we are still in the midst of these changes" and "the fact that much of the economic activity associated with the new ICTs, whose core area is information processing and transmission, is invisible, as indeed is much of the infrastructure", all contribute to complicating an in-depth analysis of the Information Society Project. In fact, most authors acknowledge a complex, uncertain and contingent relationship between ICTs, society and the economy (Grimes, 2005; Castels, 2001). Even concerning the directly observable ICT industry, it is acknowledged that the dynamic of the ICT economy and production is "complicated, messy and defies neat-categorisation" (Zook, 2002: pg. 510).

Besides the intrinsic complexity of the subject, it should be acknowledged that as a consequence of a widespread interest in the Internet phenomena, "a great deal of the research on the Internet has stemmed from research paths outside the mainstream economic geography" (Malecki, 2002: pg. 400; see also Robinson, 2002). Thus a researcher is flooded with a plurality of studies on the subject steamed from different disciplines, paradigms and research topics. Although the plurality of approaches may risk a 'complexification' of the analysis, it also offers an opportunity to apply a holistic and integrated approach.

As most theoretical accounts are touched by extreme, contradictory and conflicting assumptions, an eclectic (and realist) approach may be worthwhile to the extent that it may provide a theoretical background to overcome such extreme discourses. Both the over-optimist and idyllic analyses and the technophobe or anti-globalisation versions of the alleged implications of the Information Society Project must be balanced and understood in line with the specific political and cultural contexts under analysis (UNDP, 2001; Graham, 2002). In the end, it must be acknowledged, as stated by Graham and Marvin (1996: pg. 385), that "binary oppositions are prone to exaggerate differences" .

4.2 The Information Society and the RUP 'love affair' in the 90s

The debate about the Information Society Project was touched by myths, spatial metaphors (based on an alleged 'similarity' between the Internet and traditional transport infrastructure), exaggerations and wrong assumptions from the very beginning (Dabinett, 2002; Servon and Nelson, 2001). In fact, a language of either "religious aspiration or secular millenarianisms" affected the clarity of the ICT discourse (Thrift, 2004: pg. 42). For example, as far as the exaggerations are concerned, Soete (2000: pg. 199) alerts us to the fact that, in relation to e-commerce, "there is probably no area where, considering the relatively limited technological improvement still required, the gap between the actual phenomenon and expected future is so large as in the case of electronic commerce". In fact, e-commerce was propagated as the ultimate solution to reach remote markets as all or most of the market access limitations associated with peripherality and remoteness would be overcome (Bunnell, 2004).

As a result of such exaggerations, key concepts and metaphors of the Information Society debate such as 'space and time compression' and the 'end of geography' were welcomed in the peripheral areas as, for the first time since the 19th century, a 'solution' (that is, a new development cycle) was envisaged. Concepts such as the 'end-of-geography' and cyberspace were extremely appealing in peripheral areas subject to extreme geographical constraints. In fact, the Internet was 'advertised' as a value-free technological panacea able to offer "instant limitless access to some entirely separate and disembodied on-line world" (Gorman, 2001: pg. 522; see also Graham, 2000; Graham, 2004). The Internet was also understood as being 'impartial', 'decentralised' and 'democratic', just the opposite of the classical processes of industrialisation traditionally unfavourable to LFRs and RUPs (Negroponte, 1995; Castells, 1996; Castells, 2001).

As shown in chapter 3, the island problem is linked directly and indirectly to geographical constraints such as small size, lack of natural resources, limited carrying capacity, inaccessibility and remoteness. One of the key conceptual frameworks in the 'Information Society field' concerns the cyberspace concept, which calls to mind, "a simulated territory (electronic space) created and maintained over the network in place of the physical world of spatial distance" (Kim, 2003: pg. 424). Cyberspace was defined

as a simulation of real space, not a place, but a 'placeless space' 'free' from the traditional social, economic, cultural and geographical inequalities of the 'off-line' world. As a result, the notion of cyberspace was an extremely interesting approach in the context of the geographical periphery, as "everything within the global economic, cultural and social space becomes equally accessible on one click away" (Graham, 1998: pg. 166; see also Zook, 2004; Zook, 2002; Kim, 2003; Ogwa, 2000; Hampton, 2003). Schech (2002: pg. 13) asserts that the "cyber culture" was pictured as "culturally neutral and equally approachable by all people and promised to surpass the unfavourable geographical and political positioning", exactly what a well informed policy-maker would desire.

Given the alleged potential of the Information Society Project to counteract all traditional geographical constraints, it should not come as a surprise that local policy makers were very soon drawn to such a promising 'new immaterial geography'. Cyberspace also offered 'techniques' "to show a pristine environment" and virtual landscapes de-linked from accessibility problems and other 'development problems' (Luke, 2004: pg. 249; see also Beamish, 2004 about the virtual tourism topic). However such virtual prospects were never materialised.

But, policy-makers' 'enthusiasm' for the Information Society Project can be well understood as it was largely in line with the academic/media debate. According to Roman (2004: pg. 54) an "atmosphere of enthusiastic urgency to use IT to help to solve development problems" touched the developmental arena (see also Streeter, 2004: pg. 54). Efforts to glamorise the supposed global imperatives of the ICT Revolution were the "dominant obsessions of planners" (Graham and Marvin, 2002: pg. 410). Even if evidence (about positive outcomes) was not available, inflated hopes were translated into 'naïve approaches' such as efforts to build up Silicon Valley replicas (Salomon, 1996). But other reasons to pursue the Information Society Project (besides an emotional attachment to the Internet Revolution) needs to be advanced, as islands' policy-makers are fully rational actors.

In fact, 'city development agencies' and regional governments tried to use the "languages of technopoles to attain nodal status in the global innovations networks of major transnational firms" (Mosco, 2004: pg. 199; see also Kamat et al, 2004). The ICT discourse was understood as an opportunity to re-make (and add a post-modernist touch) to the traditional territorial marketing discourse (Mosco, 2004; Solnit

and Shwartenberg, 2004). And very soon policy-makers and council officials understood that the 'glamorous' prefixes such as 'Silicon, Cyber, Intelligent, 'e-multimedia' could facilitate the construction ex-nilo of ambitious and futuristic new city-spaces and the re-birth of national/regional economic prospects, or at least get some attention in the international media (Mosco, 2004; Robinson and Crenshaw, 2002; Meng and Li, 2002). And some city planners thought that it would be possible to "create 'ex-nilo' a dense web of high tech firms" offering infrastructures such as 'technopoles' based on the attraction of prestigious exogenous investment (especially MNCs in the high-tech sector) and therefore propel national development based on a new strategic and modern sector (Mosco, 2004: pg. 199). Although evidence concerning the difficulties of such an approach was soon available, politicians and government officials, and even some commentators were "content to go along with the charade" (Walburn, 2005: pg. 305). However, in some cases, the enthusiastic adhesion to the Information Society Project was less a result of convictions, than a bandwagon effect fuelled by easy access to substantial financial resources, such as those provided by the EU.

That is, the spirit of the IS Revolution was in the air in the 1990s. One of the British regions saw the Information Society 'challenge' as an opportunity to "provide completely new solutions, enhancing productivity, promoting social inclusion, achieving environmental goals, providing better value for money, creating new learning cultures and generating new businesses" (SQW, 2002). Also, national governments rushed to assert their Information Society readiness and lead in the cyberspace arena. For example, the Singapore Government was sure that in "some 15 years from now, Singapore, the Intelligent Island, will be among the first countries in the world with an advanced nation-wide information infrastructure. It will interconnect computers in virtually every home, office, school, and factory" (Arun and Yap, 2000: pg. 1750; see also Ramírez, 2001).

The 'symbolism' and 'modernity' attached to ICT tools and telecommunication investments (conceived as 'magic' solutions) must be acknowledged. Graham and Marvin (1996: pg. 51) provide an example how in order "to increase the visual and physical impact of telecommunications in cities, prominent satellite dishes were developed to boost the image of high-tech office development and teleports. In one case, for example, such a dish was proposed purely for cosmetic reasons, even though

no satellite facilities were actually technically required". Graham and Marvin (1996: pg. 51) also understood many 'ICT programmes' as efforts to "make a statement and show that the city was becoming intelligent rather than a well-coordinated action within a more articulate strategy for encouraging inclusion and participation in the use of ICT in the city" (see also Firmino, 2004; Augiri, 2005). In fact, 'ICT projects' have a strong symbolic image as they suggested success, modernity and competitiveness, exactly what was lacking in most LFRs and RUPs.

As stated in the introduction, LFRs have been under pressure since the 1990s to find alternatives to the traditional defensive approaches based on income transfers. The urgency to add an ICT touch to traditional development models may be linked to what Heeks (2002: pg. 1) calls the "pressure from political masters" [that is, EU/national authorities] to draw quick solutions to development problems. As was seen in relation to clusters and learning regions, "like sharks drawn to blood in the ocean, a whole host of consultants, academics, vendors, and development organisation staff were drawn into the e-development arena by the scent of money" (Heeks, 2002: pg. 1; see also Lovering, 1999; Martin and Sunley, 2001).

The Information Society 'virus' touched almost all developed and developing regions. But regarding the RUPs, it must be acknowledged that the impact of centuries of marginalisation and dependence offered grounds to welcome 'miraculous solutions' (Gillespie and Richardson, 1996; David, 2003; Kim, 2003; Kruger, 2004). As was mentioned before, decades of unsuccessful experiments in terms of development models favoured attempts to introduce non-orthodox solutions such as OFCs. Hence, it is suggested that the Information Society Project may be understood as another miraculous solution.

But it is also important to mention that an excess of optimism is historical matter of fact with regard to the diffusion/adoption of new communication and information technologies. There is a clear tendency to ascribe revolutionary properties to all new ICTs. Gillespie et al (2001) alert us to the tendency to imbue the succession of new communication technologies with quasi-utopian qualities, in which everything in the economic and social arena was set to be changed (see also Kendall et al, 2005; Thrift, 2004). Thrift (2004: pg. 40) notes, for example, that "the annihilation of space by time" was "the favourite meditation for the Victorian writer".

In conclusion, the naïveté expressed by 'policy makers' is regrettable as other alternatives were not explored and most 'Information Society Projects' ended up as 'cathedrals in the desert'. Gillespie and Cornford (2001) criticize the "rhetoric of natural tendency towards decentralisation" to the extent that it had an "extremely powerful effect on policy-makers concerned with regional development issues". In fact, most statements/projects produced during the 1980s and 1990s seem "ridiculous" nowadays (Walburn, 2005: pg. 305). However, the enthusiasm around the Information Society Project is not entirely deprived of significance (Malecki, 2003; Gorman, 2001). The discussion around the ICT/Internet phenomena contributed to stimulate the debate about development projects available for rural/peripheral areas (Gillespie and Richardson, 1996; Bunnell, 2004). And the wave of telecommunications and high tech investment that followed the initial enthusiasm was translated into a significant reduction in the infrastructure digital gap (Lovering, 1999).

4.2.1 The Information Society project and the developmental discourse

It is important to mention that both the discussions around the on-going globalisation process and the digital revolution of the 1990s were translated into a neo-liberal based development agenda. Both the globalisation process and the digital revolution were perceived as critical modernisation and development factors (Akpan, 2003; Pohjola, 2002; Kendall et al, 2005). A profound re-conceptualisation of the development agenda was on the move in the 1980s based on the knowledge-oriented and technology-focused development paradigm. In fact, Schech (2002) sees the link between ICTs and development as a continuity of modernisation thinking that conceived a deficiency in knowledge and access to technology as partly responsible for underdevelopment in LDCs in the 1960s.

As suggested above, the emphasis on ICT/development in most LDCs also resulted from the fact that donors, "attracted by a combination of hype and hope generated by ICTs, altered their funding priorities and pushed ICTs up the development agenda" (Schech, 2002: pg. 13). For example, the UNDP Report (2001: pg. 27) declares that ICTs are linked to "new possibilities for improving health and nutrition, expanding knowledge, stimulating economic growth and empowering people to participate in their communities". ICTs were also associated with opportunities to "improve human lives,

especially to reduce global poverty and enable people to increase their incomes, live longer, be healthier, enjoy a better standard of living, participate more in their communities and lead more creative lives". From the analysis of the EU reports it is also evident that EU bureaucrats 'believed' that ICT-empowered SMEs would compete on equal terms with large and established firms (Hecks 2002; Gorman, 2001).

The Internet Revolution was also linked to a wave of 'entrepreneurial dynamism' with start-ups seen as key drivers of growth/innovation and corporate vitality (Waesche, 2003; UNDP, 2001; Wlaburn, 2005; Colombo and Delmastro, 2001; Mcquaid, 2002; Hyytinen and Pajarinen, 2004; UNDP, 2001; Fritsch and Mueller, 2004).

It is important to extend the analysis of the alleged advantages attributed to ICTs, as they contribute to understand the warm welcome to the Information Society provided by policy makers. In fact, several authors produced exaggerated and over-optimistic statements. Sealy (2003: pg. 336), for example, based on the Trinidad and Tobago case assumes that ICT may provide "opportunities for progress in all walks of life for all education, communication, economy, health, better service delivery, social and cultural advances" for individuals in the Caribbean (see also Lovink, 2004; Lyons, 2002; Plaut, 2004; PNUD, 2004). Sealy (2003) also mention that the access to ICTs tools would eventually lead to a "change in the way in which ordinary people interact with society". The democratisation of society and the inclusion and participation of rural and peripheral areas and marginalised populations should also be expected (Sealy, 2003; Streeter, 2004; Castells, 2001). Sealy (2003: pg. 336) was sure about the ICT tools potential to "boost GDP, create new job opportunities, accumulate human capital, increase private sector growth, and reduce dependency on agriculture and manufacturing". Concerning the specific case of the RUPs, Lopes (2001) provided quite a similar analysis equating the Information Society Project with an opportunity for structural change.

Concerning rural areas, some authors speculated about SMEs competing with larger urban counterparts via the Internet would open up new markets abroad that were not previously accessible (Gillespie and Richardson, 2004). Thanks to the Internet revolution, SMEs were ascribed a potential to reach a competitive edge in terms of lower transaction costs. ICTs were understood to be an opportunity to overcome peripherality, contribute to environmental sustainability, address social exclusion issues, and increase the effectiveness and transparency of public administration in peripheral

regions. The re-localisation of urban based entrepreneurs and footloose service industries to rural areas was also expected (Grimes, 2005; Malecki, 2002). The attraction of highly qualified professionals as a consequence of ICT developments namely in the teleworking area was also accepted (Gillespie and Richardson, 2004; Richardson and Gillespie, 2000). Consequently, an up-grading of growth prospects of LFRs and thus the eradication of long-standing structural inadequacies and decades of economic and political marginalisation was assumed as likely. A peripheral 'leap-frogging scenario' was even accepted or, at least an acceleration of the process of convergence/catch-up was expected.

In conclusion, the local understanding of the Information Society Project was touched by overt optimism and exaggerations, as the Information Society idea was conceived as a kind of 'magic solution' for a new cycle of development. However, as a result of the failure to meet expected results, the initial optimism was followed by a 'disillusion' phase.

In the RUP context, the Information Society Project was closely linked to the availability of EU funds. As a consequence, many ICT programmes may rather be a result of easy access to EU financial transfers than a result of convictions. In most cases a genuine 'belief' in the IS Revolution was certainly absent. Both local corporations and policy-makers were not aside from the fact that some regions were experiencing a "great degree of uncertainty about how to best manage such changes for the benefit of all" (Wheeler, 2003: pg. 627). And most policy makers were rapidly convinced that putting the infrastructure in place, was, in the long run, the least difficult step (Webster, 2000). Consequently, in the middle of the 1990s it was already quite evident that the Information Society take-off was not an inevitable and deterministic result (Gillespie et al, 2001; Castro and Jensen-Butler, 2003). A quick return to 'normality' (in terms of development programmes) followed.

As was mentioned above, regional development programmes strongly depend on EU financial transfers and EU policy orientation. It is important therefore, to provide a brief review of the evolution of the EU Information Society policy from the 1980s onwards, as it provides the background to evaluate many assumptions/policies underlying the Brussels conceptualisation of the Information Society Project. In fact, the ICT Revolution has been at the top of the policy agenda since the 1980s, as a special topic on the regional development agenda (Dabinett, 2001; Southern, 2002).

4.3 Lesson from the EU ICT Programmes

The discussion about the ICTs/regional development link was triggered in the 80s by simultaneous developments in economic theory, namely in the economic growth field and concerns about the political implications of the EU integration. But there was also discomfort concerning the USA's lead in the Internet economy underlying the EU Information Society discourse. The European Commission seemed convinced about the alleged ICT potential. The Bangemann Report released in the early 1990s (European Commission, 1994) claimed that ICTs were generating an industrial revolution that would be as far-reaching as past technological revolutions. The Information Society was understood as a means to "radically alter daily life, changing the way in which people live, learn, work, consume and communicate" (Dabinett, 2001: pg. 168).

Even early, in the 1980s, the EU Commission had branded ICTs and telecommunication infrastructure as strategic weapons for the process of economic growth and structural change, given their potential to stimulate competitiveness and attract MNCs (Ramirez, 2001; Robinson and Crenshaw, 2002; Ward, 2002; Robinson, 2002; Roller and Waverman, 2001; Gillespie, 1991; Gillespie, 1992; Gillespie et al, 2001). Basically, industrial and territorial competitiveness was conceived as being highly dependent on the adoption/use of ICT (Capello and Nijkamp, 1996; Dabinett, 2002). It was assumed that the provision of infrastructure and services would automatically generate a demand for telecommunication services in any socio-economic context, which Castro and Butler (2003: pag. 28) called a "modern version of Say's law" (See also Salomon, 1996). It was also assumed that a competitive advantage would result from the early adoption of ICT tools. That is, the EU Commission accepted a kind of technological determinism approach based on the inevitability of the Information Society revolution's intrinsic benefits. As a consequence, a bias towards supply side measures followed.

But in the 90s it was quite evident that the mere offer of telecommunications infrastructures and services did not change the spatial distribution of economic activities (Capello and Nijkamp, 1996; Camagni and Capello, 2005). It was also evident that an ICT up-take programme was too complex and context-dependent to allow any measurable mitigation of development handicaps (Roman, 2004). Capello and Nijkamp (1996), based on a study on the impact of an Information Society project on both

Northern and Southern Italian region development prospects, showed the impact of micro-conditions. The absence of such 'micro-conditions' affected the overall efficiency of such programmes. And contrary to what was expected, a widespread adoption/use of ICT services didn't take place in Italian peripheral regions.

In fact the Southern Italian example highlights the fact that most firms opted for a kind of 'technological opportunism' approach, as the adoption of ICT tools was conditioned by a strict utility/profit maximisation rationality, which is context dependent (Capello and Nijkamp, 1996; Salomon, 1996). It was also evident that ICT solutions could be ignored (no adoption) or isolated (ICTs not integrated into the business) but not automatically translated into behaviour changes and economic growth.

However, although the more optimistic expectations didn't come true, as a consequence of the EU policy the old gap between core and peripheral regions concerning infrastructures was eliminated to a considerable extent. And thanks to both the Internet Revolution in the 90s and the deployment of telecommunication infrastructures in LFRs, an excess of optimism concerning the revolutionary effects of ICTs once again pervades the Information Society debate. The optimistic approach concerning rural areas is now based on the idea that "at last ICT can assume a role of strategic weapons upon which the competitiveness that the SMEs and LFR regions depend" (Camagni and Capello, 2005: pg. 429; see also Grimes, 2005). Policy-makers believe again that SMEs "would overcome some of the disadvantages of their remote locations, and become more effective participants in larger market areas via Internet based solutions" (Grimes, 2005: pg. 1064). The assumptions are even more optimistic than in the 1980s, as the initial infrastructure gap seems to have been filled, although this widespread belief can also be questioned, especially regarding the broadband issue. But one must recognise that EU policy is now quite distant from the initial technological determinism and "infrastructural" approach, which was a key feature of early telecommunication programmes. In line with the fashionable models, a shift towards a soft model (focused on increasing the level of technology awareness) is evident (Grimes, 2000).

However, in the middle of the first decade of the 21st century, there is still a gap between the expectations and real patterns of demand and structural change. And as stated before, there is again a real danger of disillusionment that will lead to further exclusion and marginalisation. And it is still difficult to manage the adoption process and launch and implement Information Society related projects. According to Camagni

and Capello (2005: pg. 421) "the achievement of regional competitiveness via new ICTs remains a difficult process, fraught with many obstacles and bottlenecks which in the long run risk to exacerbate territorial inequalities" (see also Cuadrado-Roura and Garcia-Tabuenca, 2004). In fact, LFRs face new and more subtle barriers to succeed in the Information Society era. According to Camagni and Capello (2005: pg. 426) a demanding set of preconditions is required before a "successful and innovative adoption process can be achieved". Most ICT adoption studies acknowledge a strong industry mix bias concerning ICT business case. That is, potential advantages are sector dependent. In fact, "both the knowledge and experience required to handle firms restructuring processes in order to accommodate and integrate ICTs", and the business case to adopt ICTs are "highly unequally distributed among firms and territories, giving more chance to some areas" (Camagni and Capello, 2005: pg. 426).

There are striking differences concerning the capacity to move up the adoption philosophy ladder. According to Camagni and Capello (2005: pg. 33) most SMEs in the LFRs are still attached to the 1st philosophy, the 'automation phase'. The 'celebrated' Internet-networking phase (the 3rd philosophy according to Camagni and Capello) a key feature of MNCs, high-tech start ups and networked firms, demands a business case (benefits above adoption and integration costs), imagination, entrepreneurial capability and financial and technical resources not available to most micro/SMEs (Castels, 2001). The 2nd philosophy concerning the 'integration' phase requires both a business case and financial capability to invest. In fact, the adoption of complex ICT tools demands "huge organisational capacity" and, above all, a 'business case' that doesn't exist in many SMEs located in remote areas (Camagni and Capello, 2005: pg. 33; Grimes, 2005).

Another problem concerns costs of access and availability of infrastructure. There is evidence to suggest that some peripheral regions, monopolistic (quasi-monopoly) structures in the telecommunications sector are still in place. The process of deregulation and privatisation do not assure 'universal access' and affordable prices as far as complex ICT infrastructure and services are concerned. As a consequence, access costs are still a relevant issue in some LFRs (Waesche, 2003; Camagni and Capello, 2005; Kenny, 2003). Despite all efforts to lessen the infrastructure gap, equal access in terms of network quality and cost of access between core/rural regions' firms cannot be assumed (Grimes, 2005; Malecki, 2003).

Thus, an analysis of ICT adoption paths in Europe seems to suggest further 'exacerbation of territorial inequalities' as the ICT business case is concentrated in the most dynamic regions and LFRs lack 'arguments' to succeed in the 'digital era'. In the end, businesses located in rural areas face ICT related threats due to a) "a lack of affordable access to high quality infra-structures" as a result of "the end of universal access"; b) "the on-going process of bypass rural areas to re-locate in developing countries" and c) "extra-competition from core regions" (Premkumar and Roberts, 1999: pg. 468; see also Gillespie and Cornford, 2001; Castles, 2001). In fact, further divergence between urban and rural areas is a likely outcome of the on-going process of adoption and use of ICT tools.

4.4 An extensive critique of EU IS policy and IS based regional development models

The EU's Information Society policy has not been overtly deterministic since the 90s. In line with the new "regionalism approach", both EU and most national ICT policies have moved away from an infrastructuralist to a soft approach, as most ICT projects are now focused on increasing the effective use of complex Internet related technologies and services (eg. e-business and e-commerce models). However, the EU conceptualisation of the Information Society policy is still plagued by several theoretical flaws and wrong assumptions and exaggerations.

4.4.1 A misleading and exaggerated conceptualisation of the ICT and regional development nexus

As Grimes (2005, 2000) argues the fundamental flaw in policy in the conceptualisation of ICTs concerns the implicit assumption that access to ICTs would mitigate the importance of 'more basic requirements such as entrepreneurial skills', a coherent development trajectory and internationally competitive products (Porter, 2001; Pires, 2002). As stated by Malecki (2003: pg. 202), the "apparent simplicity of the Internet as a tool for businesses to reach distant markets can cause business owners to neglect long-established 'rules' of successful business". Such implicit assumptions led policy makers to expect an up-grade of the region's export status. In fact, the use of the Internet did not result in higher levels of competitiveness among businesses, as export patterns are

similar to those in place in the 80s (Southern & Tilly, 2000). Export capability is still based in 'old competitive advantages' and cannot be up-graded in the short term (Limão and Venables, 2001; Venables, 2001).

Another problem concerns the design, priorities and expectations attached to the Information Society Project. Although there is a consensus about the alleged impact of ICT policies, Grimes (2005: pg. 1065) is well aware that "the specifics of making this happen have often been poorly thought through" (see also Cornford et al, 1996; Grimes, 2003b). Quite often policy-makers underestimated the "exigent set of requirements" needed to foster the use of ICT tools (Grimes, 2000: pg. 17). As a result of misconceptions and wrong assumptions, the 'telecommunications infra-structure remains massively under-utilised as a result of 'wrong investments'. Cornford et al (1996) based on an in-depth analysis of an Information Society based project in Scotland, assumes that the wrong technologies may have been promoted as an effortless adoption of ICT tools on the local SMEs' part was assumed (see also Grimes, 2000). All evidence available point to low rates of adoption and use of complex ICT tools, with many firms using the technology in a very basic manner (Smallbone and North, 1999). However, EU policy still promotes quite complex e-business models, despite all the mounting evidence about massive under use of such complex technological solutions amongst SMEs.

4.4.2 Social exclusion and the economic bias of the EU normative framework

A further theoretical flaw concerns the ICT/social inclusion link. In the 90s, the ICT discourse was extended to the social inclusion/exclusion arena as enthusiastic academics and policy makers believed in the apparent inevitability of the 'Information Society' Project. Since the 1990s it was accepted that the access and use of ICT were "the indispensable grammar of modern life" and a "tool kit necessary to participate and prosper in an information-based society" (Selwyn, 2004: pg. 2). It was assumed that greater access to ICTs would increase individual opportunities in terms of learning/skills, and fill in gaps in the individual career history and educational background. A reduction of negative attitudes towards learning and technology was also expected (Southern, 2002). Non-access to ICTs was linked to increased and cumulative levels of poverty and isolation in peripheral and disadvantaged communities (Servon

and Nelson, 2001; Benton Foundation, 2004; Kruger, 2004). 'Digital exclusion' (i.e., non access to digital technologies) was interpreted as a new form of exclusion and reinforcement of the existing pattern of social/economic exclusion.

The ICT discourse was impregnated by notions of social justice and 'opportunities for all' and as mentioned by Selwyn (2002: pg. 2) the "evangelical zeal of futurologists and technologists was taken up with equal determination by governments around the world". In fact, both national governments and international institutions advocated and supported ICT policies, in order to avoid a large numbers of citizens being left behind (Demoussis and Giannakopolous, 2006; Der Meer and van Winden, 2003; Kruger, 2004). It was obvious in the 1990s that internal digital divides in nations were comparable to international (North/South) disparities which provided the political and moral ground to launch ICT programmes (Fernández-Maldonado, 2004; Boden and Molotch, 2004; Graham, 2004). In fact, given the extension and complexity of the digital problem, the "policy consciousness of many Western governments" was affected and, as a result, a plurality of programmes/policies aimed to cope with the 'digital divide' were designed and implemented (Selwyn, 2002: pg. 2; see also Coe and Yeung, 2004; Dabinett, 2002; David, 2003; der Meer and van Winden, 2003; Odenhaal, 2003; Dickinson, 2005; Kruger, 2004; Weach, 2003; Sidorenko and Findlay, 2001).

And it was also acknowledged that internal gaps (inside cities and neighbourhoods) in terms of access to PCs and the Internet defied any spatial categorisation. According to Graham (2002: pg. 37) "social and economic cores and peripheries of the global information age, rather than being continents apart, now often lie geographically adjacent to each other within individual cities. Often, they are literally a few feet apart, separated by gates, walls and highly uneven access patterns to the crucial portals that support participation in electronic domains". In the context of most OECD countries, there is evidence to suggest that "large portions of the city have been attracted into deeper poverty and infrastructural decay" and digital exclusion (Sassen, 2002; pg. 2). Given the tendency to increased polarisation and fragmentation inside cities, Graham and Marvin (1997) introduced the idea of 'fracturing of space' and 'splintered urbanism' to analyse the likely impact of ICTs on the urban areas fabric (see also Fernández-Maldonado, 2004; Graham and Marvin, 2004). According to Graham (2002: pg. 37), "urban societies become separated into the 'on-line' and the 'off-line', "in complex tapestries of inclusion and exclusion which work simultaneously at multiple

geographical scales” (see also Robinson and Crewshaw, 2002; Graham, 2004; Caüter, 2004).

The social inclusion/digital divide nexus suffers from striking theoretical and methodological flaws which deserve detailed attention. Dabinnet (2001), Southern (2002), Selwyn (2002:5) and Kruger, (2004) question OECD governments’ conceptualisation of the digital divide and ICT based programmes. In fact, the rationality underlying the ICT based social inclusion project is anchored in a strong economic component. Selwyn (2002: pg. 6) quotes Tony Blair: “Universal Internet access is vital if we are not only to avoid social divisions over the new economy but to create a knowledge economy of the future which is for everyone. Because it's likely that the Internet will be ubiquitous and as normal as electricity is today. We cannot accept a digital divide. For business. Or for individuals”.

As the ICT agenda is predominantly economically focused, “any concern with the socially excluded can be more accurately seen as concern with the economically excluded (Selwyn, 2002: pg. 12). According to Selwyn (2002) the ICT/social inclusion agenda discourse is especially concerned with the integration of unemployed people in the dominant society and in the ‘new work ethic’, rather than aim(ing) for solutions which reduce the real reasons behind the exclusion. Consequently the ‘production activity’ dimension of social exclusion is privileged at the expense of a more cultural/political stance (Selwyn, 2002 and 2003). In fact, most ICT programmes are focused on employability and unemployment concerns. Selwyn (2002) criticises the rationale implicit in ICT training programmes, as their emphasis is narrowly focused on technical training, technology-based life-long learning and high-tech skills issues, as opposed to the use of technology for general learning.

4.4.3 Wrong assumptions about the rural digital divide

It is also (wrongly) assumed that “rural citizens often lack the skills or knowledge to realize the importance of digital information and communication (Malecki, 2003: pg. 102). Despite the multiple evidence of technophobia (fear of technology, technology stress), ignorance and lack of understanding and/or lack of motivation to adopt technology, “rural areas may be considered to be digital” (Malecki, 2003: pg. 202; see also Liaw et al, 2006). Rural areas do not lack examples of sophisticated ICT users and

opportunities to explore ICTs tools and up-grade the level of competence in the ICT field. But there is no critical mass and business case (economic viability) to sustain an early introduction of complex ICT solutions. As a consequence, equal opportunities in terms of access to relatively complex ICT services between high density urban markets and low density rural areas are not achievable outside a 'universal access' scheme. In fact, there isn't a pure market solution for the slow diffusion of affordable access to broadband infrastructure in rural markets as 'thresholds of demand' are not reached. As rural areas are 'unattractive market' areas for most telecommunication companies "supply and not demand is setting the agenda" (Kruger, 2004: pg. 323; see also Malecki, 2003; Forester et al., 2002; Labrianidis and Kalogeressis, 2006). Thus unless ways to restore demand as an engine of change are found, corporate interests will shape the 'supply geography' (Gorman and Malecki, 2000). In conclusion, the rural digital divide is not linked to the lack of adopters, skills or willingness to experiment with the digital technology but to demand levels and 'operators' strategies. There is evidence to suggest that as a consequence of the privatisation of former telecommunications monopolies, major providers of telecommunication services cherry-pick market opportunities, which leads to an uneven offer of telecommunication services at national and regional levels.

In fact, the end of the 'universal access' scheme had 'devastating' effects on the rural areas and even on urban settings. Graham and Marvin (2002: pg. 382-3) demonstrate how "processes of unbundling of infrastructure networks' and the fragmentation of urban space", aided by an on-going process of privatisation/liberalisation leads to "splintered urban areas" and unequal access to sophisticated ICT services. According to Graham and Marvin (2002; pg. 382) policy-makers, developers and larger corporations are working together to build up a "wide range of premium and secessionary infrastructure networks customised to integrate and interconnect affluent and powerful spaces and users, and bypass less valued intervening ones, where access to even basic network services becomes undermined".

4.4.4 The problem with 'quick fix' solutions for the 'periphery development' problem

Both a temporal dimension and network/learning effects are absent from the analysis of the likely impact of the Information Society Project in peripheral areas, and as a

consequence unrealistic short terms results are expected (Meijers, 2005). The existence of a time lag effect in the adoption of radical new businesses models is now well understood and documented, but policy makers and academics seem to insist on short term approaches and expect an 'instantaneous' large scale adoption of ICT tools (Wang, 1999; Rogers, 1995). As stated by O' Mahony and van Ark (2005: pg. 300) "much of the impatience at the apparent lack of productivity pay-off to ICT investments was due to an initial lack of awareness of the lengthy timescales under which earlier technological revolutions had unfolded". An initial reluctance to adopt radically new business models before the critical mass point is reached, is well accepted by Diffusion of Innovations Theory. Quite often, in the initial phase of the diffusion/adoption process, only a small number of innovative entrepreneurs are enrolled. Although further growth is (mathematically) expected, there is widespread scepticism within the rural SME sectors about the suitability of e-commerce based business models for their specific business activities (Grimes, 2005). Hence it should be accepted that the critical mass point may never be reached. In fact, the success of a process of adoption/diffusion depends both on a sufficient demonstration effect from a small number of innovating firms and a network effect (based on information spill-overs, positive beliefs on the part of early adopters) that would lead to higher levels of adoption amongst non adopters (Malecki, 2003; Grimes, 2005: pg. 1066). And the problem in LFRs concerns exactly the number of potential adopters and the business case to adopt complex ICT tools.

In fact, EU institutions expect ICT adoption rates in rural areas not even seen in core regions. The process of adoption/diffusion of complex Internet models is moving quite slowly in both rural and urban areas as a consequence of institutional, political and cultural reasons and corporate strategies. Even in the MNCs' case, e-commerce adoption rates evolve quite slowly, partly due to the 2001 crisis from which emerged a general disillusion with e-business models (Leinbach and Brunn, 2001). Data concerning both the US and EU suggests that the adoption of e-commerce/e-business models is in the early stage in most EU countries (Peet et al., 2002; O'Mahony and van Ark, 2005). In fact, there is a time lag between the US and EU in the adoption of radical new business models that should not be ignored (Wang, 1999; Jorgenson and Vu, 2005).

The ICT discourse also seems to ignore time effects namely regarding individual adopters. Although an instantaneous process of diffusion/adoption is assumed, this is

not the case. In relation to ICT adoption, Demoussis and Giannakopolous (2006: pg. 76) defined state dependence as “individual attachment to his/her preferences that were revealed some time in the past, when both alternatives (adopt/not adopt) were presented”. For example, non-adopters can be affectively attached to traditional communication methods such as face-to-face contact or may fear the scale of the adjustment cost involved in adoption; consequently, the “transition from the state of non-ownership [of PCs] to the state of ownership, precisely because non-owners [non adopters] are accustomed to alternative means, is necessarily a slow process” or indeed may never occur. In such a scenario of state dependence, the ICT policy impact “will spread over a number of years”. As a consequence, the policy objective of bridging the digital divide will not be viable in the short term, as the demographic and educational factors impacting the state dependence status cannot be drastically changed. In fact, it is easier to manage factors such as income than personal attachment linked to demographic and educational factors. Thus Demoussis and Giannakopolous (2006: pg. 76) conclude that:

“network effects and/or learning spill-overs, albeit important, seem to work in a slow manner. The main implications of our findings are that (i) the process of narrowing the digital divide between Greece and its EU partners will take some time, much longer than is usually thought and (ii) given the existing differences in ownership rates within Greece, diffusion of home computers could reach saturation levels while a significant portion of households abstain”.

4.4.5 The ‘cultural divide’ between the Internet and LFRs

The overall impact of ICTs tools and e-business models in US economic growth seems undeniable. However, although the data support an optimistic approach concerning the ICT/growth link in the United States, it seems difficult to replicate the US experience for the EU and Japan. There are structural differences between the USA and Europe concerning attitudes towards technology, the share of ICT producing sectors and business culture. A US lead in the quality of the ‘entrepreneurial ecosystem’, numbers of high tech entrepreneurs and venture capitalists, alternative funding schemes and R&D capability (interaction university/industry) is evident. Concerning differences between France and the USA, Nayman (2003) states that ICT payoff lags depend less

on investment rates than on the adaptation process. Colecchia and Schreyer (2002) also show that ICT adoption rates depend on the flexibility of products, labour markets and business environments. O'Mahony and van Ark (2005) suggest that 'regulation constraints' in Europe limit the diffusion of US retail business models to the EU context. US retailers benefit from scale effects, which are hard to implement in Europe due to legislative and cultural constraints. It is evident that, underlying the US ICT lead there are complex interactions between ICT diffusion and organisational up-grade and micro-economic reforms that most EU countries try to ignore. Thus an in-depth analysis of patterns of structural change, de-regulation in the telecommunications sector and labour market reforms must be added to the debate in order to understand the on-going EU delay in ICT adoption.

As is shown below in Chapter 5, the likely impact of ICT investments depends both on complementary investments and organisational and cultural changes designed to maximize the benefits to be gained from ICTs (Bresnahan et al., 2002). However, US firms have more capacity to blend 'technology' and 'organisational change' as they are not restricted by the European Social Model. European firms face the extra adjustment costs which are contributing to slow down the process of adoption of ICT adoption tools by a large number of SMEs.

The contradictions in the EU Information Society discourse seem more and more evident. Walburn (2005: pg. 305) quotes The Guardian on 28th March 2005, which states that the "Lisbon Agenda idea [the EU economy as the most competitive and dynamic knowledge based economy in the world in 2010] now seems embarrassing if not downright ridiculous". From the analysis of the differential between the EU and the USA it can be suggested that the analysis of the cultural/political background of peripheral regions must be integrated into the theoretical framework in order to understand the likely outcome of the Information Society project in LFRs. In fact, firms' organisational culture and society's readiness to accept structural changes may diverge from the ideal individual-based, collaborative, and technology prone culture (Boyle, 2002; Castells, 2001).

The complexity of the social and cultural change needed to foster the Information Society Project seems to be ignored. Boyle (2002: pg. 102) points to the risk of "underestimation of the complexity of social change involved in such development". Boyle (2002) also criticises an understanding of complex social development goals as

functional/technical problems (see also Cornford et al, 1996; Slater, 2003). In fact, the top-down approaches that are guiding the EU normative framework ignores the 'context dependency of the up-take of technologies and that development and application is embedded in existing economic and social structures (European Commission, 2002). The Information Society project is linked to a specific 'Internet based culture' which may be at odds with the local culture and corporate strategies, evident in LFRs (Wang and Fesenmaier, 2004; Boyle, 2002).

4.4.6 ICTs, local markets losses and local policy makers' disillusionment

Further, 'negative effects' linked to the widespread adoption of ICTs have been ignored. The upgrading of telecommunications infrastructure may result in the opening up of peripheral areas to greater outside competition (Copus, 2001; Grimes, 2003b; Malecki, 2003; Sung and Wang, 2005). In fact, ICT based solutions permit Internet based marketing operations without any physical/direct presence of firms based in core regions. Richardson (2001) conceives such Internet marketing operations as examples of 'tele-colonisation'', from which may result 'losses of jobs' as many micro/SME will not resist external competition. In fact peripheral market areas could see increased penetration of imported goods facilitated by e-commerce and on-line shopping (Sun and Wang, 2005). As a result of such penetration "the loss of local value added from consumer expenditure through the demise of intermediaries (such as shops, wholesalers and retail banks in the distribution and finance chain)" should also be expected (Grimes, 2003b: pg. 178).

In fact, ICT solutions may both erode monopoly advantages and the market shares of local firms. As the distance protection factor is not in place, it is not possible to protect 'infant sectors' and the local firms' market share. Sclove (2004) shows the perverse effect of on-line shopping in terms of local high street shops sales level and local employment opportunities (see also Sinai and Waldfogel, 2004). The e-commerce phenomenon may result in a self reinforcing/destructive effect as the shrinking of the local economy weakens the local democratic culture, the capability for collective action, community vibrancy, local employment and entrepreneurial opportunities (Sclove, 2004. pg. 361). E-commerce solutions favour outside control on the national/global

forces part. In the end, local on-line shoppers will be affected by the reduction of the local economy prospects due to their on-line experience.

Further, the generalised scepticism about e-commerce benefits on the part of policy makers and officials in charge of ICT programmes seems to be ignored. "Agency personnel who are charged with its promotion" also share the negative attitude towards technological solutions (Grimes, 2005: pg. 1064). This generalised disbelief would probably lead to a delay in terms of momentum concerning the implementation of ICT projects. However, ICTs are a double challenge to policy-makers; they cannot ignore the ICTs' potential even if at the moment adoption rates are quite low and favour a sceptical approach and a diversion of funding to other priorities. But RUPs risk extra marginalisation as ICTs are conceived as a critical base for future economic and social development and industry and society standards. Around 50% of the economic production in the OECD context is already based on 'knowledge' (Parker, 2001; Castles, 2001). Castels (1996) alerts policy-makers not to underestimate the potential offered by ICTs despite the current 'misleading hype'. And Grimes (2005: pg. 1066) declares that "in the long term, therefore, the conviction of policy-makers that the digital economy can offer significant opportunities for rural business may prove to be well founded". But the absence of direct/visible electoral outcomes undermines for the time being the political relevance of the ICT project.

4.4.7 The ICT discourse as an obfuscating device

The Information Society discourse is specially criticised for the deliberate exclusion of controversial issues concerning politics and the organisation of the society. In fact, the ICT/social exclusion agenda may be read as an obfuscating factor that constrains the political debate about regional development options and international economic regimes. As Graham (2001: pg. 132) argues, the information society concept, along with its ally (the knowledge economy concept) is the most obfuscating rhetorical construct especially regarding political and economic regimes. Coe and Yeung (2004: pg. 354) also acknowledged the 'obfuscation' of complex and contingent relations between ICTs and material geographies. In fact, the ICT/social inclusion discourse is linked to wider narratives of the 'information age', and 'knowledge economy', all of

them based on a strong emphasis on technology and employment and competitive imperatives.

Selwyn (2004) refers that ICT policy is presented as if it was directly dictated by matter of fact. In fact, issues concerning political economy choices, moral/political responsibility and political and cultural inclusion of marginalised groups are missing from the account. The ICT/inclusion discourse may be read as a 'political distraction', due to the fact that the social/political issues critical to understand the social exclusion topic and the international political economy regimes in place are excluded. The ICT discourse "obscures deeper structural inequalities at the heart of social deprivation, poverty and unemployment, "divert(ing) attention away from the radical political discourse and encourages conformity and resignation to the status quo" (Barry, 1998: pg. 5; see also Lyon, 2003). Selwyn (2002: pg. 16) argues that the "issues of poverty, long-term unemployment and social deprivation can be depoliticised and, in some cases, glossed over". Adam (2001: pg. 236) criticises the technology determinism stance underlying the ICT discourse as "it does not promote an analysis and critique of the ICT Revolution, and thereby it denies the potential for political choice in the use and design of technology". In a similar way, Heeks (2002) and Mosco (2004) also consider the "notion of digital divide" (one of the hot issues of the Information Society paradigm) unhelpful, giving too much emphasis to the technology, drawing attention away from other divides and inequalities that hamper development". To Adam (2001: pg. 236) the Information Society discourse and neo-liberal agenda are to blame as they "take for granted the objectivity of the world and the trajectories of technologies within it as inequalities are then seen as relatively superficial components of social life which can usually be ameliorated without major change to social structures". Alibhai-Brown (2000: pg. 249) observes that "social exclusion experts have shifted the focus from structural problems – some deliberately created to placate the gods of modern capitalism – to a behavioural model where those who are socially excluded carry some of the responsibility for not doing more to belong".

As mentioned before, the Information Society discourse is impregnated by myths, metaphors, wrong assumptions and overt exaggerations. An oversimplification about critical 'cause and effect' relationships obscures crucial elements of the policy-making process concerning ICTs, regional development and society choices. Flores and Winograd (quoted by Boyle, 2002) alerts us, in relation to the technology/development

discourse, to the risk of a “narrowing view towards the nature of the problem and the possible solutions”. In fact, a serious handicap of the EU Information Society policy concerns the ‘narrow focus’ on supposed ICT distance-shrinking powers to overcome the friction of distance and tyranny of geography. As a consequence, other dimensions are excluded from the analysis, such as the LFR’s problematic background in terms of business culture and attitudes towards technology.

4.4.8 The real divides: social/economic background and economic inequalities

There is plenty of evidence to accept a kind of universal access concerning basic ICT tools. But, the same does not happen in relation to complex issues of levels of connectivity and personal relevance in terms of context/quality of access and value of use, which are more important than mere access to the Internet. In fact, the digital divide issue concerns, in the EU context, quality of access which may be understood as a reflex of “symptoms of a much larger and more complex problem – the problem of persistent poverty and inequality, low educational background” (Servon and Nelson, 2001: pg. 421; see also European Commission, 2005; Robinson and Crewshaw, 2002). Although access is (theoretically) universal and most individuals have the resources to buy a PC, most of them are not qualified enough to benefit from it (Almeida and Freitas, 2007; Almeida et al, 2007).

In fact, ICT access is patterned along the lines of socioeconomic status, income, gender, level of education, age, geography and ethnicity, English-speaking proficiency, urban residence, inequality (expressed via GINI index) and level of democracy (Polikanov and Abramova, 2003; UNDP, 2001; Robinson and Crewshaw, 2002; Kiiski and Pohjola, 2002; Kenny, 2001; Forestier et al, 2002; Franzen, 2003; David, 2003; Robinson and Crewshaw, 2002; Kruger, 2004). In relation to Greece, Demoussis and Giannakopolous (2006) witness the impact of negative factors such as marital status (married), age (more than 60 years), no children (older than 29 or without children), (low) educational background, low income and a negative attitude towards technology. The evidence also shows that ‘density effects’ (number of households with access to PCs in a given area) and network effects are impacting the process of adoption/diffusion. There are therefore reasons to expect the exclusion of specific social groups, such as, socially excluded (in terms of employment/income) individuals and rural/peripheral areas (UNDP, 2001).

Almeida et al (2007), concerning the RAM case study, show that 86% of high-school students have access to a PC at home, a figure in line with other results shown in the literature. However, in relation to these 86%, only 20% of their parents have (according to children's perception) an acceptable level of ICT/Internet skills. These results are in line with previous claims that "low income groups and minorities, people who live in inner cities, i.e., "people left behind" have shown growing access rates, as a consequence of the fall in prices of PCs and ICT policies (Nelson and Servon, 2001: pg. 422). As mentioned by Demoussis and Giannakopolous (2006: pg. 80) "state of the art computers and Internet access are available nowadays at affordable prices for the vast majority of Greek households". Thus, what matters is how intrinsic factors to individuals (such as individual preferences/traits and skills/competences) may prevent a generalised use/impact of ICTs tools in terms of ordinary life. But data concerning the educational background is not promising. In fact in most LFRs, one of the key determinants of the observed ICT adoption pattern is 'human capital endowment' and attitudes towards new technology and computers (Venkatesh and Brown, 2001; Venkatesh et al, 2003; Antonelli, 2003). Aspects concerning the attitude towards technology will be analysed in Chapter 5. But for the moment, it can be stated that data concerning the educational background in the RAM show a high percentage of illiterate people. Only a small fraction of the population has ICT/Internet skills to explore the technology for their own advantage, even if they have the resources to purchase sophisticated PCs systems (European Commission, 2005; Vodoz and Guoauque, 2003; Baloglu and Pekcan, 2005; Selwyn, 2002; Selwyn, 2004).

As seen before, a critical problem concerns cost of access. Although prices are quite low, that does not mean that access cost is a non issue. As the universal access rule is no longer available, it is difficult to challenge the inequalities in the ICT field based solely on a market-driven solution. As a consequence 'have-nots' may be stigmatised and experience 'second-class' access unless they choose to "take individual responsibility for the economics of getting on-line" (Haywood, 1998: pg. 23). In fact, the 'have nots' must "conceive themselves as the centre of action, as the planning office with respect to his/her own biography, abilities, orientations, relationships and so on in order to avoid a permanent disadvantage in the digital era (MacLeod,2000: pg. 220). There groups of users can be identified: a) those who have ICT resources and skills to experience interactive and empowering uses; b) the unprivileged group in educational terms but

with the resources to buy PCs, which are experiencing occasional and constrained access; and c) the excluded group in terms of educational background and financial resources (Graham, 2004; Selwyn, 2002). It can be suggested that most individuals in RUPs fall in the second category.

4.4.9 A global evaluation of the EU ICT programmes

What seems clear from the analysis is that “dominant trends in the ICT field are currently helping to support new extremes of social and geographical unevenness within and between human settlements” (Graham, 2002: pg. 37). Most authors also acknowledged that a mere offer of ICT infrastructure and ICT programmes usually fail to address the ‘digital divide’ problem, “which at the very least is a social and economic challenge (low level skills/income and not a technological one” and the boosting of the LFRs development prospects (Southern, 2002: pg. 698). Concerning the likely impact of the ICT policy in terms of social inclusion and urban regeneration, it is important to acknowledge that the size of the task ahead, as far as regeneration is concerned and the range of the problems to be dealt with in the social/employment field, limits the range of achievements. Hence, Southern (2001: pg. 698) define the ICT/Exclusion programmes as “woefully inadequate gestures”. In fact, it is hard to conceive of ICT based programmes that may be managed to compensate for society/economic inefficiencies (political and cognitive lock-in) and decades of peripheralisation and poverty. In fact, ICT access patterns reflect and reinforce what is already going on. David (2003: pg. 249) suggests that “policy and practice in the wider social arena will determine the effectiveness of computer based training, not the other way around” (see also Graham, 2002; Graham, 2004). Labrianidis and Kalogeressis (2006: pg. 29) also states that as the geography of the Internet “appears to reflect and consolidate previous rounds of capital accumulations”, new rounds of uneven development and spatial inequality should be expected.

However, it should be acknowledged that the Internet can help to show the way out and provides new ways to address this problem. But there is no doubt that technology is not the answer but one of many critical resources. According to Servon and Nelson (2001: pg. 423) “a technical fix for urban poverty and rural/low income community’s

problems” is not available and it is quite dubious that there is a short term “technology-led response to industrial decline, regeneration and social exclusion”.

The social and cultural handicaps in place, which may constrain short term ‘solutions’ for the social exclusion/regional problems, are not easily overcome. Economic and social regeneration depends both on economic factors (such as development potential, public investment, entrepreneurship and access to markets) and social and cultural factors (such as “vibrancy of local actors, their effort, commitment and opportunity to shape development”) (Southern, 2002: pg. 697). In fact, when “aims, aspirations and choices made by those [who should be most] interested in regeneration and development” are absent there is little room for successful development experiences even if supported by ICT systems (Southern, 2002: pg. 697). In fact “when unconcerned individuals are provided with computers and Internet access, not much changes” (David, 2003: pg. 249). The factor ‘vibrancy of local actors’ takes us to the analysis of the agency, a topic often absent from the ICT/social inclusion discourse.

But it is important to attach some credit to the Information Society discourse. National ICT Agendas should be understood as (desperate) efforts to manage international economic imperatives rather than solve local inclusion/exclusion and regional development problems. In fact, and according to Selwyn (2002), local governments intend to tackle the dilemmas of the ‘information society’ on behalf of their citizens, in order to counteract a ‘pure market mechanism’, from which high levels of exclusion would result (see also, Castro and Butler, 2001:). Selwyn (2002) and Malina (1999) place the ICT policies in the context of the New Labour agenda and state-directed ‘benevolent capitalism’. From this point of view, ICT policies may be conceived of as efforts to avoid “giving way to irresistible external forces and/or new techno-economic paradigm” (Bunnell, 2004: pg. 351). In fact, the EU Information Society project may be understood as an effort to “anticipate, accompany and guide these processes in such a way that the opportunities offered are maximized, and the risks related to the rapid deployment of the information society avoided” (Dabinett, 2001: pg. 168; see also UNDP, 2001). Almeida et al (2007) provides evidence to support this ‘benevolent’ approach. About one third of student households with a PC benefited directly from ICT programmes launched by the local government in RAM. In fact it seems incorrect to criticise any policy move linked to an eventual reduction of the extension of the digital exclusion (Coe and Yeung, 2004; Cauter, 2004).

In conclusion, despite all 'oversimplification' problems, a 'genuine concern' to equip citizens to "deal with the associated risks and uncertainties of the free-market thrust of globalisation" should be admitted (Thompson, 1998: pg. 5). In fact, any step away from increased levels of digital exclusion should be welcomed.

4.5 ICT prospects in LFRs: The economic dimension

4.5.1 The economic dimension of the IS Revolution; is there a place for RUPs

Our discussion suggests that the Information Society prospects are quite limited in the economic sphere for LFRs. There is, however, solid evidence to expect long term benefits as a result of investments in ICTs. Data concerning the long-running debate on ICT investment/productivity (growth) now favours a pro-technology attitude as it is relatively consensual that ICT investments accelerate economic growth both directly, via enhanced labour productivity and indirectly, via increased returns on investment in non ICT capital (Edquist, 2004; Boyle, 2002; Stiroh, 2002; Oliner and Sichel, 2000; Oliner and Sichel, 2002; Bechetti et al, 2003; Kraemer and Dedrick, 2001). But the first analysis released in the early 1990s suggested a negative correlation at both the firm, industry and economy level. Such a negative correlation was subsumed by the 'Solow Paradox' term (Edquist, 2004; Sidorenko and Findlay, 2001; Gordon, 2000; O'Mahony and van Ark, 2005; Kolko, 2002). However, more recent data (based on enlarged databases and sophisticated econometric techniques) seem to suggest positive and significant impacts of ICT investment at a national scale at least in the US. Colecchia and Schreyer (2002: pg. 432) point to a contribution of between 0.2% and 0.5% per year from ICT investment to GDP growth in the US (Wolf, 1999; O' Mahony and van Ark, 2005; Sánchez et al, 2005; Meijers, 2005; Colecchia and Schreyer, 2002; Vijselaar and Albers, 2004). In fact, the 1990s were characterised by a strong investment in ICTs to replace other capital, and results from such investments are now measurable (Colecchia and Schreyer, 2002).

However, it is yet debatable whether ICT-led economic growth should be understood as a permanent phenomenon, as is implicit in the Information Society discourse. Some authors claims that the ICT led economic upsurge is only a temporary phenomenon, as productivity growth may be explained by the stage in the business cycle and/or is

concentrated in only a few sectors (Edquist, 2004; Wang, 1999; Lee et al, 2005; van Ark and Timmer, 2002; Meijers, 2005; Gordon, 2000; Hicks and Nivin, 2000).

There is, however, widespread consensus about some stylised facts concerning the nexus ICT adoption/productivity growth relationships at different levels. First, it is accepted that ICT investment pay-offs are mediated by complementary factors besides capital deepening and labour increases. At the firm level, organisational and management up-grading and time are needed to see results from complex ICT investments (European Commission, 2005; Brynjolfsson, 1996; Bresnahan et al, 2002; Brynjolfsson et al, 2000; Dholakia and Kshetria, 2004; Spanos et al, 2001; Dedrick et al, 2003). At the aggregate level, factors such a country's economic structure and national wealth, government policy and human capital indicators must be analysed in order to assess the degree of preparedness to accept the Information Society project and the likely impact of the investment in ICTs (Dewan and Kraemer, 2000; Jalava and Pohjola, 2002).

Second, at the firm level quantifiable impacts in terms of productivity/profitability are mediated by intermediate measures (Spanos et al, 2001; European Commission, 2005). As mentioned by Dedrick et al (2003: pg. 6) the “unique value of IT is that it enables fundamental changes in business processes and organisational structures that can enhance MFP” (Kudbya and Diwan, 2002). It is also acknowledged that ICT impacts are dependent on sector affiliation. And the OM's attitude, to the extent that it facilitates “restructuring, new management control systems and the redesign of processes” that should go along with the adoption of ICT tools is another critical factor (Dedrick et al, 2003: pg. 9).

Third, there are differentials, between firms and between regions in terms of productivity impacts (Labrianidis and kalogeressis, 2006). Firms' and regions' capability to exploit ICT investments is not uniformly distributed (Brynjolfsson and Hitt, 1995). Three factors may explain such contingent results: a) idiosyncratic firm characteristics (in terms of firm market position, brand recognition, cost structures; b) OM/key executive vision/leadership abilities and firm growth strategies and c) sector affiliation. These factors will negatively impact the ICT adoption rates in the LFR context, for the reasons explored below in Chapter 5.

Fourth, examples of “management failure to effectively integrate IT with the firm's business strategy” are too numerous to be ignored (Dedrick et al, 2003; pg. 10; Kummerow and Lun, 2005; Spanos et al, 2001, 2002; Garcês et al, 2001). In fact, ICT payoffs depend crucially on organisational and strategic changes which are much more complex to manage than the initial investment in ICTs. Brynjolfsson and Hitt (2000) and Bresnahan et al. (2002) suggest the adoption of a cluster of management practices, including decentralised decision-making (which they called *organisational capital*) are necessary, in order to maximize ICT payoffs. ICT pay-offs seems also to be related to ‘quality of a firm's management’, ‘ICT commitment’, ‘the proportion of ‘higher proportion of information workers’ and ‘employees’ involvement in decision-making’. As is shown in Chapter 5, the predominance of SMEs in LFRs limits the applicability of complex and business practices and organisational learning models.

Fifth, there is ‘mixed evidence’ at the firm level concerning the nexus ICT investment/financial performance relationship. As was mentioned above, intermediate links (i.e., a wider range of strategic and competitive factors that go beyond ICT investments) and temporal effects must be managed before any ICT benefits can be reap. And, some authors argue that ICT investments will not increase aggregated output “but only redistribute the pie, benefiting individual firms but not the economy as a whole” (Kraemer and Dedrick, 2001: pg. 321; see also Soete, 2001; Litvan and Rivlin, 2003; James, 2005)

4.5.2 Information Society prospects in rural areas

We are now able to understand the potential offered by the Information Society Project to solve ‘peripheral areas’ problems. However, there is no consensus of ‘good news’. The current deployment of ICT tools is not linked to a “reduction in spatial inequalities even if they restructure space” (Sassen, 2002: pg. 15; see also Sassen, 2000; Sassen, 2004; Waesche, 2003). As seen above, ICTs were assigned a role to “reduce regional disparities in economic activity and employment” in peripheral areas characterized by geographical isolation. ICTs were understood as a critical solution to overcome the friction of distance and the remote location from central markets (Labrianidis and Kalogeressis, 2006: pg, 27). However, many studies “continue to report relatively low levels of Internet usage in rural areas, with many firms using technology in a very basic

manner” (Grimes, 2005: pg. 1065; see also Grimes, 2003; Grimes, 2000; Richardson and Gillespie, 1996; Dabinett, 2001; Drew, 2003). And due to general disillusionment with the Internet Revolution “SMEs have become complacent, as they believe the option of e-business is over-hyped and less urgent and as a consequence the postponement of strategic planning and investment in e-business is a rule” (Ramsey and Ibbotson, 2006: pg: 326).

For the moment, there is no clear and unequivocal pattern concerning centralisation or decentralisation of ICT related activities, as some economic and historical forces favour centralisation and concentration while others favour decentralisation and dispersion (Odenhaal, 2003; Ogawa, 2000; Mahizhana, 1999; Lever, 2002; Lethiais et al, 2003; Furman et al, 2002). There is evidence that suggests that factors such as the complexity of the innovation/learning process, the hybridisation of technologies/resources and the importance of tacit and uncodified knowledge favour a concentration of ‘strategic activities’ in “creative regions” (Florida, 1995). However, an active export policy and subsidy policies on the part of peripheral regions’ authorities may increase LFRs opportunities. Graham (2002: pg. 235) suggests that “the growing speed, complexity and riskiness of innovation”, favour regions/areas with the right set of ‘knowledge assets’ and ‘innovative milieus’. For example, economies of agglomeration seem critical to understand the location patterns in the media and finance industries as proximity to key players, the success/prestige image attached to urban areas and access to localisation/urban agglomeration economies are critical success factors. The success of territorial development forms such as innovative clusters essentially based on agglomeration economies and access to a pool of highly qualified personal in strategic activities such as communication, interpretation and evaluation, clearly shows the limits of a strategy based on ICT activities in most LFRs (Sassen, 2001). Further, the urban bias in telecommunication infrastructure so critical for corporations in the financial services and telecommunications/Internet sector again favours the urban areas (Gillespie and Cornford, 2001; Boden and Moloch, 2004; Evans, 2002).

However, most sectors witness a growing recourse to outsourcing as intellectual activities are more and more amenable to an extremely fine division of labour, ‘de-skilling’ and ‘routinisation’ (Wesche, 2003; Arora and Athreye, 2002; Deleuze, 2004). Thus, to the extent that it is possible to de-bundle complex and unfamiliar co-ordination tasks in routine activities, a process of dispersion ‘to remote/cheaper areas’ may occur,

as long as these regions offer the right mix of requirements. However, the really innovative activities requiring a high level of complexity still favour an urban location. As mentioned above, the most innovative and 'desirable' economic sectors (financial services, Internet content) are concentrated in a restricted number of locations, which limits the number of alternative poles (Sassen, 2002; Zook, 2004; Coe and Yeung, 2004; Porter, 2001). Zook (2004: pg. 210) shows how the production of Internet content exhibits a high degree of clustering despite "much-ballyhooed spacelessness".

4.5.3 Endogenous development models

The endogenous approach tries to develop local solutions' based on the widespread adoption/use of ICTs by SMEs/local businesses and ICT based access to external markets. However, the empirical data available does not support such an approach. Besides low adoption rates, peripheral regions witness the massive under-use of complex equipment/services and stable export patterns. Most SMEs do not need complex technologies or have access to advanced telecommunications, as only basic telecommunications are needed (Richardson and Gillespie, 2001; see also, Cornford et al, 1996); Grimes, 2005). So, the real benefits coming from the use of complex ICT tools are expectably low, as complex ICTs are only well suited to "manage organisational complexity and communication at a distance, for example with remotely located customers". As stated by Richardson and Gillespie (2001) as SMEs are organisationally simple and focused on local markets there is no business case for adopting complex ICTs tools. Lack of sophistication seems to be the norm at the SMEs level. As stated by Labrianidis and Kalogeressis (2006: pg. 28) "a much more serious concern, on the other hand, is related, not to the availability of infrastructure, but to the ability of rural areas to explore new opportunities, or in other words, the existence of mechanisms capable of transforming technology into innovation".

Both endogenous and exogenous approaches (based on the attraction of FDI) require heavy investments in telecommunication infrastructure and 'complementary requisites' (such as educational, organisational and institutional capacities). In the absence of comprehensive development programmes aimed to upgrade a wide range of organisational and socio-economic factors, local policy makers may reach the conclusion that all efforts pursued to attract FDI are another failure (Gillespie and

Cornford, 2001). In fact, although the analysis of the current level of use of advanced telecommunications tools may suggest a 'demand insufficiency' problem, the real problem comes from the fact that 'distance-related barriers' are not always the main concern of local SMEs (Mitchell and Clark, 1999; Grimes, 2005).

But it is important to mention that an exogenous approach based on the attraction of FDI (even if based on a low degree of agency) is not the worst case scenario, compared to the exclusion tout court from the current dynamics in the technological/development field. As stated by Webster (2000: pg. 82) being included in the "parts of the planet that global capitalism has little interest in" is the worst case scenario. And all development experiences provide at least employment opportunities even if changes in terms of core-periphery relationships are not perceptible (Mullings, 2004).

4.6 Individual choices and the 'non-adoption' problem

The EU Information Society normative framework and most adoption studies seem to ignore 'individual choice issues' as a kind of universal adoption is expected. However, as stated by Mahizhnan (1999: pg. 16) concerning Singapore: "it is not possible to reach the conclusion that all Singaporeans embrace IT and its applications with relish and without reservation. They do not. There are still segments of the population, especially among the older generation, whose trust in the impersonal—indeed non-human—electronic systems is very low". If most individuals are 'indifferent people', the uptake/diffusion of ICT tools will be limited as will the economic rationale for micro firms to adopt ICT tools. But, as most policy makers ascribe a 'universal benefit' to ICTs tools, agency and individual choices are easily ignored (Benton Foundation, 2004; Mitchell, 2004). In fact, many academics and politicians live in "exclusive ivory towers" and as such, they experience a professional, technological and 'inspirational' context unattainable by most ordinary citizens" (Kruger, 2004: pg. 321).

Because ICT use is defined as an inherently desirable and beneficial activity for all individuals/firms" (Selwyn, 2003), non-adoption is understood in the literature as an "irrational and ultimately disadvantageous position to adopt", an "abnormal" decision, and "an obstacle to the inevitable march of technological progress" (Bruland, 1995 quoted in Selwyn, 2003: pg. 112).

All the rhetoric around the information society construct, according to Lievrouw (1998, quoted in Selwyn, 2003: pg. 106), is based on the ideological assumption about the positive and socially integrating power of technology plus a “prevailing ethic of instrumental rationality and strategically practised self-interest towards accruing such benefits”. Non-adoption is perceived as a deliberate exclusion from the Information Society and as an obstacle to economic regeneration. But cases like technophobia and lack of confidence (due to the complexity of technology and lack of skills) are not infrequent.

Non-adoption is frequently understood from a pathological point of view (Selwyn, 2003). Non-adoption is seen as the result of multiple personal deficiencies or eccentric personal ideology. A deliberate and rationale option of non-adoption is excluded from the analysis and the non-use of ICT is considered to be a ‘problem’ that can be ‘solved’ (David, 2003). Non-adopters are labelled ‘disempowered’, ‘under resourced’, ‘under skilled individuals’ and ‘apathetic people’ (Selwyn, 2003: pg. 100). The existence of 80% of such ‘pathological’ cases in the RAM case seems, however, improbable (Almeida and Freitas, 2007). Thus a re-conceptualisation of non-adoption without any pejorative strings attached must be pursued.

Selwyn (2003: pg. 107) suggest a multidimensional framework and a simultaneous focus on individual and collective influences. A Giddens structure/agency approach type may be useful as it acknowledges both structural influences and individual agency factors. Concerning individual agency factors, it can be said that data concerning ICT use show a “self-referential nature of much computer use, (i.e., deciding to use a computer for its own sake) (Selwyn, 2004: pg. 372; see also Selwyn, 2004; Selwyn, 2006).

An example of using ICTs for it own sake is provided by Valentine and Holloway (2001). In relation to the adoption/use of IT by young people in rural areas, although their parents expected an extension in space/time of the horizon of educational, economic, informational opportunities, Valentine and Holloway (2001: pag: 386) noticed that “the children themselves used the Internet to extend the scope of their knowledge in more everyday ways. Their most popular on-line activities included browsing the Web for information about celebrities from the worlds of film, sport and music, searching out shopping sites in order to find out about fashions and designer

labels... and using the Internet to find out information about their off-line hobbies and leisure activities”.

In fact, the non-inclusion of 'agency' concerns in the theoretical account limits the validity of more traditional approaches, as 'end users' do not always accept 'ready-made technological artefacts' (and the grand political project behind such 'solutions') without evaluation and adaptation.

In fact, non adoption decisions are linked to factors such as 'relevance' (relative advantage), 'situation', and 'sense' (Ramírez, 2001; Roger, 1995; Selwyn, 2002). 'Relative advantage' is defined as individual's perception of whether adopting an innovation is worthwhile or not in terms of economic and/or personal advantage (den Hooff, 2005). 'Situation' is defined as “the applicability of a course of action to individual concerns or interests (David, 2003; Franzen, 2003). And Selwyn (2003: pg. 108) points out that the “notion of meaning can be seen as being at the heart of whether an individual makes uses or does not make use of ICT”. 'Sense' implies that “only things that make sense to an individual in terms of their lived experience or lifeworld are being able to be seen as relevant and useful” (Selwyn (2003: pg. 108). If the levels of utility, sense and meaning are low, one shouldn't expect a widespread adoption/use of ICT tools. In fact, ICT adoption rates depend on the “actual value of use” (Southern, 2002: 699), i.e., “how people use ICT, what for, and in what ways this adds value to the lives of individuals”. Selwyn (2003: pg. 109) states that “those already strong or weak across all these [economic and social] domains have less compunction to be using ICT. If one of the perceived benefits of using ICT is to increase a sense of community, trust and interaction between people – why would people already established and strong in these areas necessarily turn to ICT over and above their already successful sources of community and interaction? Similarly, those who are lacking in the life domains outlined above are likely to be lacking for a variety of deep rooted social reasons – which will persist even if opportunities now exist via ICT”.

David (2003: pg. 249) links ICT adoption to experience/prospects in the labour market. For most employees “there was little call for computer use in most of the users' everyday lives”, specially in an 'unfavourable' labour context (low tech and seasonal jobs). As a consequence, there was no opportunity to use ICT tools except for those “who run their own businesses” (David, 2003: pg. 249). That is, as mentioned by David

(2003: pag. 249), “ICTs ..., do not easily fit into the lives of those not living the lives of urban high-tech professionals”.

It can be suggested that a large number of individuals are not genuinely interested PCs, even if they have experience and intellectual resources to use it. “Assuming that potential users are ignorant of the benefits available to them and so do not jump at the chance of training is a very one-sided view”, and a very paternalistic way of thinking (David, 2003: pg. 249). For some individuals the ICTs/Internet is “something to be used for its own sake rather than as a genuinely useful tool”.

For many individuals ‘dealing with everyday problems’ does not involve personal use of ICT tools. Selwyn (2004) notes that “having no need or no interest in using computers is a regularly cited and powerful rationale” to justify the low level of ICT use. But reasons underlying non-adoption may be more or less surreptitious, unconscious or parochial in motive. For example, technophobia (anxiety/fear) associated to the ICTs, or a feelings of stupidity or ignorance are not easily confessed (David, 2003: pg. 248; See also Aoyama, 2004; Lyon, 2004).

Thus, both individual factors as well as societal/technological imperatives and externally driven adoption must be recognised. In line with the Social Construction of Technology approach, ICT adoption “has a duality in that although it is the product of human action and agency it also assumes structural properties” (Selwyn, 2003: pg. 110; see also Orlikowski, 1992; Graham and Marvin, 1997). For a large number of individuals’ adoption/non-adoption results from the impact of ‘structures’, as ICT use is heavily mediated by the institutional contexts (school/work) (Franzen, 2003). In fact, only a minority can enjoy really complete autonomy.

However, it is quite evident that a large fraction of the population is not interested in ICT dreams. It is evident that the ICT discourse suffers from technological determinism and academic paternalism as the real needs of users are too often taken for granted and misspecified (Gillespie and Cornford, 2001; David, 2002).

4.7 Individual agency and political support for the Information Society project

In fact, the electoral prospects of the Information Society project have been ignored in the ICT discourse. In fact, the Information Society Project favours specific professional groups, social classes and life-style approaches such as those prevailing in urban high

tech environments. Meng and Li (2002) believe that fears about unemployment resulting from a 'displacement effect' (i.e., reduction of demand for low-skilled labour as a result of a computerisation of workplaces) may be the reason behind the reluctance to accelerate the ICT diffusion/adoption process in some Asiatic countries. In such countries policy goals such as 'high employment, social stability' are yet the fundamental political and economic priorities. As seen before, in RAM there is a preference for a 'encapsulated' environment de-coupled from the infernal logic of the global economy, the destruction of the welfare state and the creation of exclusion spaces besides those already in place (Cauter, 2004).

Although the Information Society project is in theory linked to growth prospects and equalisation of opportunities, in fact, what is happening is a reinforcement of social inequalities and further disempowerment of excluded groups. Lovering (1999: pg. 16) alerts policy-makers in Wales that "measures to boost innovation (such as ICTs) at the regional level may actually make things worse for many parts of the region". And Akpan (2003) also asserts that the development strategy that privileges competition in the global economy [eg. based on the development of a high-tech sector] is likely to affect only a small fraction of the population. Of course, policy-makers understand the political sustainability of the Information Society Project and are well aware of the difficulties in addressing an Information Society. As a consequence, some policy makers pursue only 'piece meal' approaches in the Information Society project and still privilege traditional investment, which have been so successful.

In fact, ordinary citizens have reasons to fear the ICT Revolution. There is no equivalence between high-tech *industries* and high-tech occupations. High-tech jobs are a minority even in the high-tech industry (Selwyn, 2002; Castels, 2001; Apple, 1997; Robins and Webster, 1999). "For many citizens the "high tech" economy may promise more than low-skilled employment and a state of increasing bewilderment" (Selwyn, 2002: pg. 15). But this state of 'increased bewilderment' is already experienced by the majority working in traditional sectors (as unemployment rates are soaring). However, employment opportunities in the traditional sectors are free of extra distress linked to feelings of technophobia and techno-anxiety.

The Information Society revolution is favouring the higher skilled/waged workers, which is termed in the literature as a 'skill-biased technical change' (Wolff, 2002; wolf-Powers, 2001; May, 2000). In fact, the adoption of complex e-business models is linked

to organizational changes and replacement of the middle-management and therefore such a process results in 'computerization' rather than to individual use of PCs (Bresnahan, 1999; Graces, 2001; Gretzel, 1999). The ongoing process of computerisation is linked to the replacement of large numbers of low and middle-skilled white collar workers by a lower number of high-skilled workers. Castells (2001) states that the informational labour correspond to only 20% of national workforce.

In fact, in most developing countries the Internet phenomenon favours a minority of privileged upper-class individuals. Wheeler (2003: pg. 638) suggests that only the top 5-10% of society in Egypt lives as a part of the knowledge economy and evolving information society" (see also Sidorenko and Findlay, 2001; Kendall et al, 2005; Robinson and Crenshaw, 2002). Graham (2002: pag. 53) also declares that the "Internet remains the preserve of a small global elite of between 2 per cent and 5 per cent of the global population". Although some privileged individuals search on Yahoo for exotic places while at work, most individuals haven't yet experienced a single holiday period. As a consequence it can be concluded that "escapism and dangerous deliriums of the cyber-hype world view" are at odds with 'unskilled/deskkilled masses' concerns (Waesche, 2003: pg. 9).

But the key issue for most unskilled workers is not the wage premium granted to highly skilled/qualified workers but the on-going reduction of the demand for semi-qualified and non-qualified work. Wolf (2002) has no doubts that 'ordinary clerical and production workers' are going to be excluded from the technological revolution. Both the Benton Foundation (2004) and Lovering (1999) show that ICT/innovations are the reason behind the disappearance of old manufacturing jobs in urban cores. So employment opportunities for un-skilled people are only available in low paid service sector jobs. It can be suggested that most voters are not interested in a "world in which most of us will be poorer, a few will be far richer and everything will be faster", namely after a 'pleasant' experience with a rudimentary welfare state (Solnit and Shwartenberg, 2004: pag. 297). The information age is characterised by an emphasis on adaptability and malleability, learning to learn and the capacity to train and re-train through life. Instability of life and frequent changes in the labour world are affecting every worker and especially low skilled ones. In fact, the Internet symbolises a new era of market led development and instability and constant up-grade of technology systems (Schech, 2002). It must be recognised that local individuals are not prepared for the "reflexive

capitalism". Storper (1997: pg. 44) defines contemporary reflexive capitalism as "a system that manufactures new kinds of risks (economic, personal, ecological, psychological, social, etc.)". Under reflexive capitalism, individuals "are increasingly required to manage contemporary conditions of economic uncertainty and risk" (Storper, 1997: pg. 44-7). As stated by McLeod (2002: pg. 220) individuals "must learn, on pain of permanent disadvantage, to conceive of himself or herself as the centre of action, as the planning office with respect to his/her own biography, abilities, orientations, relationships and so on". Individuals must learn to live surrounded by "chaos and uncertainty" and take care as reflexive risk minimizers as "every potential victim is also a suspect, suspected of not doing enough to reduce loss" (Ericson, 2002: pg. 551; O'Malley, 2002; Beck, 2002).

Although the EU rhetoric suggests that the Information Society project is a matter of fact, policy makers evaluate the 'electoral chances/political feasibility' in order to have the support of the majority of voters" (Barbaro and Suedekim, 2006: pg. 42). As most voters are believed to fear the Internet, policy makers try "to make the reforms politically palatable" (Sinha, 1996: pg. 38; See also Chepatis, 2002; Baily, 2003). As 'occasional users' compose the majority of the electorate, an extensive attention put on ICT programmes at the expense of more traditional programmes would cause a 'rebellion' and policy makers may risk defeat at the next election (Leach and Wilson, 2002: pg. 685; Economides et al, 2003).

Due to the inherent difficulties underlying the Information Society Project, the gap between discourse and practice should not come as a surprise. Moon (2002) suggests that council-managers have a more pro-active ICT attitude than elected mayors; in fact, despite the amount of resources channelled to ICT projects, most e-government experiments remain very primitive and "not as effective as its rhetoric would suggest" (Moon, 2002: pg. 431). That is, despite all the rhetoric, policy-makers do not forget that Information Society based projects are risky compared to traditional projects (Berezin et al, (1996). Neo-Keynesian policies receive more political support in the polling stations than high-tech 'futuristic visions'.

It also must be acknowledged that ordinary citizens are not always interested in best practices in terms of organisation/procedures and public investment strategies. Wheeler (2003), Corti and Torrelo (2005) show how most employees are interested in a 'keep business as usual' scenario, as they are "unfamiliar with computers and find the need to

interact with new information technology undesirable”. As a consequence, ‘more efficient forms of doing business and administration are not necessarily welcome’, nor politically supported (Corti and Torello, 2002: pg. 34; see also Edwards, 2003).

Based on EU studies and report results it is possible to assert that “ICT is not used by the majority of local populations, and will not be used by them in a foreseeable future” (Heeks, 2002: pg. 9). Therefore, a complex ICT policy can be inappropriate in resources-strapped economies, as it may imply a diversion of critical resources needed to support structural transformations (Sealy, 2003: pg. 339; See also Lee et al, 2005; Kendall et al, 2005). It is also evident that many ICT projects are examples of inefficiency and waste of resources, especially when complex ICT infrastructures are offered in regions characterised by generalised illiteracy and conservative management. Thus, Sealy (2003: pg. 340) based on the Caribbean Basin example, suggests that national ICT strategies must balance the benefits of ICT/infrastructure investment and the “need for building human resources, a body of skilled ICT personnel, and a literate public to apply their knowledge and inventiveness to local needs”.

It is evident that the Information Society project is not a panacea for peripheral development problems. As Information Society projects benefit only a tiny fraction of local inhabitants there are no ethical grounds and political rationality to pursue such a demanding approach to solve peripheral development problems. As stated before, most local governments apply piecemeal approaches, such as those related to ICT/school projects. As individuals are empowered with ‘agency’ most of them refuse technology mediated intervention in their ordinary lives and do not understand political programmes centred on the Information Society paradigm.

4.7 The call-centre industry in independent island states

All contradictions and potentialities of the Information Society Project in LFRs are apparent in the call-centre-industry. The call centre-industry is linked to efforts to pursue a strategic positioning outside traditional sectors. In fact, some independent island states pursued a successful ‘free Internet zone’ marketing campaign in order to attract FDI (Richardson and Gillespie, 2003; Richardson and Belt, 2001; Graham, 2004; Cornford et al, 1996; Suss et al, 2002; Richardson and Gillespie, 2000). A characteristic of the 1990s is the spatial re-organisation of the MNCs, as global production is carried

out by transnational production networks, via disintegration of industrial value chains; but the outsourcing approach is based on cost advantages. Core competences are still concentrated in the head-quarters located in core regions; so outsourcing is linked to efforts “contracting the rest from those with a firm-specific or nation-specific comparative advantage based on factor cost” (Grimes, 2003a: pg. 4; see also Boden and Molotch, 2004). In fact, the industrialization of services is linked to a) the re-localization/outsourcing of “low order activities” (information processing; data processing, call-centre operations); and b) “exploitation of cheap information labour” and “routinised and standardised labour plus extremely low-cost location plus high capacity telecommunications” (Breathnach, 2002: pg. 321; see also Berezin et al, 1996).

However, as suggested in Chapter 3, there are only a ‘few growth options’ in an island context. So, the analysis of the call-centre-industry should be based on this recognition.

In fact, despite all criticism around the call-centre industry, the economic and social advantages attached to the sector are not negligible. First, the call-centres consist of ‘relatively sophisticated foreign investment’. A repositioning of the national development strategy away from less competitive sectors becomes possible. The call-centre industry may also be understood as a ‘first step’ towards the information economy’. Second, the call-centre industry demands less financial investment than heavy infrastructure and light manufacturing and is less environmentally compromising (UNDP, 2001). As the development of independent island states is linked to scale effect (mass tourism), an increase in island output quite often demands an over-exploitation of carrying capacity in terms of tourism resources.

Third, the call-centre industry is linked to measurable short time impacts in terms of employment. Given the reduced size of the labour market, a single investment may significantly reduce the unemployment rate (Skinner, 2004). Skinner (2004: pg. 219) is well aware that most policy makers agree “that employment will be an immediate payoff”, and from the point of view of the “unemployed or underemployed”, wages are perceived to be relatively good ones. In fact, the call-centre industry offers attractive salaries (Skinner, 2004).

Fourth, ‘call centre typical jobs’ differ from the existing stock of jobs, making possible a diversification of the technical and professional culture. Gillespie and Richardson (1996) are well aware of how the ‘scarcity of employment opportunities for office-based

jobs' make the 'relatively unskilled jobs' appealing even for 'over-qualified employees'. As a consequence concerns about the alleged MNC exploitation of local employees is not shared by local governments, as the vulnerable economic situation limits the capacity to ignore and contest the call-centre industry (Skinner, 2004; Wang, 1999; Mounsey, 2001; Suss et al, 2002).

Fifth, the call-centre-industry demands quite a specific context in terms of political/social stability, corporate reliability, security and transparency that is quite useful in any context (Coe and Yeung, 2000).

Sixth, it is important not to reject opportunities, as there is some possibility at least that the initial phase of relatively low-risk and low tech operations may follow by a next growth phase linked to higher-order activities (Breathnach, 2002).

However, there is a plurality of risks and 'troubling issues' underlying the call-centre industry that should be not ignored. First, the option demands an exogenously led approach, which means a high degree of external dependence and permanent risk of delocalisation. And the counterpart of call-centre embeddedness is tight wage control. And the call-centre industry is affected by first-mover advantages, which favours early movers in the sector and scale economies (Arora and Athreye, 2002; Zook, 2004).

Secondly, 'lower costs advantages' are not sufficient conditions as was the case in manufacturing in the 1960s. The call-centre industry requires a) qualified/low cost and suitable personality traits; b) top quality telecommunications infrastructure; c) a favourable fiscal regime, fiscal incentives and an adequate offer of industrial premises; d) a voluntary attitude and cooperation on the part of local development agencies; e) and the capacity to face competition by core regions (Malecki, 2003; Premkumar and Roberts, 1999). The call-centre industry basically demands an information-friendly context, that is, de-regulated telecommunications markets and export oriented policies (Frenkel, 2001; UNDP, 2001; Berezin et al, 1996; Schware, 1998; Mounsey, 2002; Skinners, 2004). Skinner (2004) defines the remote information processing zones as highly subsidized areas (Sassen, 2001; Gatrell, 1999; Grimes, 2003; Breathnach, 2002).

Thirdly, the call-centre industry has an obvious element of discrimination and exploitation (Breathnach, 2003). The call centre industry reproduces the social and gender inequalities of the early industrial International Division of Labour, because women predominate in the work force. In fact, easy "access to suitable reservoirs of

cheap female labour” is “crucial to understanding the rationale behind the movement of back office activities to remote locations” (Breathnach, 2003: pg. 321; see also MacLeod, 2000). Breathnach (2003: pg. 321) also witnesses a predominance of “relatively poorly paid, albeit skilled, women workers” in the teleservices industry sector in Ireland”. The advantage of the call-centre-industry lies in “downward flexibility of those with least wealth power or political voice” (Mullings, 2004:291). Mullings (2004:291) notes that “women who constitute 90% of the workers in the industry not only experience low levels of pay that frequently fail to meet living expenses, many are also subject to levels of regulation and surveillance that make them vulnerable to health and safety risks”.

Fourthly, there is another difference concerning the exploitation of female labour compared to the 1960s. Now “cheap but diligent labour, young, flexible and female” is required (Breathnach, 2003: pg. 323). And the sector demands “higher skill levels, including literacy, numeracy and computer skills”, “interpersonal communications skills”, “and foreign language proficiency”. In fact, even automated processes require a human touch to add value. And, according to Breathnach (2003) a positive attitude towards routine, boring and demanding work is expected. However, such demands in terms of qualifications are not matched by remuneration levels.

Obviously the call-centre industry it is not a ‘global solution’ for the economic and social problems of independent island states. Mullings (2004: pg. 276) suggests that “it is necessary to examine whether these industrial forms present new opportunities for economic growth or are simply the latest phase of the regions’ peripheralisation in the international division of labour”. Mullings (2004: pg. 276) asserts that “rather than becoming new spaces of development, ICT based industries are vulnerable to becoming spaces of exclusion and exploitation”, as “they are being developed in ways that reflect the rules, regulations and conventions of organisations at scales above the state rather than local needs” (see also Grimes, 2002).

And as stated by Richardson and Gillespie (1996: pg. 108) not all regions can pursue the call-centre dream. As a consequence, “the policy of attempting to attract inward investment around advanced communications may not be appropriate in all areas” (Richardson and Gillespie, 1996: pg. 108). However, the call-centre industry demands political and economic stability and the absence of major labour and social conflicts, which also benefits other sectors (Madon, 2004).

In the end, it can be concluded that islands must live on 'short term advantages' and 'economic cycles'. As a consequence all opportunities must be seized even if in a 'messy' and 'opportunistic' manner.

4.9 Conclusions

The aim of this chapter was to analyse the potential contribution of the Information Society paradigm to understand islands' development prospects. As seen in Chapter 3, the 'development of the periphery' topic is still a pressing issue in most developed and developing countries as it have been not possible to close the gap in terms of GDP per capita. And all the evidence available seems to suggest that fashionable development models (such as the cluster approach) cannot reverse the material inequalities and socio-spatial differentiations that negatively affect LFRs. We shall proceed to briefly review the main conclusions of this chapter:

- As seen in section 4.2, a lack of visible alternatives prompted policy-makers in LFRs to warmly welcome the Information Society Paradigm, especially in regions affected by a series of failures of conventional development strategies. The Information Society paradigm was one of the hot issues in the 1990s and according to Roman (2004: pg. 54) an "atmosphere of enthusiastic urgency to use IT to help to solve development problems" touched the developmental arena; hence, efforts to glamorise the supposed global imperatives of the ICT Revolution were the "dominant obsessions of planners and policy makers" (Graham and Marvin, 2002: pg. 410); some regions tried to develop high-tech sectors from scratch and a new array of intangible competitive factors; efforts to create ex-nilo replicas of the Silicon Valley model were quite common; in fact, most policy-makers shared great expectations about the Information Society paradigm, as "opportunities for progress in all walks of life" were advertised by academics, commentators and experts (Sealy, 2003: pg. 336). The over-enthusiasm shared by most policy-makers in LFRs must be excused, as they were misled by the fact that the EU strongly advised LFRs to embrace the Information Society paradigm (see section 4.3).
- In section 4.3 it is shown that the EU understanding of the Information Society paradigm is rather a result of wishful thinking and desperate efforts to solve

some embarrassing problems faced by Europe (namely the backwardness in relation to the United States in the adoption/adaptation of e-business models and subsequent organisational changes). Efforts to build up the Information Society are closely linked to efforts to increase the EU's level of competitiveness up to the USA standard. However, there is fundamentally an attempt to proceed to re-orientate the industrial mix in order to keep Europe outside of the reach of competition with South-East Asia in terms of commodities. In fact, the EU Commission branded ICT tools as strategic weapons to booster economic growth, competitiveness, structural change and individual welfare; according to Walburn (2005: pg. 305) politicians and government officials, and even some commentators were "content to go along with the charade". However, policy-makers in LFRs didn't ignore that some regions were experiencing a "great degree of uncertainty about how to best manage such changes for the benefit of all" (Wheeler, 2003: pg. 627). And most policy makers were rapidly convinced that putting the infrastructure in place, was , in the long run, the least difficult step (Webster, 2000).

- Still in section 4.3 it is shown that in the middle of the 90s it was already quite evident that the take-off of the Information Society was not an inevitable and deterministic result (Gillespie et al, 2001; Castro and Jensen-Butler, 2003). A quick return to 'normality' (the clientelist approach) followed. Thus the attention focussed by the LFRs on the Information Society, should also be seen as the result of the need to obey Community rules in spite of their lack of belief in the viability of certain EU Commission proposals. As stated in Chapter 1, most regional development programmes may be understood as "an incantatory ritual" needed to justify access to EU funds (Lacour and Perreur, 1998: pg. 350). The policy-makers soon became aware of the inconsistency of the EU normative framework, but would not have wished to go against the current, at least openly. Most policy makers adopted a piece-meal approach based on 'singular events' such as ICT programmes intended to increase adoption rates at the high school level. But in the end, the traditional development axes are still privileged.
- In section 4.4 we also provide an extensive critique to the EU normative framework concerning the appropriation and place of the Information Society

construct among the principles informing the design and implementation of regional development programmes.

- The main criticism is that it was thought possible to find a quick fix solution for the periphery development problems; contrary to expectation, and at least in the short term, an improved ICT infrastructure may erode local firm advantages. Section 4.3 also suggests that the Information Society paradigm should be understood as an obfuscating device that deliberately excludes controversial issues concerning international economic regimes and the redistribution of income.
- Section 4.5 suggested that there are reasons to expect measurable and tangible impacts in terms of ICT investments; however, such a positive relationship between ICT investments and productivity took about 20 years to materialise in the core regions. LFR prospects are much more modest in nature, as only a few regions can benefit from FDI investment in the service industry, and LFRs should not expect substantial changes in the international economic regime.
- Section 4.6 and Section 4.7 suggests that most individuals in LFRs may not really be interested in the Internet; ICT adoption rates depend on the “actual value of use” (Southern, 2002: 699), i.e., “how people use ICT, what for, and in what this adds value to the lives of individuals”. However as stated by David (2003: pg. 249) “ICTs ..., do not easily fit into the lives of those not living the lives of urban high-tech professionals”. In fact, a non-negligible share of individuals may feel anxiety when dealing with PCs. It is evident that the Information Society paradigm suffers from technological determinism and academic paternalism as it is believed that most individuals must embrace the Internet. And as there is evidence to suggest that employment opportunities in the digital era are still available in traditional sectors, the gap between discourse (focused on the alleged inevitability of the Information Society) and practice (focus on traditional investment strategies and the piece-meal approach regarding projects in the Information Society field) should not come as a surprise.
- Section 4.8 provides a bridge between Chapter 3 and Chapter 4. In line with conclusions drawn in Chapter 3, LFRs survival must be based on temporary

advantages and market niches; the call centre industry will never be a global solution for the islands' development prospects. But the call centre industry offers employment opportunities and maybe a temporary solution which can stand in for jobs lost in the traditional sectors. The call centre industry demands quite a specific context in terms of political/social stability, corporate reliability, security and transparency that is quite useful in any context. It is evident that the call-centre industry it is not a 'global solution' for SIRS economic/social problems. Mullings (2004: pg. 276) asserts that "rather than becoming new spaces of development, ICT based industries are vulnerable to becoming spaces of exclusion and exploitation", as "they are being developed in ways that reflect the rules, regulations and conventions of organisations at scales above the state, rather than local needs" (see also Grimes, 2002). However, as shown by Sharpley (2003) concerning Cyprus, islands must exploit all opportunities available even if island development prospects are conditioned by MNCs interests; the worst-case scenario was understood by Webster (2000: pg. 82): is to be included in the "parts of the planet that global capitalism has little interest in".

It is evident that global development solution based on the development from scratch of ICT based activities seems unlikely due to the lack of the right mix of locational factors; however, if successful a single investment may provide a significant number of jobs in a small island; some regions have tried to apply an endogenous approach focused on large scale adoption of ICT tools on the SMEs' part in order to reach external markets (see section 4.4). Chapter 5 aims to provide an answer to the chances of success for an endogenous approach based on wide adoption of ICT tools in order to raise the competitive level of firms operating in the LFRs.

Chapter 5:

From misconceptions and wrong assumptions to an alternative ICT adoption model

5.1 Introduction

From the discussion provided in the previous chapters it is unavoidable to reach the conclusion that a widespread adoption/diffusion of ICT tools in RAM should not be expected for the time being, as even in most advanced regions e-commerce adoption rates are still below expectations. A quantifiable short term change in terms of e-readiness to embrace the Information Society Paradigm (for example, an upgrading of the educational background) does not seem likely, nor should the diffusion of Internet culture beyond the high school/university context be expected. And as seen in Chapter 3, the emergence of a territorial development model characterised by a high density of high-tech firms adopting futurist business/models is unlikely to occur. Further, as suggested in Chapter 2, the geographic orientation of most local firms limits their interest in complex e-business models. There are reasons then, to assert that multiple obstacles seem likely to work simultaneously in the RAM context to delay a large scale adoption of e-business models.

However, we should not generalise conclusions and expectations despite all mounting evidence about low adoption rates of ICT tools in most LFRs. In fact, there are reasons to expect the 15-18 years old generation to adopt a 'wired style of life' (eg. on-line shopping), which may drive the adoption of e-business models on the part of firms in the coming years (Almeida et al, 2007; Almeida and Freitas, 2007). The evolution of the Information Society Project is thus dependent on the younger generation in terms of use of e-commerce functionalities and on the strategic reaction, on the part of local firms, to the evolving rate of adoption of ICT tools (namely e-commerce) in the context of RAM. Consequently, there is some background to expect an increase in the adoption rates of e-commerce platforms and e-business models. It is important to balance all the available evidence concerning the SMEs' ICT adoption rationale in order to provide a sound theoretical account of how and why small firms adopt ICT tools and develop e-business.

This chapter aims to provide theoretical support from various strands of literature to an understanding of the ICT adoption rationale in RAM. This theoretical framework is intended to provide the context for answering the following questions: Are SMEs in

LFRs 'paying attention' to the Internet, in the sense of both be aware and adopting the technology? Which factors may drive/inhibit the adoption of Internet based technologies? Are ICT tools compatible with local firm's strategies and modus operandi? What can be expected in terms of ICT benefits?

It is important to acknowledge that the analysis of peripheral areas prospects' in the Information Age is a relatively unexplored field of research. As a consequence, an eclectic theoretical approach was preferred, for there is no certitude about the drivers influencing the adoption of ICT tools in peripheral areas (Arenius et al, 2006: pg. 282). The RAM case study may be conceived of as an extreme case which represents a 'revelatory opportunity' to analyse a phenomena previously ignored by standard scientific research. Local SMEs are a 'problem' as we are not dealing with "multinational/global SMEs from inception with a world-wide competition focus or with SMEs that complement strategic assets through networks of partnerships and alliances" (Arenius et al, 2006: pg. 286). On the contrary, this chapter recognises the informal nature of SMEs' modus operandi and especially the simplicity of their organisational procedures and strategies.

The structure of the chapter is as follows. Section 5.2 reviews factual evidence available about ICT adoption trends in LFRs which basically contests the overtly optimistic expectations about a large scale adoption of ICT tools, and validates the more sceptical and critical voices concerning the impact of the Information Society paradigm. An even more negative scenario is expected in peripheral and/or remote regions in terms of the adoption of ICT tools. Section 5.3 provides a profile of (locally oriented) firms' behaviour based on a review of the SME literature and cases studies focused on peripheral/rural areas in Southern regions. The specificity of the family-run business (predominant in RAM) is also analysed as it points to an exaggerated owners managers' (OMs) influence in all operational and strategic decisions.

In section 5.4 the rationale behind ICT adoption is structured from a single actor point of view based on the attitude based model literature. But, specific industry factors have also been found to impact on the adoption decision at the SME level. The Diffusion of Innovations Theory, the strategic management perspective and the Resource Based View perspective provide useful theoretical insights to understand the ICT adoption rational in a way that complements a more individual perspective, which is studied based on the Attitude Based Model literature.

Section 5.5 intends to provide a conceptual link between the RAM economic and political background and the potential benefits of adopting ICT tools. As shown before, firms operating in RUPs have been sheltered from competitive pressures and macro-economic shocks. As a consequence macro-level factors (such as globalization and technological advances in the ICT field) should not be understood as 'deterministic' and external forces affecting SMEs in RUPs. RUPs have been able to produce a kind of 'refraction effect' that distorts and dampens the impact of such macro-level factors. As a consequence the ICT revolution may even not be perceived as a challenge/threat or a factor for competitiveness. Hence, a theoretical link between the specific business culture prevailing in RAM and the Internet revolution must be provided. It is argued that critical incidents theory may provide such a conceptual link between the pressure to adopt and firms' strategic behaviour. Section 5.6 is committed to the integration of the multiple strands of theory analysed on the previous sections, which help to build-up an understanding of the alleged ICT benefits from an SME point of view.

Although the importance of the OM's attitude is admitted, the multiplicity of conditioning factors suggests the exclusion of a one-single theoretical approach. It's important to reiterate that we are not dealing with 'well-behaved' (knowledge intensive) firms (Nieto and Fernandez, 2006; Sinkovics and Penz, 2006; Loane, 2006; Mostafa et al, 2006). The 'standard' analysis of the alleged Internet benefits is based on an internationalisation perspective in line with futurist accounts. However, as knowledge intensive business and manufacturing firms do not predominate at the local level in RAM, such standard approach cannot be applied. In fact, there are reasons to suggest that local firms' competitive actions are not mediated by technological artefacts but are based on traditional 'social technologies' (such as face to face contacts and firms' reputation) (Ramsey and Ibbotson, 2006; Arenius et al, 2006).

It is asserted that as locally oriented SMEs predominate, 'individual factors' are critical to understand the adoption decision making process and precedence should be given to the analysis of OMs attitudes towards technological change and growth. Conversely, externally oriented firms are required to base their decision-making on industry standards, as individual idiosyncrasies may put at risk their level of competitiveness. In such circumstances, external factors are rather important to understand the line of reasoning concerning the adoption of ICT tools.

5.2 SME adoption: stylised facts, myths and misconceptions

Given the prevalence of wrong assumptions and myths in the literature, the analysis of ICT adoption rationale must be based from the outset on solid empirical data. As a consequence key facts relating to the ICT adoption/diffusion process, available from the multiplicity of ICT adoption studies and reports, should come to the fore in order to help us to mitigate the impact of the prevalence of wrong assumptions concerning the ICT adoption process.

In fact, contrary to most optimist expectations propagated by the Information Society paradigm's prophets, ICT adoption rates do not obey a strict economic rationale, nor are they compatible with expectations of exponential growth. Most SMEs operating in peripheral areas exhibit divergent adoption rates by sector, but on average, rates are below those recorded by on their urban counterparts (Nicholas, 2003; Deakins, 2004). Preissl (1995) considers the low adoption rates recorded in peripheral areas as a 'paradox' due to the alleged ICT related advantages. Given the ICT adoption gap (in relation to the core regions), North and Smallbone (2006) argues that it would be ironic if the Internet (despite the alleged death of geography proprieties and distance shrinking benefits) would contribute rather to making peripheral areas even more peripheral and marginal.

Given the evidence about lower rates of adoption, some researchers do not resist the suggestion that SMEs operating in LFRs are backward and resistant to change and innovation, i.e., a problematic state of affairs. In fact, one of the main theoretical flaws regarding peripheral areas' studies is to rely on assumptions concerning SME behaviour, based on trends and behaviours only existent in core regions. Most ICT adoption studies focus their attention on the link between ICT adoption and productivity impacts. Impacts in terms of market access and the firm's competitiveness are also examined. And in order to avoid disconcerting 'econometric' problems, most samples are unrepresentative and based on knowledge-intensive firms or manufacturing firms. But concerning RUPs, the specific historical and economic background differ from the situation prevailing in core regions. As a consequence it is not possible to understand the likely impact of the adoption of ICT tools without a proper analysis of the specific economic context under analysis.

In fact, all the evidence available suggests that most SMEs opt for basic, rather than advanced or complex ICT tools (Pechlaner et al, 2005; Tan, 2003). By basic tools I mean general use ICT tools such as access to the Internet, e-mail and basic web pages. The 'complex ICT tool' category comprises essentially web pages containing a rich set of data and e-commerce platforms. Concerning complex ICT tools, low adoption rates are a matter of fact even a decade after the emergence of the Internet. And data concerning patterns of use suggest even more problematic outcomes. Fillis and Wagner (2005) conclude that in terms of basic electronic communications (email), just over 10% of businesses in the Republic of Ireland made use of the facility, compared with less than 7% in Northern Ireland. Concerning Italy, Lucchetti and Sterlacchini (2004 pg.: 163) conclude that "the potential of digital technologies is far from being exploited by Italian SMEs". Sánchez et al (2005: pg. 5) based on a sample of Spanish firms, also concluded that "firms in our sample made on average a very limited usage of the Internet".

Given the mounting evidence concerning low adoption rates of complex ICT tools North and Smallbone (2000: pg. 152) admit that "lower investment in advanced technology does represent the short term rational response by the owners and managers of these firms to the conditions facing them in their local business environment" (see also Selwyn, 2003, 2004). In fact, even larger firms are still struggling with the basic issue of how to use the Internet and digital technologies for their best advantage (Limpkin and Dess, 2004: pg. 161). And despite the visible and noteworthy successes of Internet firms such as eBay and Google, other 'Internet companies' continue to struggle to survive in cyberspace.

In fact, a 'strategic irrelevance' hypothesis concerning the use ICTs tools should be admitted, as well as the likely 'saturation' of the diffusion process (of e-commerce tools) at low levels of adoption (Haugh and Robson, 2005; European Commission, 2002). By 'strategic irrelevance', we mean the marginal impact of complex ICT tools in terms of increased market shares, daily business operations and industry standards. In line with Santarelli and D'Altri (2003: pg. 281) it is assumed that e-commerce tools "as source of transaction cost advantages do not significantly differ from those of the old-fashioned mail order retail channel". Consequently, in some sectors and geographical areas, the current adoption status of complex ICT tools may in fact be above

expectations, given the absence of economic rationale to adopt such technologies. This strategic irrelevance hypothesis is a preliminary but crucial assumption in my analysis.

The evidence shows that most SMEs opt for 'wait and see' approach, until the market requires of them a different approach (Deakins et al, 2004). Probably there are clear benefits to delay heavy investment strategies via the adoption of a cautious and defensive strategy. Later on, if market trends demand it, the adoption of complex ICT may be taken into consideration. As the impact of investment errors may be dramatic at the SME level, sound decision making is required (Sadowski et al, 2002).

In practice, ICT adoption is essentially limited to the basic ICTs tools such as e-mail and web pages. Concerning ICT use, Mitchell and Clark (1999: pg. 450) conclude that "such businesses (SMEs) typically used computers for word processing financial management and producing accounts, operational and administrative reasons" (see also Koybe, 2004; Grandon and Pearson, 2004; Grimes, 2005). The adoption rate of complex ICT tools (eg. e-commerce) is clearly below expectations (Selwyn, 2004; Grimes, 2005; Grandon and Pearson, 2004; Mitchell and Clark, 1999; Doherty et al, 2003). As suggested in section 4.3, the diffusion path of the e-commerce (e-business models) at the European level is still below expectations even for medium and large enterprises. What emerges from most studies is that complex ICTs tools are in fact complementing and not revolutionising communication methods at work in firms. A gap between the optimist and voluntaristic discourse about the alleged ICT benefits, on the one hand, and the real and effective use, on the other, is evident.

The absence of a clear business case and incompatibility with the SME business modus operandi and culture is critical to understand ICT adoption rates. Preissl (1995: pg. 80) argues that the diffusion of ICT tools depends on "obvious possibilities for application" And despite all optimist proclamations, the European Commission (2002: pg. 12) admits as unlikely a large scale adoption of complex ICT tools on the part of "SMEs choosing to serve local markets and with owners who are satisfied with the profit they are making from the business, for whom the benefits will not outweigh the costs of further extending the e-business activities". However, such a cautious approach is not easily accepted by policy-makers searching for solutions for the reasons put forward in Chapter 4 (Westhead et al, 2001; Deakins et al, 2004).

However, even if the business case doesn't exist to justify the adoption of complex ICT tools, about 50% of SMEs in RAM adopt relatively complex ICT solutions (Almeida, 2005). Therefore evidence is conflicting and further investigation is needed to provide an intelligible account of what is going on in terms of the adoption of ICT tools (Fillis and Wagner, 2005: pg. 620).

5.3 Competitive behaviour in family-run firms

An analysis of SMEs' adoption rationale should be based on an in-depth understanding of their characteristics and the economic and political context in which they operate. Without such an understanding of SMEs' modus operandi it is impossible to devise the underlying rationality guiding the adoption of ICT tools (Ballot and Taymaz, 1997). As stated above, the Information Society paradigm should not be understood as a determinist force triggered by a technological meteor affecting at once all small firms (Graham and Marvin, 2001: pg. 410).

Wong and Aspinwall (2004) suggest the need for an analysis of firms' ownership structure, behaviour, processes and strategies (see also Barbosa and Louri, 2005). However, small firms operating in RAM are not examples of complex organisational structures. For this type of reason, van Gelderen et al (2005: pg. 97) criticise the application of standard organisational theory (based on MCNs and larger firms), as "for organisational learning, it first needs to be an organisation". In fact, SMEs have fewer layers of management (and quite often only one) (Wong and Aspinwall, 2004). Thus a direct translation of the traditional neo-classic theory of the firm focused on complex organisations must be avoided as misleading. As the typical SMEs differs substantially from well-behaved larger firms a specific analysis of the local enterprising behaviour (in terms of strategy, technology and innovation standards), and the background of the local OMs should be provided (Wong and Aspinwall, 2004). An additional reason for an independent analysis derives from the fact that most ICT adoption studies embody deterministic and over-optimist assumptions. Clark et al (2004) point out the tendency to exaggerate the nature and sophistication of technologies in use in SMEs.

Keeble and Tyler (1999: pg. 978) define enterprising behaviour as the "owner's deliberate and conscious efforts to enhance their firm's competitive edge across all activities such as production, marketing and finance, necessary for successful business

operation given their external environment and given the resource base they possess”. But local economic agents do not necessarily opt for the traditional neo-classic rationale in terms of enterprising behaviour (i.e., profit maximisation). In fact, most OMs try to optimise an integrated mix of “social and economic goals” (Burton, 2004: pg. 360; see also Montalvo, 2006). This section is based on the presumption that examples of decision making based on a ‘purely economic rational basis’ are rare in SMEs, particularly in family run businesses. Most OMs are not “absolute optimisers, highly reflective, strategic or tactical and top-down planners” with access to perfect information and pursuing exclusively economic aims, but they are fully rational individuals (Montalvo, 2006: pg. 315).

5.3.1 Characteristics of family firms

As stated before, there is a widespread belief that OMs characteristics, values, experiences and perceptions are critical to understand family-run businesses strategic options (North and Smallbone, 2006; Celuch et al, 2005; Massey, 2006). And it is assumed that at the family-run business level, the firm’s decision making is a matter of the individual decision maker. Therefore the ICT adoption decision making may contain a factor of irrationality due to OMs negative or positive attitudes towards technological artefacts (Haugh and Robson, 2005; Selwyn, 2003; Selwyn, 2004). At the family-firm level, the OM’s education background, managerial experience and technology skills are the critical resource (Rauch et al, 2005). For that reason, an analysis of ICT adoption factors must address the idiosyncrasies, background and aspirations of the controlling individual, as they are often more decisive than the firm’s capabilities and market positioning (Roper, 1999; North and Smallbone, 2006).

Family-run businesses are predominant in RAM, and contribute significantly, in both Europe and US, towards GDP, employment and shaping the local business culture (Getz and Carlsen, 2005; Heshmati, 2001 Roberts and Thompson, 2003; Buhalis and Deimezi, 2003; Martin and Halstead, 2004; Feltham et al, 2005). For that reason we must provide an in-depth analysis of such firms in terms of their characteristics.

One of the key characteristic of family firms concerns their unique ‘strategic thinking’. Concerning growth aims, van Gelderen et al (2005: pg. 101) admit that firm growth may be irrelevant as “most small firms start out small and wish to remain so” (see also

the European Commission, 2004; Wong and Aspinwall, 2004). And, although an increasing number of SMEs adopt professional and participative managerial models, as opposed to the current paternalistic ones, informal organizational structures and daily (and paternalistic) OM involvement are still predominant (Stavrou et al, 2005; Spanos, 2004). Therefore it is suggested that family-firms are managed differently from non-family firms, given the overlapping of family and business goals and the influence of OMs attitudes and beliefs in terms of the overall management philosophy. Quite often family objectives are afforded top priority, and growth and innovation objectives are placed on a second level (Martin and Halstead, 2004; Gils et al, 2004). As a consequence such firms sometimes neglect strategic opportunities such as the adoption of ICT tools (Saarenketo et al, 2004). Schulze et al (2002) also highlight that the attributes peculiar to the family-run business make it more difficult for them to consistently choose the most economically rational options (see also Schulze et al, 2002). And Smith (1999) acknowledges that older OMs are significantly less likely to take strategic initiatives related to changing the pattern of management and control within their business.

Another key characteristic concerns the internal decision making process at work in such firms, as the leadership structure is centred on the owner as well as perhaps on two or three middle managers. In fact, as stated by Wong and Aspinwall (2004: pg. 49), in the “SME context the ultimate power of control lies in their hands”. Feltham et al (2005) highlight the fact that important decisions are exclusively taken by OMs (see also O’Gorman et al, 2005). Feltham et al (2005) further highlights that 75% of family businesses recognised an excessive dependence in relation to OM decision making. The counterpart of such direct line management is the lack of time and attention left to ‘higher order’ activities such as strategic thinking and technology learning.

Another family-run business specificity concerns formality and planning. With reference to structure and strategic informality, Levy and Powell (2003) and Mole (2004) emphasize that only a minority of micro-companies pursue anticipated and formal planning growth models, which constrains goal achievement and entrepreneurial learning (see also Gelderen et al, 2005; O’Gorman et al, 2005). As a consequence random and opportunistic growth paths may predominate as well as informal strategic planning (Getz and Carlson, 2005).

Some family-run businesses suffer from identity problems. Tregear (2003), based on an analysis of market and growth orientation among craftspersons, concluded that craftspersons perceived themselves as prioritizing non-commercial and lifestyle goals. McAuley and Fillis (2005) also were not sure about the entrepreneurial identity of craftsperson's who regard themselves as being artists and/or designers rather than businessmen.

Given the importance of 'family objectives', it is not a surprise that most OMs choose stability and risk-free behaviour because the firm is the main source of income and employment of family members, which results in "risk-averse strategies to be pursued in order not to jeopardize the family security or the property legacy" (Maes et al, 2005: pg. 19; see also Moshavi and Kosh, 2005). As stated above, in the family-run business context family objectives repeatedly go beyond traditional firm-value maximisation to include employment for the family (Getz and Nielsson, 2004). Getz and Carlson (2005: pg. 238) believe that the generic objective of the family run business is to "use the business for the betterment of the family, potentially across more than one generation".

Some family-run businesses reject any quantitative growth ambitions as they try to avoid increased debt, more work and/or risk. In fact, many OMs are averse to the maximisation of 'growth goals' (Maes et al, 2005; Skuras et al, 2005; Randoy and Goel, 2003). Getz and Paterson (2005) reached the conclusion that profit and growth oriented entrepreneurs were a minority if compared to autonomy and lifestyle oriented entrepreneurs. Lifestyle-oriented entrepreneurs have a propensity to limit the scale and extension of their businesses development in order to harmonise economic objectives with social, cultural and environmental concerns. In fact the 'real entrepreneur' seems to be a minority in peripheral/remote regions as most firms are in fact family-run business pursuing a 'miscellanea' of non-economic and growth objectives (Randoy and Goel, 2003; Maes et al, 2005; Skuras et al, 2005).

As a consequence, we should not expect to find large numbers of profit maximisers operating in peripheral areas. Concerning enterprises operating in Greek rural areas, for example, North and Smallbone (2006) provide a profile of small sized firms, specialised in traditional specializations, labour-intensive techniques and showing low profitability and low economic development potential. Furthermore, North and Smallbone (2006) also point to two interrelated factors that were also deemed critical to understanding peripheral enterprises behaviour: a) the conservative management style of rural

entrepreneurs, and b) the lack of cooperation among rural firms. Concerning rural firms in Andalusia, Hoggart and Paniagua (200: pg. 68) also declare that the size of farms, a “conservative productivist mentality” and the large numbers of senior farmers constrained capital investment and firms’ modernisation.

5.3.2 Local firms’ investment strategies

Investment strategies are deemed critical to understand peripheral firm’s behaviour (Hausman, 2005). Most SMEs exhibit relatively low levels of profitability and added value per worker. In consequence, investment options are clearly constrained by a capital structure which is dependent on in-house resources. In fact, when such firms apply for bank credit, they face extra hurdles in accessing external financing, which results in quite expensive growth strategies (Psaltopoulos et al 2005). In consequence, for some firms (especially younger ones) a total dependence on public funds’ support, to underpin investment, is normal (Skuras et al, 2003; Meccheri and Pelloni, 2003; Psaltopoulos et al, 2005; Deakins et al, 2004). Concerning Italian start-ups operating in peripheral areas, Meccheri and Pelloni (2003) witness the dependence on ‘entrepreneurial personal funds’ or alternative funding practices such as client and suppliers credit, given the credit rationing practiced by the financial system. And paradoxically firms in most need of funding are not the major recipients of public financial assistance, as firm eligibility for accessing such financial schemes requires heavy financial capacity (Skuras et al, 2003).

Although financial constraints may be real, it must be said that this is not the critical issue. OMs’ perceptions about which investment opportunities are available are more decisive. If OMs have developed a positive belief about an investment opportunity, such OMs will be able to provide the finance needed (Psaltopoulos et al, 2005; Ravasi and Turati, 2005; Psaltopoulos et al, 2005; Gren, 2002; North and Smallbone, 2006; Labrianidis, 2006). In fact it seems that in the LFR context, SMEs’ growth constraints are more linked to lack of management competence or motivation than lack of resources and business opportunities (Saemundsson and Dahlstrand, 2005).

In conclusion, complex investment strategies are rare, as family-run firms are overwhelmingly independent and dependent on retained profits. Family-firms are supposedly more risk-averse, less growth-oriented, and less creativity and innovation

focused. It is also suggested that such firms also reveal a reluctant attitude towards modernization and external counselling (Psaltopoulos et al, 2005; Randoy and Goel, 2003). Firms operating in peripheral areas lack resources but perhaps more importantly, lack “the managerial professional culture and sophistication” which are needed for exploring complex ICT tools (Spanos et al, 2002: pg. 671; Landabasso, 2000; Gils et al 2004). In fact, medium and large companies reveal a greater propensity to invest/innovate and adopt ICTs. However, there is insufficient market potential to accommodate a large number of them (Faria et al, 2002).

5.3.3 The role of the industry mix

But the competitive behaviours of firms also depends on industry mix and business culture (Junquera and Ordiz, 2002; Kaufmann and Tödtling, 2002; Spencer and Gomez, 2004). As stated by Erumban and Jong (2006: pg. 302) concerning the adoption of ICT tools: “the socio-cultural ambience, perceived values, institutions and political atmosphere might influence the perception of the individuals within a society in a certain way, and these factors may consequently impact the adoption decisions”. It is evident that regions specialized in “dynamic, high growth firms and sectors perform better in terms of performance, investment and growth” (Becchetti et al, 2003: pg. 145). With regards to the RAM, the local industry mix appears to be unfavourable, and there is also the prevalence of low technology, low productivity and non export oriented very ‘small-scale units’ (Psaltopoulos *et al*, 2005; Faria *et al*, 2001). Thus we should expect SMEs located in peripheral regions to be less innovative than similar firms located in more accessible regions, with a more favourable industry mix.

The ‘parameters for competitiveness’ are also conditioned by the industry mix. The evidence available demonstrates that technology based sectors with active programmes of product improvement and R&D projects exhibit ‘higher levels of innovation’ and adoption of ICT tools. Westhead et al (2001), Saarenketo et al (2004), Mitchell and Clark (1999) and Sadowiski et al (2002) associate a greater innovation propensity (and consequently greater growth potential) with manufacturing firms compared to service firms. The scope for seeking competitive advantages through product innovation, which in turn influences the development of new markets and growth potential, is clearly constrained in the service sector. And services firms experience greater difficulties

concerning innovation management (North and Smallbone, 1996; Keeble and Tyler, 1995; Ezcurra *et al*, 2005). As a consequence, high adoption rates of complex ICT tools should not be expected in RAM.

5.3.4 Cultural and institutional specificities at work in peripheral areas

As seen in Chapter 3, local government initiatives have been crucial to sustain the macro-economic 'oasis' and the social stability in some peripheral/remote areas. Although local government intervention has been crucial to sustain the current economic and social developmental levels, there are 'problems' attached to excessive state intervention (see section 3.5). In general, state-economy relations in islands tend towards a 'clientist approach' as policy-makers and local economic groups have overlapping interests. As a consequence, investment options in some 'protected sectors' are constrained by political issues and obscure private interests. Heshmati (2001: pg. 214) points to the fact that, in Italy, "inhomogeneous institutions and rules determining entrepreneurial and business conditions" are applied to the detriment of "small firms, start-ups, less capital-intensive firms and family owned businesses, resulting in a reduction of their growth potential" (see also Gonçalves, 2002; Tavares, 2004). Dimou (2003) and Freiss (1997) provide vivid examples of special legislative initiatives launched to provide entry barriers and favour specific commercial and political interests in Reunion and New Caledonia, respectively. And the unique 'grant-entrepreneurial' culture may also stifle innovation of potentially innovative firms. Concerning SMEs' access to financial programmes, Ramsey and Ibbotson (2006: pg. 327) state that to "get ones hands on these funds to assist innovative e-business ideas that SMEs may wish to pursue, may be so complicated, confusing, and time unfriendly, that any entrepreneurial spirit soon becomes dampened". And in relation to one of the Italian peripheral regions, Meccheri and Pelloni (2003) point to the fact that EU funds are concentrated in a limited number of local firms, (larger firms linked to the construction sector) as they have more 'initiative' in accessing external funding. In a general way, peripheral regions suffer from 'low levels of competitive pressure' and are prone to the development of oligopolistic structures that may hamper SMEs' development prospects.

5.3.5 Innovativeness profile and distance from core markets

Moshavi and Koch (2005: pg. 237) point to the fact “family businesses tend to be somewhat inward looking and do not scan their business environment as much as non-family-owned firms” (see also Gils et al, 2004; Ramsey and Ibbotson, 2006). In fact, there are psychological constraints linked to peripheral location that may erode a risk-taker attitude and ‘openness of mind’. In relation to the psychological/cultural conditionings, Valentine and Holloway (2001: pg. 386) explains how the nature of rural communities (i.e., isolation and marginalisation) “encourage children (and adults) to be inward rather than outward looking which can mean that they lack awareness of possible opportunities elsewhere and as such set their personal horizons too low” (see also Cross and Nutley, 1999). Local firms inward looking character is reflected in the predominance of incremental innovations developed internally without any involvement from external institutions (North and Smallbone, 2000).

But the inward looking character is also associated with the absence of professional experiences abroad (Almeida, 2005). The innovation management literature strongly emphasises the importance of access to and collaboration in external networks. In relation to UK rural/peripheral entrepreneurs, Keeble and Tyler (2002) emphasize the importance of “previous expertise, personal links and networks with potential customers developed by the (migrant) rural entrepreneurs involved in their previous urban locations and employment”. In fact, a large number of contacts with ‘urban-focused networks’ as well as the awareness of evolving market opportunities and technology possibilities is not a distinctive characteristic of ‘local born’ entrepreneurs operating in LFRs (Psaltopoulos et al, 2005; Gillespie et al, 2001; Keeble and Tyler, 2002). As a consequence, an overwhelming local focus in terms of life experiences is likely to constrain OMs’ innovative potential. North and Smallbone (2006: pg. 56) recognizes that due to the fact that OMs “have life experiences limited by their rural environment, it is unlikely in these situations, therefore, that the required animators will emerge from within the indigenous population”.

The distance in relation to core-markets also limits the “relative proximity to urban clients” and thus the potential for “competitive efficiency” due to increased competition (Keeble and Tyler, 2002: pg. 987; see also Porter, 2001; Grimes, 2005). As innovation theories recognised a long time ago, access to sophisticated customers and suppliers are a critical source of information and pressure to develop and up-grade products and

services (van Gelderen et al, 2005; Porter, 2001; Amara and Landry, 2005). In fact, external markets demand higher quality levels compared to local markets characterised by stable market rules and low competitive pressures. In fact, the innovation process of SMEs operating in LFRs is linked to existing technological/market knowledge, and therefore incremental innovations, if any innovations at all, are common (Saemundsson and Dahlstrand, 2005).

5.3.6 Unlikely entrepreneurs

But the local born factor is complemented by the prevalence of 'unlikely entrepreneurs'. Quite often, the entrepreneurial option is a result of a lack of career opportunities. Under such circumstances entrepreneurship may be perceived as a "viable economic option" with low opportunity costs (McAuley and Fillis, 2005).

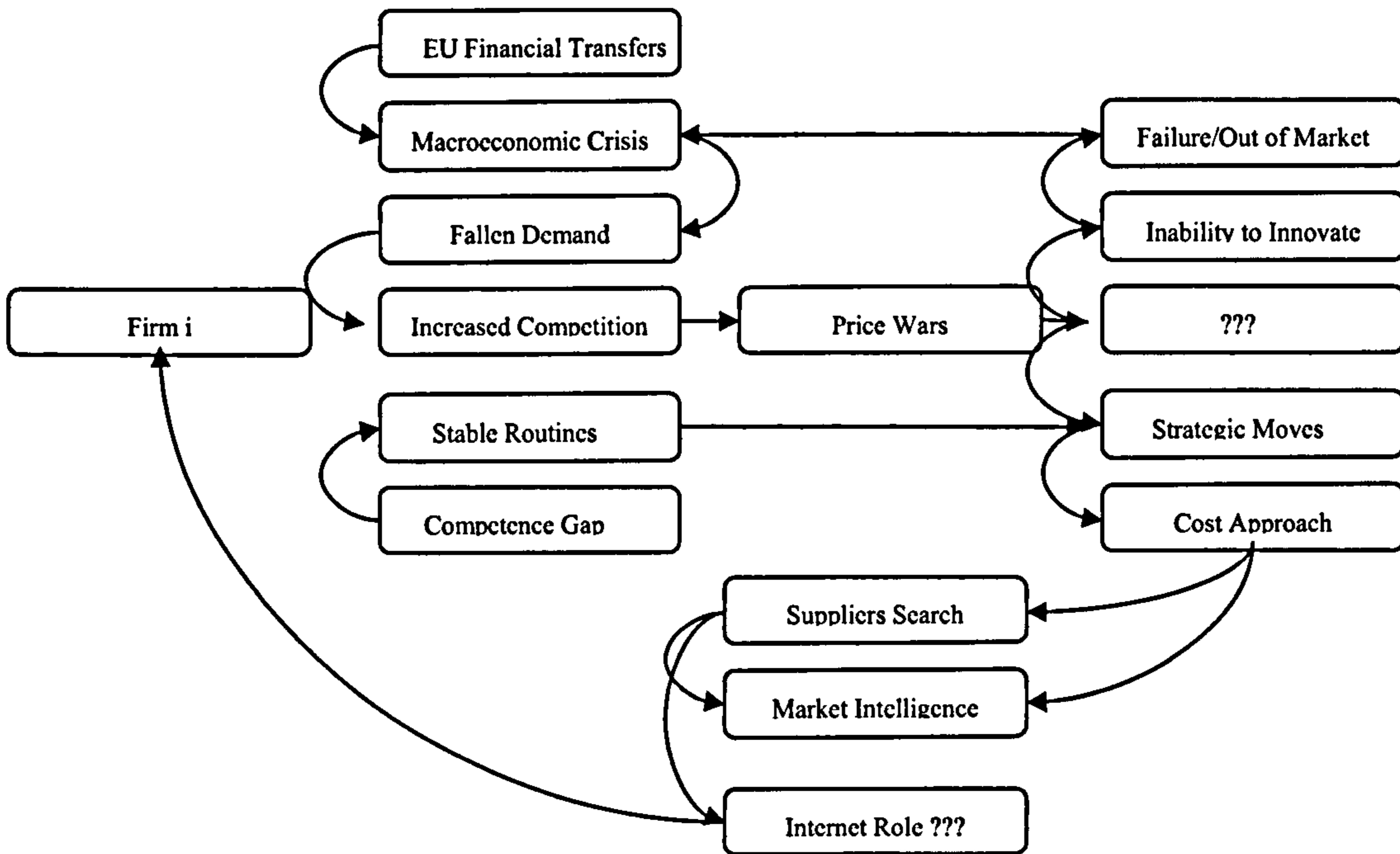
In line with Ritsila and Tervo (2002: pg. 31), it is assumed that the entrepreneurial event results from both push factors (individual perspective) and pull factors (economic perspective). The 'push hypothesis' is linked to the circumstances wherein an individual is compelled to establish a new enterprise due to negative labour prospects such as personal unemployment. If individuals are confronted with a dramatic unemployment condition, or attractive opportunities are missing as a result of an inadequate educational background, individuals may consider the entrepreneurial venture as their best option available (Ritsila and Tervo, 2002: pg. 31).

With regards to RAM, the push factor may be related to the 'illiteracy problem', which narrows the availability of attractive employment and career opportunities. Concerning traditional sectors, the pull-effect is also important as investment opportunities at the regional level were linked to the availability of funds after 1986. The point to be made is: small firms are not managed by highly qualified individuals with previous managerial experience who are 'pulled' into the entrepreneurship venture by their pro-innovative attitude and/or opportunity recognition (Ramsey and Ibbotson, 2006; Hough and White, 2004; Julien et al, 1999; Malecki and Poehling, 1999; Tanriverdi, 2005). Therefore, as most entrepreneurs are going to reproduce old business concepts in traditional sectors, entrepreneurship is not always an agent of change linked to processes of development and modernisation.

One of the critical problems in LFRs concerns human capital scores amongst OMs. This is a disturbing scenario as all evidence available suggests a positive impact of OMs' formal education on business performance and technology awareness/adoption (Ritsila and Tervo, 2002). Ravasi and Turati (2005) also highlight the impact of OMs formal education on opportunity recognition. And Smith (1999) highlights the impact of educational attainment, in terms of entrepreneurial orientation, learning capability and formal and structured planning on the firm's performance. Smith (1999: pg. 187) contends that "faster learners, who learn to approach the business in a more formal, structured and planned manner, will experience subsequently higher performance". However, as far as local entrepreneurs are concerned, human capital accumulation is assumed to be centred on 'personal' experiences and not on educational attainment and/or training. Data obtained from a study conducted in four mountainous areas (in Portugal, Spain, Italy and Greece) reveal that the Portuguese businessmen had the lowest level of formal education (Skuras et al, 2005; Skuras et al, 2003). That is, the successful Portuguese businessman was not well educated, but was work experienced.

The competitive problem faced by firms operating in RAM must be stated. As most SMEs are locally oriented they are especially dependent on the region's macro-economic prospects, which are partially dependent on EU/Portugal financial transfers. If a 'financial crisis' is not avoided, a fall in the level of demand should be expected as well as increased competition pressures and firms' failure rates. It is argued that in such a scenario, local firms will struggle to protect their market shares essentially based on a cost approach. Thus firms' survival odds are linked to a fine tuned management of the inbound operations and procurement (selection of product and suppliers). But firms' survival odds are also linked to an up-grade of their OMs competences as shown in Section 5.5. The nature of this multifaceted competitiveness problem is summarised in Figure 5.3. It is suggested that Internet based technological and marketing scanning can help OMs to access better prices and after sales services (i.e., cost advantages). Such an approach is discussed later in section 5.5.

Figure 5.1 Local firms competitive problem



5.4 The ICT adoption rationale in a peripheral context: individual idiosyncrasies, resources availability and strategic concerns

After having identified the basic pattern of adoption of ICT tools in the EU peripheral context, and provided a characterisation of the typical firm operating in a peripheral region, it is important to provide an analysis of OMs' decision making (Riemenschneider et al, 2003). Several theoretical frameworks may help us to understand the ICT adoption rationale. Yet as the empirical evidence regarding peripheral regions is scarce, doubts about the validity of the conclusions reached in the endless theoretical/empirical literature on the technology adoption topic, should be raised. Thus I adopt an 'exploratory approach' based on several strands of 'theory' to derive a series of propositions that may be tested and evaluated in the field.

Our interest lies in an in-depth analysis of the factors that may drive ICT adoption in SMEs. Both the Attitude Based Models literature and Diffusion of Innovations Theory provide functional theoretical frameworks to understand the ICT adoption rationale. And both the Strategic Positioning Approach and the Resource Based View perspective provide a useful background to understand the impact of firm' structures/strategies on

the adoption rationale. However I am also interested in an in-depth analysis of the likely impact of the specific cultural/historical background in RAM on the OMs attitude towards technology. As seen in Section 5.3 the existing stock of firms and the business culture differs from the 'ideal'.

One of the key stylised facts concerning micro and small firms is the 'almost total' influence of the OMs in the daily operational management of their firms. Therefore, it is inaccurate to assume tout court all the insights based on theoretical accounts focused on complex organisation structures. In fact, most decisions regarding investment and technology are a result of highly informal, unstructured, reactive, intuitive and opportunistic decisions in line with a highly informal and personalistic organisational structure. Therefore a brief review of the literature on individual attitude based models provides our first theoretical framework to understand OMs' decision making. In fact, an individual's attitude towards technology is a fundamental antecedent of their adoption behaviour. Further, LFRs are categorised as innovation averse societies and local firms are easily stigmatised as backward, isolated and resistant to change and innovation. As a consequence we must ask: are local OMs 'in touche' with the hype surrounding the Internet or are they prone to be affected by 'technophobe attitudes'.

5.4.1. Attitude based models

As mentioned above, the almost total influence of the OM in operational and strategic management and adoption decision-making seems to point to a single actors approach (Montalvo, 2006; Austin et al, 1998). As stated by Celuch et al (2005: pg. 2) "small firm (entrepreneurial) business decision making is usually the province of an individual decision maker'. In fact, the micro firm's culture is shaped and affected by the OM's personality "since they have a strong dominance in the firm" (Wong and Aspinwall, 2004: pg. 51). As a consequence, an in-depth analysis of OMs attitudes/beliefs towards ICT tools is required. Despite all the hype around ICTs such as the Internet, some individuals (including OMs) still have negative attitudes towards the Internet (Burton, 2004).

According to Montalvo (2006:pg. 313), a behavioural model is a way to "organize knowledge generated in diverse areas of innovation studies to explain and predict the conditions upon which innovative behaviours of organizations in specific contexts can

occur". Based on studies carried out in the agricultural context, Burton (2004: pg. 360) categorises as behavioural approaches those ones that seek to understand the behaviour of individual decision makers and are focused on psychological constructs such as attitudes, values, and goals but also gather additional data on firm structure, economic situation, successional status, etc., and "employ largely quantitative methodologies, in particular psychometric scales such as Likert-type scaling procedures for investigating psychological constructs". According to Burton, the behavioural approaches understand behaviour as a combination of individualist motivational factors and more structural and on economic factors that inhibit or drive the OMs decision making (Burton, 2004. pg. 360). According to Celuch et al (2005: pg. 2) "attitude based models focused on the identification of the determinants of behavioural intention (i.e., attitudes, subjective norms, perceived control), have been viewed as a useful means of understanding determinants of technology usage". In fact, it is well documented that individual's social behaviour may be explained and predicted in terms of intentions, attitude, subjective norms and behavioural control.

Attitude-based models such as the Theory of Reasoned Action, the Theory of Planned Behaviour and the Technology Acceptance Model are focused on the identification of the determinants of the 'behavioural intention' (motives, values and attitudes) and have been largely adopted in the analysis of determinants of an individual's 'technology acceptance and usage'. Both theories assume that behaviour is function of salient beliefs, that is, relevant information in relation to the behaviour in question. Both consider that individual action is determined by the intention to perform; and the intention to perform is a function of the attitude (personal interest) which is conditioned by the person's behaviour beliefs (individual positive or negative evaluation of performing certain behaviour) as well as by subjective norms. The subjective norm dimension concerns normative beliefs and social influence and is defined as a person's perception of the normative social pressures to perform or not perform the behaviour in question (Roman, 2004; Kohn and Husig, 2005; Huang and Liaw, 2005). The Theory of Planned Behaviour adds to the basic constructs of attitude, intention and behaviour, a construct relating to perceived behavioural control defined, as a "measure of the extent to which people believe they are able to control the outcome" (Venkatesh and Davis (2000: pg. 187).

Many theoretical frameworks based on the attitude base models have been used to measure technology usage satisfaction and adoption (Venkatsh and Davis, 2000; Venkatesh et al, 2003). Amongst them, the Technology Acceptance Model seems to be “the most influential and widely used theory in predicting and explaining” the levels of usage and the intention to use in Management of Information System literature” (Wu and Wu, 2005: pg. 305; see also Chen et al, 2002; Saadé and Kira, 2006; Venkatesh and Davis, 2000; Celuh et al, 2005; Yu et al, 2005; Korukonda, 2005). According to Venkatesh and Davis (2000: pg. 187) “TAM is well-established as a robust, powerful and parsimonious model for predicting user acceptance” (see also Celuch et al, 2005; Huang and Liaw, 2005). However, as the TAM based studies have had an application mostly focused on workplaces and the end user context it is important to establish their theoretical relevance (reliability/significance) in the SME context (Brown and Vankatesh, 2005; Celuch et al, 2005).

The initial version of the TAM hypothesized that an individual’s behaviour intention to use is influenced by that individual’s attitude towards usage and the direct and indirect impact of the ‘Perceived Usefulness’ and ‘Perceived Ease of Use’, constructs which were believed to moderate the impact of the external variables (such as system characteristics, training, etc) in the intention to use (Huang and Liaw, 2005). Perceived usefulness is defined as the “extent to which a person believes that using the system enhances his/her job performance, outcome expectancy which leads to individual behavioural intention to use technologies” (Venkatesh and Davis, 2000: pg. 192), and perceived ease of use is related to the extent to which a person believes that using a system will be free of effort.

It is important to extend further the analysis of the theoretical relevance of these constructs in order to justify their inclusion at the empirical level. Attitude and intention are still relevant theoretical constructs as the “business case to adopt Internet related technologies have been put to question as a result of the crisis in the new economy paradigm” (Nieto and Fernandez, 2006: pg. 251). In fact, as stated by Ramsey and Ibbotson (2006: pg. 326) “SMEs have become complacent, as they believe the option of e-business is over hyped and less urgent and as a consequence the postponement of strategic planning and investment in e-business is the rule”. So, despite all hype around the Internet, most OMs may adopt an indifferent attitude towards it’s adoption.

In the SME context, the relevance of the 'perceived usefulness' construct cannot be overlooked, as low rates of adoption of the Internet/e-commerce amongst SMEs are still the norm. Grimes (2005: pg. 10) argues that "many entrepreneurs fail to see the practicability of e-commerce in the context of their own business operations" (see also Chen et al, 2002). The 'perceived ease of use' factor is certainly a decisive one, especially in the pre-adoption phase as most OMs are presumably not experts in the ICT field.

The 'subjective norm' construct, defined as a "person's perception that most people who are important to him think he should or should not perform the behaviour in question" (Venkatesh and Davis, 2000, pg. 187), seems to be fundamental to understanding the processes of adoption/diffusion in a particular sociological context such as the island one. Venkatesh and Davis (2000: pg. 187) suggest that if "an individual agent believes that important referents think that he should adopt and if the agent in question shows enough motivation to comply with referents", the individual in question may opt for a certain behaviour, even in the case of a neutral and or negative attitude towards such behaviour (see also Labriandis, 2006; North and Smallbone, 2006).

The impact of referents' thinking is very important in the SME context. Moshavi and Koch (2005: pg. 240) observe that "when family-firms do look outward, they primarily turn to other family-owned firms for comparison". Lu et al (2005: pg. 250) also suggest that OMs frequently appeal to their family and friends network "when business advice, finance or guidance was required" (see also Martin and Halstead, 2004; Lu et al, 2003). In fact, family and friends' opinions may counteract the impact of negative individual views. The possible 'salient referents' comprise, according to SME literature, family and friends, workplace referents, competitors, customers and suppliers, government champions and governmental institutions (Brown and Venkatesh, 2005). The importance of the OM's inner circle (family, friends, customers, etc) is also highlighted by Martin and Halstead (2004: pg. 31), who provide an interesting account of how children of school-going age influence their parent's awareness about ICT technology. In fact, social pressures may constitute an effective mechanism to overcome the initial inertia (and low adoption rates) as it is a factor of persuasion to change the initial (negative) attitude. The near-peer pressures may legitimize the adoption decision even if there is no rationale behind ICT adoption (Karahanna et al, 1999). In fact, in the pre-adoption phase, a potential user's knowledge, beliefs and intention to use a new

innovation are 'vague and ill-formed' and therefore dependent on external opinions. As additional information about the potential limitations of the innovation is gathered via direct experience, the influence of the subjective norm factor is mitigated. A decade after the emergence of the Internet, a reduced impact of the subjective norm factor on OMs' beliefs and attitudes should be expected. However the subjective norm factor includes another dimension ('image' factor) besides a mere conceptualisation of adoption as directed by 'group norms' (Venkatesh and Davis, 2000). The 'favourable image' factor conceptualises ICT adoption as a factor of enhancement of the social status in the community.

'Previous experience' is another important construct to understand attitudes, while Korupp and Szydlik (2005) conceive the 'generation factor', in terms of access to household technology, as a key determinant of attitude towards technology. They identify 4 ideal generation types: the pre-technical generation born before 1939; the household revolution generation (for individuals born between 1939 and 1948); the generation of advanced household technology (for individuals born between 1949 and 1964); and the computer generation (for individuals born after 1964). Concerning RAM, the pre-technical generation still comprises individuals born after 1964, as most of them grew up in an environment bare of household technology. Basic household technology, such as refrigerators and TV sets diffused in RAM only after 1976. The generation raised with 'a set of digitalised home technology' (microwaves, computers) was only born in the 1980s-1990s. According to Korupp and Szydlik (2005: pg. 417) the "confrontation with computer technology at a young age seems to make its appliance more likely". Consequently, early adopters are to be found only in the upper educational echelons. And a widespread reluctance and negative attitude towards technology should be expected.

5.4.2. Technophobia and intrinsic motivation

As suggested above, individual idiosyncrasies and intrinsic motivations must also be analysed in order to understand the ICT adoption rationale. For example, in order to understand the impact of the individuals' acceptance of web based surveys, Huang and Liaw (2005) analyse the simultaneous impact of the 'self-efficacy' construct and other constructs such as 'anxiety' and 'computer liking' related to the individual 'intrinsic

motivation' sphere. According to Huang and Liaw (2005: pg. 732) intrinsic motivation is defined as the "driver arising within the self to carry out an activity whose reward is derived from the enjoyment of the activity itself"; anxiety is defined as the "tendency of individuals to be technophobic, being uneasy or apprehensive towards technology"; and computer liking is defined as ("liking or enjoying working with computers. Yu et al (2005: pg. 967) add the 'perceived enjoyment' construct, emphasising therefore the role of fun, defined as "the extent to which the activity of using the technology is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated". Brown and Venkatesh (2005: pg. 406) also emphasise that "using technology for its own sake is an indication that an individual is intrinsically motivated to use the technology". Even if there is no 'economic rationale' to justify the adoption of ICT tools, the perceived enjoyment factor can extend the domestic use of ICT tools to the business sphere.

However, despite all the hype concerning the Internet and other technology based devices, technophobia (or computer anxiety) is still a matter of concern for 25%-50% of adult individuals (Bond, 2004; Nachmias et al, 2001). Computer anxiety may be defined as distrust and fear of computers (Ahuja and Tatcher, 2005; Thorpe and Brosnan, 2005; Korunkonda, 2005; Sinkovics et al, 2002; Shaw and Marlow, 1999; Selwyn et al, 2000). Korunkonda (2005) alerts us to the fact that technophobia can affect up to 50% of the population, and, therefore, feelings of computer-related anxiety cannot be dismissed or marginalised in the OMs context. Saadé and Kira (2006: pg. 1) also tell us that "computerphobic adults including first-year university students have been reported to range from 25% to 50%" (See also Nachmias et al, 2001; Selwyn, 1998; Selwyn et al, 2000). For 'computerphobic' individuals, contact with Internet based technologies often has unpleasant side effects. Anxious individuals are also found among executives and owner managers (Sinkovics et al, 2002).

As seen above, attitude towards technology may be the result of multiple and conflicting influences. Solely based on direct economic benefits, most OMs would be hesitant adopters or resisters. But the additive influence of 'home technical support' and near-peer pressures may change the initial negative attitude. Therefore several items related to attitude, intention, subjective norm are included in Chapter 6, in the survey in order to address the impact of the generation effect and the lack of experimentation with technological artefacts.

It is time to revise our analysis of the Attitude Based Models constructs. The work of Celuch et al (2005), which is based on the Theory of Planned Behaviour and dedicated to the analysis of the “small scale industrial end user Internet usage”, may serve as a benchmark (to our research project) given the similarity of subject. To Celuch et al (2005: pg. 3) the ‘intention to use’ is dependent on the “perceived control related to Internet usage”, the “overall attitude towards Internet purchase”, the subjective norm to use the Internet, the OM’s Internet self-efficacy (as a proxy for the OMs level of Internet/PC skills) and the firms’ past behaviour. The ‘perceived control’ construct, is defined as “relative ease or difficulty of performing behaviour” (Celuch et al, 2005: pg. 3). According to Celuch et al (2005), the importance of the self-efficacy construct and past behaviour in determining the usage intentions and the viability of the attitude-based models to understand small scale industrial end users was established.

It should be stressed that is not my intention to produce relevant theoretical or empirical contributions to the behavioural studies field about the validity of constructs, or comparisons between competing theories (i.e., theory testing) but to “offer a richer theoretical understanding of psychological processes” at work (Celuch et al, 2005: pg. 2; see also Burton, 2004). My ‘model’ is adapted from Celuch et al (2005) and conceives behaviour (expressed by the level of internet adoption) as influenced by attitude towards Internet and subject norm for using the Internet. The constructs competitive pressure and internet self-efficacy were also added. The main goal is to perceive if a direct link between attitude and behaviour is apparent at the micro/small firm’s level.

5.4.3 Limits to the Attitude based models

Although the attitude based models (Theory of Reasoning Behaviour, Theory of Planned Behaviour, Technology Acceptance Model and Technology Acceptance Model2) provide reasonable explanatory power and a stimulating intellectual framework to analyse the relationship between attitude, contextual factors and adoption, Legris et al (2003) argue for an integration of Technology Acceptance Model into a wider model so as to increment the explanatory power of such models. Burton (2004: pg. 360) is well aware of the relative marginalisation of the ‘behavioural approaches’ in the rural economic studies field due to several theoretical flaw related to the “analysis of

individual decision-makers out of their social or familiar milieus which is a simplistic approach to understand human behaviour” and “the overwhelming emphasis on attitude as the main motivational determinant of behaviour and the almost total ignorance of social and cultural influence”. Wu and Wu (2005: pg. 304) also argues that “TAM tends to be relatively limited in studying isolated individual perceptions of innovation usage”.

As a consequence, it seems logical to build-up a model that includes additional constructs that “offers a far broader and arguably more realistic perspective of micro/SME decision-making environments” (Burton, 2004: pg. 363). In an effort to rehabilitate the ‘behavioural approaches’ in the agricultural studies field, Burton (2004) proposes the inclusion of other ‘conditioning’ factors of farmers’ attitudes such as structural and political factors and additional variables from social psychology.

5.4.4 Firm based models (1): Diffusion of Innovations Theory

As seen in Chapter 4, most ICT adoption studies are based on a ‘over-optimistic’ and deterministic hypothesis concerning the ICT adoption process. However, “sometimes it seems to take an amazingly long period of time for new technologies to be adopted by those who seem most likely to benefit from their use” (Geroski, 2000: pg. 604; see also Preissl, 1995). In fact “unlike molecules which act and react mechanically, OMs try to think before they act and this can be a very slow and unpredictable business for some of them” (Geroski, 2000: pg. 603; see also Wong and Aspinwall, 2004). Contrary to what has been propagated by the enthusiastic prophets of the Information Society paradigm, the ICT adoption process is troubled by several inhibitors. As seen in Section 5.2, adoption rates are below expectations. And contrary to the US case, there is no evidence in Europe to suggest a large-scale adoption of ICTs tools (Fabiani et al, 2005). On the contrary, the diversity and complexity of ICT diffusion paths provides support to conceptualise the innovation process as a ‘stochastic phenomena’ in nature and as one which is context dependent (Roman, 2004). In fact, there are reasons to expect, in a region like RAM, deprived of high-tech sectors and large numbers of innovative firms, the lack of ICT based economy-wide benefits and a (very) unique diffusion path. However, given the importance attached to the Information Society Project it is critical to understand which ‘local’ elements are driving the adoption rationale at the firm level.

Diffusion of Innovations Theory

Diffusion of Innovations Theory approach has been a fundamental theoretical underpinning for a multiplicity of studies/analyses concerning ICT adoption at the SME level. Roman (2004: pg. 55) conceives of Diffusion of Innovations Theory as a “suitable general theoretical framework” and “a conceptual meeting point that embraces other theoretical approaches to help illuminate research and practice” (see also Haugh and Robson, 2005). The Diffusion of Innovations Theory is well adapted to the needs of multidisciplinary inquiry as it “cuts across different social science disciplines (anthropology, sociology, education, communication, marketing, etc) and it is applied in very different contexts” (Roman, 2004: pg. 55; see also Wu and Wu, 2005). The Diffusion of Innovation Theory emphasises the process of social change and the dynamics of social construction of innovations and acknowledges a gradual assimilation of the innovation under analysis, and a plurality of diffusion paths and adoption rates (Amiel and Sargent, 2004; Antonides et al, 1999).

The Diffusion of Innovations Theory based studies provides a group of key assumptions/results regarding: conditioning factors of the adoption of innovations; critical characteristics of adopters and innovations conditioning the ICT adoption process; the individual awareness/knowledge process of the characteristics of innovations; the decision making process; the process of attitude change and the diffusion process of the innovation in the target population; the process of communication/diffusion of information and epidemic effects at work; and an analysis of the ICT adoption impacts (Premkumar and Roberts, 1999). The impact of contextual factors is also acknowledged and incorporated in some studies that assume a ‘contingency approach’ (Lapierre and Denier, 2004).

Rogers (1995), a leading scholar in the Diffusion of Innovation Theory field, provides a set of stylised facts (corroborated by other authors) concerning the classic process of adoption/diffusion:

- 1) the existence of innovations characteristics perceived as determinant by the potential adopters; based on Rogers (1995) several studies which tested the impact of relative

advantage, compatibility, complexity, triability and observability characteristics (Drew, 2003; Galende, 2006; Pensupap and Walker, 2005; Kearns, 2005; Dubelaar et al, 2005);

2) the influence of the individual characteristics of adopters (such as firm size, OM's education background, etc) on the probability of adoption (Bertschek and Fryges, 2002; Daveri, 2001; Haleblian and Finkelstein, 1999; Love et al, 2001; Olson and Boyer, 2003; Lee et al, 2004; Lal, 2005; Okazaki, 2006);

3) the evolution of adoption by stages; Rogers (1995) advocates a 5 stage decision-making process that includes knowledge/awareness, persuasion, decision, implementation and confirmation);

4) the influence of certain agents (such as ICT adoption champions and/or Government projects) (Berranger et al, 2001; Lefebvre et al, 2005; Tellis et al, 2003);

5) the absence of temporal uniformity (constant rate of adoption) in the process of diffusion; in fact, a slow rhythm of adoption/diffusion before a critical threshold is reached is observed in most studies (Kohn and Husig, 2005; Geroski, 2000; Katz and Safranski, 2003; Hoppe, 2002; Ilonen et al, 2004; Smith, 2004; Yoo and Moon, 2005; Everdingen et al, 2005; Fornerino, 2003; Knol and Stroeken, 2001).

As stated above the Diffusion of Innovations Theory acknowledges a gradual assimilation of the innovation. Roger (1995) shows that adopters can be classified as innovators (2.5%), early adopters (13.5%), early majority (34%), late majority (34%) and laggards (16%). In relation to the diffusion process, it is also assumed that at the very the beginning of the process the proportion of adopters evolves at a growing rate, then at a decreasing rate till the saturation point is reached, a fact that is quite well illustrated by a classic S-shaped curve.

Most empirical studies are based on two competing approaches: rank models and epidemic models (Karshenas and Stonemen, 1993; Karshenas and Stonemen, 1995; Hollenstein, 2004; Luchetti and Sterlacchini, 2004). The 'rank models' accept the existence of heterogeneity amongst the population of firms in terms of attitudes towards risk, absorptive capacity of innovations, human/financial resources and strategic goals. Such differences explain the different rates of adoption and the timing of adoption observed. For example a given firm *i* may differ from firm *j* concerning some critical variable that affects the 'net return of adoption' (considered as the most important determinant of the adoption) (Geroski, 2000). As a consequence, firm *i* may adopt later

on or may even not adopt the technology z at all due to the negative impact of a critical variable in the net return of adoption (Canepa and Stoneman, 2004; Hollenstein, 2004). The 'epidemic models' assume that the process of diffusion/adoption is conditioned by information spill-overs linked to network effects and communication processes (Canepa and Stoneman, 2004; Karshenas and Stoneman, 1993; Karshenas and Stoneman, 1995). Canepa and Stoneman (2004), based on the empirical available evidence, corroborate the viability of both the rank models and epidemic models to explain ICT adoption rationale. In relation to a sample of both Portuguese firms, Faria et al (2002) show the importance of rank effects in the adoption of production related ICT tools.

Lessons from Diffusion of Innovations Theory studies: inhibiting factors and adoption costs

Hundreds of papers and studies provide examples of models to study the conditioning factors of the ICT adoption process. For example, Dholokia and Kshetri (2004) consider that the level of involvement/adoption of ICTs is dependent on: a) resource availability as expressed by firm size; b) OMs perception (in terms of cost, privacy, on-line sales management) and attitude towards innovation attributes; c) the firm's past history and previous adoption of ICT products and experience with marketing tools; and d) perceived competitive pressures. Mehertens et al (2001) suggest three key conditioning factors: 1) perceived benefits; 2) organisational readiness in terms of financial and technology knowledge and the availability of ICT infrastructure; and 3) external pressures and the owner's attitude towards technology.

Hollenstein (2004) groups the conditioning factors of adoption into: 1) internal factors such as the anticipated benefits of adoption, barriers to adoption, dimension and firm age; and 2) external factors such as absorptive capacity, information spill-overs, industry characteristics in terms of competition, market concentration, adoption rate and technological opportunities and market prospects.

Premkumar and Roberts (1999) propose a multi-dimensional model to analyse ICT adoption in a peripheral area grouping the conditioning factors into: a) innovation characteristics (relative advantage, cost, complexity and compatibility); b) organisational characteristics (top management support, firm's size and ICT expertise)

and c) environmental characteristics (competitive pressure, external support and vertical linkages). Wu and Wu (2005) also point to the importance of the OM's entrepreneurial attitude and ICT skills as a conditioning factor of a firm's innovative experience in the ICT field.

Doherty et al (2003: pg. 891) highlight the importance of a company's Internet development strategy, and the "OM's strategic vision and willingness to provide appropriate resources to support the implementation of ICT projects". They also highlight the importance of 'senior management support' and 'their vision of the usefulness of the Internet'.

Some authors try to integrate the 'demand side' in the analysis. Doherty et al (2003) in an analysis of UK retail sector adoption of ICTs, point to the importance of the factors "Internet access of the respondents target", "level of Internet awareness" and "computer literacy of the firm's target audience" and the "suitability of current product range" for Internet retailing. Salmeron and Hurtado (2005: pg. 1) also adopt a demand perspective as they point to the fact that "customers are demanding different, better services", which includes an on-line interface to the extent that "they perceive easiness of use". As more and more customers are on-line, firms must meet the on-line challenge offering on-line support and services.

The availability of resources is stressed in some studies (Taylor et al, 2004; Teo and Pian, 2004). Pérez et al (2004) highlight the importance of firms' human capital and technology/knowledge resources.

Other factors include pressure from competitors and 'organisational culture'. According to Teo et al (1997) the compatibility of Internet with the organisational culture and top management support are the most significant contingent factors affecting the Internet adoption. Salmeron and Hurtado (2005), based on ICT adoption patterns by fashion firms, conclude that pressure from trading partners and competitors are critical factors affecting ICT adoption decision-making.

An analysis of inhibiting factors has been provided by several authors. Mahler and Rogers (1999) list factors such as customer's lack of interest, low price/value ratio, poor quality of supplier support and organisational difficulties as key inhibitors of the adoption of banking services. Resistance by a firm's employees must also be added to the list. Concerning ICT adoption barriers, OECD (2000) points out factors such as, the

uncertainty about return on investment, low levels of in-house resources and customer access to the electronic marketplace, and perceived barriers to electronic trading in terms of security, trust and confidentiality. And Buhalis and Deimezi (2006: pg. 315), concerning the Greek context and based on a consumer point of view about e-commerce transactions, point to: lack of access to credit cards; lack of trust in Internet transactions ; lack of knowledge/skills; an the preference to talk to salesman prior to purchase. From a producer point of view, factors such as OMs indecision; lack of qualifications of entrepreneurs and employees, ignorance and lack of interest, poor management skills and lack of e-commerce skills seem to negatively impact the likelihood of adoption of an e-commerce platform (Buhalis and Deimezi, 2006: pg. 315). A number of obstacles are slowing down the adoption process. However, the critical factor concerns the fact that ecommerce as a source of transaction cost advantages do not significantly differ “from those of the old-fashioned mail order retail channel” (Santarelli and D’Altri, 2003: pg. 281).

There is evidence to suggest the existence of an adoption continuum, from lack of awareness, through totally dismissing the notion of the Internet as a viable option, a wait and see approach, to a proactive adoption behaviour (Fillis and Wagner, 2005; Litan and Ravlin, 2001). A continuum of coping responses is also observed, from one extreme of ignore (non-adoption) to the reinvention/adaptation of the technology. However, a definitive positioning (adoption/non-adoption) is not common, as attitudes towards technology may change. Loane (2006) and Levy and Powell (2002) reject the idea of an adoption ladder and suggest that most firms adopted the ICT ‘solution’ that fits their business model well, and only adopt extra functionalities when useful technologies became available or customers demand an e-business platform to handle ordinary business activities.

Lessons from Diffusion of Innovation Studies: Internet related advantages

Most Diffusion of Innovations Theory based studies acknowledg an extensive catalogue of Internet related advantages. It has been reported that Internet can “alter product design, marketing, production, finance and the very organisation of firms” (Fabiani et al, 2005: pg. 225). For Damaskopoulos et al (2003) and Haugh and Robson (2005),

Internet related advantages concern efficiency and competitiveness. The widening out of market perspectives (in terms of geographical scope, customer segment target, diversification of marketing channels and better customer service) is also expected.

However, there is only limited empirical support to suggest advantages: a) in the communication sphere as a result of widespread adoption of e-mail; b) in terms of access to global sources of information based on technological/marketing scanning processes; c) in web pages relative to traditional methods of marketing (Doherty et al, 2003; Baourakis et al, 2002). Levy and Powell (2001) and Mehertens (2001) include the image of modernity to the list of Internet related advantages (see also Nieto and Fernández, 2006).

Grimes (2005), based on a sample of SMEs located in peripheral areas, was able to conclude that the most important uses of the Internet were, in order of importance, 1) access to information concerning markets and competitors; 2) banking online; 3) promotion and advertising; 4) access to public services; 5) B2B e-commerce; 6) after-sales service; 7) B2C e-commerce; 8) teleworking; and 9) recruitment. The four most relevant functions above are not linked to the e-commerce sphere (access to external markets). In fact, Internet use is focused on technological/market scanning, advertising and promotion and banking on-line (Grandon and Pearson, 2004). Buhalis and Deimezi (2006: pg. 315) also show that ICT uses are limited to access to information and communication. Evidence coming from Spain also points to that fact that firms' web pages are at best a new marketing channel used for business advertising and not an e-business platform (Salmeron and Hurtado, 2005).

Several studies highlight the fact that the e-commerce dimension is negligible in most firms. Santarelli and D'Altri (2003: pg. 273) states that "despite rapid growth experienced in recent years, e-commerce sales account for a very small share of total transactions". Data concerning ICT uses at the SME level, thus challenges expectations about large scale adoption of sophisticated e-commerce platforms and access to external markets based on Internet tools. However, despite the absence of extensive use of e-commerce facilities, Grimes (2005: pg. 1076) does not conceptualise SMEs as 'non-digital' as "firms in the more peripheral regions were succeeding in using ICTs at least as effectively as firms in more accessible regions". Section 5.5 below provides an alternative understanding of the actual ICT benefits at the SME level.

A final comment about the theoretical insights provided by both TAM and Diffusions of Innovations Theory is required. Both are quite compatible from theoretical and practical point of view due to the intrinsic 'relatedness' of this key-constructs. The 'perceived usefulness' and 'perceived ease of use' constructs are similar to the 'relative advantage' and innovation 'complexity' constructs (Wu and Wu, 2005). Hence, an integrated approach can be achieved. Roman (2004: pg. 61) states that "diffusion of innovations theory may serve as an initial framework on which to build new conceptualisations of the role of the information and communication in development". And the 'behavioural approach' of TAM provides an opportunity to obtain quantitative measures of socio-psychological variables (beliefs, attitude and behaviour) that may influence the adoption behaviour of OMs (Celuch et al, 2005; Wu and Wu, 2005; Roman, 2004). Hence, a theoretical framework can be enriched with constructs from both approaches.

Most studies concerning ICT adoption are based on the Diffusion of Innovations Theory. However, this theory is "silently concerning how OMs attitude is formed, how it leads to the eventual adoption or rejection decision, and how innovation characteristics fit into this process" (Karahanna et al. 1999: pg. 186; see also Chen et al., 2005). The Diffusion of Innovations Theory approach assumes that most OMs understand the impact of the Internet in a dispassionate and totally professional manner. Attitude based models are also touched by theoretical flaws. According to Korukonda (2005: pg. 313) the lack of precision of some constructs applied in the ambit of the TAM studies imposes the need for integrated and detailed models via deconstructing the constructs into their constituent components. As a consequence, they suggest an enlarged model in order to conceptualise the adoption and attitude towards ICTs.

5.4.5 Firms based models (2): theoretical insights from the strategic positioning approach

The strategic positioning approach is quite an influential theoretical approach in the strategic management literature and may help to integrate the firm's behaviour (strategy) into the analysis of the adoption rationale. Both the strategic positioning approach and the Resource Based View (RBV) perspective considered below, provide a very useful theoretical framework to analyse ICT adoption, with respect to the impact of the firm strategic thinking the heterogeneity in terms of resources, available to firm,

respectively (Sambamurthy et al, 2003; Spanos et al, 2001; Spanos et al, 2002; Nieto and Fernández, 2006; Lee et al, 2004; Lockett and Thompson, 2001).

The strategic positioning approach, developed by Porter, conceives a firm as a 'bundle of strategic activities aiming at adapting to the industry environment by seeking an attractive position in the market' (Spanos and Lioukas, 2001: pg. 907). Hence, ICT adoption decisions may be conceived as a 'market imperative' to the extent that ICT investments 'represent' defensive barriers to counter-act competitive forces (Spanos and Lioukas, 2001). In fact, Porter and Miller (1985) define 'ICT as a means by which firms can gain competitive advantage by altering the competitive forces that collectively determine industry profitability'. ICTs investments are hence linked to industry standards and firm's competitive advantage.

Porter (2001) considers the 'industry characteristics' as key determinants of competitive rules, firm's strategic portfolio and performance. According to Porter (2001) the essence of competitive strategy formulation consists in relating a company to its environment and the key aspect of the firm's environment is the industry or industries in which it competes. From Porter's (2001) point of view, certain industries may demand specific strategies (such as heavy investment in ICTs) to create 'structural impediments to competitive forces' (i.e., entry barriers). Therefore opportunities to create competitive advantage in a specific industry may require specific ICT investment strategies. The ICT adoption rationale is conceived of as a 'firm's strategic problem' linked to 'entry deterrence' strategies, 'positioning approaches', industry technological standards and efforts to decrease costs and/or differentiate the firm from competitors (Tierce et al, 1997).

Many studies have adopted a strategic positioning approach in the analysis of firms' ICT strategy. The importance of the strategic component of the ICT adoption rationale may be seen in the importance attached to factors such as 'Internet strategy', 'organisational strategic vision' and 'willingness to provide appropriate resources to support its implementation'.

And the 'strategic positioning analysis' provides the grounds to contest some deterministic accounts about the alleged advantages of the Internet. Porter (2001: pg. 74) demonstrates how the Internet does not replace the old traditional rules nor constitutes a 'substitute for strategy. In some sectors the Internet is no more than a

standard technology needed to sustain the current market share level. In such cases, the Internet may be conceived of as an enabling technology, and not as a panacea able to overcome deficient competitive positioning. Porter (2001) contests the hype surrounding the Internet. According to Porter there is a risk that too much emphasis on the technological side may shift time/attention from what is really important. For most SMEs, competitiveness and success is still based on 'relational assets' and not in technological solutions (Porter, 1998). And some studies based on the strategic positioning approach suggest that Internet based models may erode established competitive advantages. Most pure Internet business models have experienced low profitability ratios as a result of price wars (Waesche, 2003; Porter, 2001). Porter (2001) also suggests that the Internet is, in fact, linked to an on-going process of loss of bargaining power to other industry stakeholders such as costumers. Further, and still according to Porter, the Internet has reduced the degree of differentiation amongst products and services and has switched the focus to price discounting. Many on-line business models are based on heavy discounts (price differentials) to attract customers. So, customers enjoy a substantial part of the net economic benefit.

But in the end, profits are predicated upon the "degree to which the transaction is perceived to be creating sufficient net value for the customer" (Wilson-Jeanselme and Reynolds 2005: pg. 166). For the time being, 'creating value' depends on built-up loyalty and personal relationships and not on e-commerce platforms.

The strategic positioning perspective helps us to understand ICT adoption as a firm strategic decision problem of the firm (Teece et al, 1997). However, the strategic positioning perspective ignores the fact that SMEs define strategy by default. Most SMEs are not growth oriented and do not define clear their strategies. For example, Salmeron and Hurtado (2005: pg. 1) argue that "since the e-commerce strategic decision is rarely planned", some SMEs "do not know what the main objectives are, or what they actually want to achieve". Most SMEs do not opt for a planned strategy as they react in a passive way to environmental constraints. Therefore, ICT adoption decisions are fortuitous and opportunistic in character.

Porter (2001: pg. 74) defines the value chain as "the set of activities through which a product or service is created and delivered to customers". However, the 'complexity' of the value chain of the typical firm operating in RAM is compromised by the absence of complex organisational structures. As on-line sales is not a viable option for a small

firm operating in a restricted geographical area, it is only possible to create value based in ICT solutions at the inbound logistical phases; the outbound logistic, sales and after sales services cannot be digitalised, as the adoption rate of on-line shopping are so low. But an Internet enabled procurement may provide a competitive advantage that competitors cannot easily replicate.

As was mentioned before, the 'strategic approach' draws attention to the real strategic value of the Internet. However the absence of formally planned Internet investments suggest that most ICT solutions are not linked to firms' strategic positioning. Hence, resources availability and OM attitude are presumably the key factors behind ICT adoption.

5.4.6 Firms based models (3): Theoretical insights from the Resource Based View

As seen above the 'strategic component' of the ICT adoption rationale seems absent in most SMEs. But, whatever the ICT strategy, ICT adoption is for sure constrained by resources availability. Saarenketo et al (2004: pg. 369) advise us that the "window of opportunity for the firm is constrained by its existing routines and capabilities and the firm's resources". Without financial technical resources it is almost impossible to explore market opportunities based on ICT platforms. Teece et al (1997: pg. 518) also assert that opportunities to develop competitive advantages at any given time depend "significantly on the assets the firm possesses and on managerial and organisational processes" and on "the evolutionary path it has adopted/inherited". As a consequence Teece et al (1997) and Rivard et al (2005) attribute the greatest importance to firm specific factors, rather than industry effects.

The typical firm operating in a peripheral area is an 'under-resourced' one. Such firms cannot freely pursue 'capital accumulation strategies' and invest in opportunities. Doherty et al (2003) show the importance of the availability of resources both at funding and human resources levels. Pérez et al (2005), based on an analysis of the adoption of teleworking in Galicia (Spain), highlight the access to human, organisational and technological resources as a critical pre-requisite for a successful ICT adoption. To Pérez et al (2005: pg. 1482) "a greater pool of technological, organisational and human resources may increase the probability of adopter teleworking". Keeble and Tyler (2002) Taylor et al (2004) e Mehrtens et al (2001) and

Haugh and Robson (2005) also stress the availability of in-house technological resources as an enabler of the adoption of complex ICT processes.

The issue of resources availability leads us to the Resource Based View (RBV), a perspective that has gained prominence in the strategic management field in recent years. An RBV framework is an “organised way to study and understand the resources by categorizing, comparing, contrasting them” (Galbreath, 2005: pg. 979; see also Eisenhardt and Martin, 2000; Zhuang and Lederer, 2005). The RBV approach perceives the firm as a ‘bundle of resources’, assets or capabilities and recognizes that firms face growth limits due to resource constraints. The ‘firm’s strategic problem’ is therefore correlated with the exploitation of firm resources to gain competitive advantage and/or the acquisition/build-up of resources. Contrary to the strategic positioning approach, the RBV sees firms with superior systems and structures being profitable not because they invest to ‘deter entry’, but because they have lower costs, higher quality products or a unique portfolios of tangible and intangible resources.

However, recent research in the RBV field highlights the intangible dimension of the resources portfolio at the expense of a more tangible approach based on physical assets. For example, knowledge resources, defined as largely complex, specialised and tacit in nature, are especially valuable (Oinas and Gils, 2001; Barney, 1991). The unique character (inimitable) of such resources derives from the fact that they are tacit in nature and inextricably embedded in organisational practice. Such resources are hard to duplicate owing to ‘causal ambiguity’. And complex resources such as good reputation and trust are time-consuming and expensive to imitate.

There is plenty of evidence to highlight the strategic importance of access and ownership of assets, capabilities such as relational capital and integration in R&D networks. However, Teece et al (1997: pg. 510) consider, that further to the identification of firms’ specific capabilities and sources of competitive advantage, work must be done to “to explain how combinations of competences and resources can be developed, deployed, and protected given that the sustainability of a firm’s competitive advantage implies the development of new competitive factors”. In fact, entrepreneurial success depends simultaneously on the exploitation of the current stock of resources and on the capacity to develop new resources needed to provide answers to the changing environment (Kylaheiko et al, 1998). As far as ICTs are concerned, the performance advantage granted by ICT solutions is short lived partially as a result of an easy

replication and imitation such solutions on the part of competitors (Haugh and Robson, 2005). Consequently, it is more relevant to depict the potential contributions of ICT solutions to the development of intangible factors such as competences. Recent development in the RBV field provides an interesting framework to conceptualize ICTs as competence developers.

The RBV approach has been extended to the analysis of dynamic markets as the traditional approach did not explain how to reach and sustain competitive advantage in dynamic and unstable markets (Sambamurthy et al, 2003). In these markets, dynamic capabilities are understood as the critical source of sustainable competitive advantage to the extent that they support manager's efforts to "achieve new resource configurations as markets emerge, collide, split, evolve, and die" (Eisenhardt and Martin, 2000: pg. 1107). According to Teece et al (1997: pg. 515), a dynamic capability may be defined as the organizational and strategic routines needed to change the firm's resource base, that is, to "acquire and shed resources, integrate them together, and recombine them to generate new value-creating strategies". However it should be acknowledged that path-dependencies constraint the window of opportunity in terms of development of dynamic capabilities and the likely evolution of the resource portfolio as stated by the evolutionary literature.

The dynamic capability approach strongly emphasises knowledge related capabilities as crucial to survive in unstable and extremely competitive markets (Hatch and Dyer, 2004). In fact, it is accepted that "winners in the global marketplace demonstrate timely responsiveness and rapid and flexible product innovation, coupled with the management capability to effectively coordinate and redeploy internal and external competences" (Saarenko et al, 2004: pg. 368).

The dynamic capability approach is also useful to overcome some theoretical flaws attached to the RBV approach. The RBV approach has been criticised for being "conceptually vague and tautological, with inattention to the mechanisms by which resources actually contribute to competitive advantage, lack of empirical grounding" (Eisenhardt and Martin, 2000: pg. 1106). Also criticised is the lack of 'sufficient theoretical foundations' in the analysis of the firm's competitive 'problem' in turbulent, dynamic and uncertain markets (Eisenhardt and Martin, 2000; Saarenko et al, 2004). But the concept of dynamic capabilities has it self also been criticised as being tautological, recursive, and non-operational (Kogut and Kulatilaka, 1994). And it is well

known that some kind of competitive advantages are short lived and therefore, the firm's survival is linked to a series of temporary advantages in terms of competences and to the continuous development of new resources (Sambamurthy et al, 2003).

RBV perspective acknowledges that the 'firm competitive advantage' is constrained by the availability of resources. The development of 'distinctive capabilities' as critical to sustain the firms' competitive advantage is also acknowledged (Hatch and Dyer, 2004). And the RBV approach allows a conceptualisation of the Internet both as an additional resource (eg. marketing channel, e-commerce platform, enabler of access to market areas) and as 'resource developer' of competences and processes (Teece et al, 1997). And the RBV approach permits a conceptualisation of ICT adoption as dependent on resources availability (Teo and Ranganathan, 2004; Devaraj and Kohli, 2003). In line with rank models, the RBV approach also acknowledges firms' heterogeneity in terms of resources especially concerning VRIN (Valuable, Rare, Inimitable and Non-substitutable) ones. The difference in performance is explained by the 'firm's idiosyncratic and difficult-to imitate resources', and by the ownership of 'resources that may resist competitor duplication' (King and Zeithaml, 2001: pg. 76; see also Rivard et al, 2005; Saarenko et al, 2004; Galbreath, 2005). And the RBV approach also acknowledges that resource endowments are sticky, at least in the short run.

I am not interested only in the derivation and identification of a number of distinct factors that are likely to impact on adoption rates and the evaluation of which factors are the most influential in determining the current level of adoption. In addition, it is important to understand which opportunities are offered by the Internet. Despite the alleged advantages of Internet based technologies in terms of access to external markets and the management of complex value chain activities, it is argued that such advantages do not always exist.

5.5. An alternative approach to the traditional understanding of Internet advantages

I extend my theoretical argument to discuss the link between Internet adoption and performance, i.e., to the analysis of the opportunities offered by the Internet. While acknowledging that the Internet offers opportunities at the SME level, I must base the argument on a different theoretical framework as the SME context differs so

significantly from that one faced by larger firms operating in core regions. Concerning factors affecting the adoption of the Internet, it was possible to base the argument on a review of previous studies. But, the analysis of the impact of ICT tools on firms performance, requires an 'exploratory framework', as "the management issues, problems and opportunities for small businesses are very different from larger organisations" (Premkumar and Roberts, 1999: pg. 468). An analysis of ICT impacts should address the local firms' resources availability, strategic competitive pressures and dilemmas. A feasible ICT adoption model must be based on 'firms strategic thinking' (Koybe, 2004; Wong and Aspinwall, 2004). As seen above (Section 5.3) SMEs propensity to engage in innovation, proactive risk-seeking, competitive aggressive behaviour, and strategic planning does not match the MNCs's standards. And OMs management philosophies cannot be inferred based on the neo-classical theory of firm. Given the current adoption status in LFRs, technological solutions (ICT) are likely to be irrelevant in terms of daily operational tasks and competitive advantage. Hence, how to conceptualise and quantify Internet adoption impacts in such a specific context? How to understand the Internet advantage at the micro firm level? It is asserted that the adoption/use of ICT tools may improve the firm's absorptive capacity of new technologies and organisational concepts and afford the development of new competences.

As seen in Chapter 4, the impact of ICTs on the productivity level of firms has been intensely discussed in the literature (Bertcheck and Kaiser, 2004; Hempell, 2005). Analyses concerning the ICT adoption-productivity relationship have confirmed empirically the 'complementary-hypothesis', i.e., the maximisation of ICT related advantages as dependent on investment in organisational and strategic up-grades. Productivity gains seem higher when ICT investments are matched by the development of a new business strategy, practices and improved organisational structures (Fabiani et al, 2005; see also Falk, 2004, Gretzel, 2000; Croes and Tesone, 2004; Cappelo and Nijkamp, 1996; Becchetti et al, 2003; Savy, 1998; Sambamurthy et al, 2003). Bugamelli and Pagano (2004) highlight two preconditions to be fulfilled by a firm adopting ICTs, in order to get the expected increase in the productivity level: an increase in the share of skilled workers and a thorough reorganisation of the workplace. Preissl (1995: pg. 77) also asserts that the "introduction of ICT requires organisational changes which affect not only the departments where it is primarily used, but all stages from supply over

storing and various production steps to sales and marketing activities, all the elements of what is commonly called a firm's value chain”.

Therefore, from a theoretical point of view the adoption of ICTs offer an opportunity to proceed with 'improvements' involving technological, strategic and organisational upgrades (Preissl, 1995; Knudsen and Roman, 2004). As far as organisational changes are concerned, the adoption of ICT tools is frequently associated with the reduction of hierarchical levels, the introduction of team working practice, and participation of employees in decision making. The problem of these approaches is exactly the inexistence of a complex structure that may experience a “complex process of reorganisation”.

But Hempell (2005) and Oyelaran-Oyeyinka and Lal (2005) assert that the adoption of ICT tools provides an historical opportunity to change 'firms' innovative history', which can happen when the ICT adoption is linked to processes of changing corporate strategies and business culture (see also Landabasso, 2000; Spanos et al, 2004; Zhang et al, 2006). Gretzel (1999) suggests that the adoption of ICT tools may trigger a pro-innovation changes, organisational up-grades and the adoption of other complex informational strategies. A re-think of the SME's management philosophies may also be a consequence.

The potential to change the firm's innovative history is probably the most decisive ICT related advantage. But it is important to adapt the discussion to the level of organisational complexity of reflected in SMEs. In order to do so, we resort to concepts outside the financial and organisational arena.

Hempell (2005) suggests that firms with previous experience in the introduction of innovations will tend to exhibit more success in the adoption and exploitation of ICT tools and other innovations. Preissl (1995) also refers to the advantages of learning from experience gained in pilot ICT projects and/or involvement in network projects as they reduce the financial risk of subsequent ICT projects. Hence, the introduction of technological and related organisational innovations provides experience in organising and coordinating the introduction of complementary systems of innovations. Firms experienced in organising complex organisational changes, exhibit an extra capacity to identify, design and implement ICT projects, and 'effortlessly' explore competitive advantages from ICT-based innovations.

Another advantage is related to the development of competences that should be developed along with the implementation of ICT solutions. In the SME context, it is acknowledged that competitive advantage may emerge first in attributes such as efficiency (cost reduction in functional areas), functionality (contributing for differentiation and adding value for customers) and threat (ability to erect barriers against new entrants, etc) (Koybe, 2004).

The existence of 'time lag' effects supports this line of reasoning. In the short term, the ICT experience may result only in enhanced resources and capabilities such as "extra information, the ability to differentiate product and services, better market products and services and higher level of personal services, advantages to be translated latter in profits and/or market shares" (Koybe, 2004: pg. 134). In fact, short terms benefits in terms of profits and improved productivity should not be expected. According to Litan and Living (2001: pg. 317) "much of the benefit from the Internet is likely to show up in improved consumer convenience and expanded choices, rather than in higher productivity and lower prices". However, it is the 'improved consumer convenience' that builds up loyalty and future sales. In fact, Brynjolfsson and Hitt (2000) argue that "the effects of information technology are substantially larger when measured over longer time periods". In the meantime firms must develop competences and offer better services and products along with increased levels of experience and efficacy using ICTs in order to reap long term benefits.

There are thus theoretical and empirical grounds to understand ICTs as a developer of competence and attributes. An up-grade of the firms innovative history and the accumulation of experience handling ICTs is one of the potential advantages of the Internet. But other competences may also be based on ICT investments. However it is important to acknowledge some facts about the development of competences based on the dynamic capability approach.

5.5.1 Insights from the Dynamic Capabilities and Knowledge Management Approach

Both the (traditional) RBV approach and the dynamic capability approach help us to conceive ICTs as a resource developer and to be aware of which circumstances most favourable to develop such resources.

Firstly, it is well understood that the portfolio of dynamic capabilities required to compete in the market is not identical in all markets. Concerning stable markets, the evolution of the portfolio of dynamic capabilities may be relatively linear and dependent on the existing stock of knowledge and accumulated experience. In such cases, dynamic capabilities are similar to routines, and based on a linear evolution over time due to the stability of the critical success factors and firms' strategies (Nelson and Winter, 1982). The decision-making is depending on "existing tacit knowledge and rules of thumb" (Eisehnardt and Martin, 2000: pg. 1114; see also Haleblian and Finkelstein, 1999). In such situations, the up-grade of the firms' resources may proceed in a relatively ordered fashion. In the meanwhile, the best approach in terms of decision-making is to apply heuristics based on prior knowledge and experiences to solve managerial problems. But in a changing scenario (highly unstable markets), learning by doing becomes more important and first hand experimentation and trial and error is needed. The advantage of stable markets is to allow an ordered transition and/or a smooth start to a programme of up-grade of the firm's resources and capabilities.

As suggested before, one of the strategic dynamic capabilities concerns learning. As shown in Section 5.3, "firms are now required to learn how to adapt and change and how to deal with radical uncertainty and dynamic forces in the market" (Saarenketo et al (2004: pg. 367). In fact, the increasing obsolescence of market knowledge and environmental uncertainty demands learning and the development of new competences on a continuous base (Saarenketo et al, 2005; van Gelderen et al, 2005). But incremental and experiential learning and problem oriented R&D is still a matter of rule at the SME level. Therefore Saarenketo et al (2004) suggest extending the learning experiences via learning through networking, grafting, imitating and searching (eg. via Internet).

There are other reasons to suggest the development of learning capabilities in stable markets before external shocks and uncertainty start affecting the effectiveness of the managerial practices in use. Most studies concerning the development of dynamic capabilities stress the impossibility of an 'instantaneous' up-grade of the firms' learning and technological trajectory. For that reason, a progressive assimilation, experimentation and exploitation of new competences is strongly recommended. As stated by Hempell (2005: pg. 281) "innovations are often sequential in the sense that solutions entailed in earlier innovations facilitate problem-solving in current research". Thus firms are told to proceed with a gradual development of learning/technological

capabilities in order to increase their adaptability and coping responses to environmental changes.

The firm's current learning capabilities is the result of past innovations and learning experiences (Cohen and Levinthal, 1990; Hempell, 2005; Jones et al, 2000). The concept of 'absorptive capability' developed by Cohen and Levinthal (1989) acknowledges the dynamic dimension of the learning effect. Cohen and Levinthal (1989) argue that innovation activities not only generate new information, but also enhance the firm's ability to identify and understand externally available knowledge. An enlarged stock of knowledge and learning experiences helps firms to understand market/technology trends in a specific field, which reduces the inherent risk of new investments in such a field (Cohen and Levinthal, 1990). And there are other reasons to suggest that the accumulation of intangible assets provides competitive advantages due to 'asset mass efficiencies' and 'time compression economies'. Asset mass efficiencies "mean that the more accumulated assets a firm has, the lower are the marginal costs of increasing the stock further" (Hempell, 2005: pg. 282). Time compression economies "imply that the marginal costs of investments in intangibles in a given period increase more than proportionally, such that asset accumulation cannot be rushed" (Hempell, 2005: pg. 282). Both time compression economies and asset mass efficiencies suggest that firms without learning experience in the technological field would experience difficulties trying to catch-up with more technologically advanced competitors. As a consequence Hempell (2005: pg. 282) recommends that firms must acquire this capability internally over time. In conclusion, there is an obvious interest to proceed with a gradual development of learning and technological capabilities in order to increase the adaptability and coping responses to stressful and unexpected changes in the technological and market context.

We are trying to understand to what extent Internet adoption may offer a unique opportunity to develop dynamic capabilities. One of the more important dynamic capabilities in a peripheral context is linked to 'opportunity recognition' understood as the essence of entrepreneurial action (Ravasi and Turati, 2005). As seen above, SME survival is increasingly linked to the identification and exploitation of non-traditional investment opportunities (Saemundsson and Dahlstrand, 2005). Performance implies a capacity to recognise an opportunity of profit and to put into effect a 'learning process' to transform the initial intuition into commercial applications. And in fact the discovery

process is linked to technological/market scanning processes potentially handled by the Internet.

As seen above most OMs were brought up and live in RAM, which limits their level of awareness of new evolving market opportunities and technology possibilities elsewhere. Oyelaran-Oyeyinka and Lal (2004), Lal (2005) and Sakarento et al (2005) are well aware that searching via the Internet is a very effective way of learning.

In conclusion, it has been possible to list four Internet related advantages: changing the firm's innovative history (a more positive attitude towards innovation; experience dealing with technological/organisational up-grades); the development of competitive attributes; the development of learning competences; and see transition to a new technology frontier. But in the micro/SME context, all changes presuppose an intense OM involvement, as it is they define the firm's strategy.

5.5.2 Insights from the OM competence approach

The SMEs/entrepreneurship literature recognises the extreme importance of the OMs competences (in terms of behavioural characteristics, managerial skills, technical know-how) as key determinants of SMEs survival. In fact, OM experience/knowledge is the firm's key distinctive competence. Due to the OMs overwhelming control of daily operations "OMs can actually be the main engine of change in the organisation, provided that they recognise the importance" of changing the firm's behaviours and strategies (Wong and Aspinwall, 2004: pg. 49).

Given the concentration of decision-making in the OM's hands, a significant change of firm' strategy is dependent on the OMs competence up-grade. Consequently it is suggested that OMs must develop entrepreneurial characteristics in order to increase their firm's long-term survival prospects (Man et al, 2002). Man et al (2002) advocate the development of 'OMs competences' at the expense of traditional development programmes (such as employees training). The competence approach developed by Man et al (2002) links the SME performance/survival to the development of the OM's competences. And Man et al (2002: pg. 138) highlights competences such as opportunity recognition, the nurturing of relationships, conceptualizing strategies dimensions as major areas of entrepreneurial competence.

In relation to the RAM context, the increasing turbulence and specific SME dilemmas points to the importance of specific competences such as: a) opportunity recognition (in terms of capacity of search/recognition/act on strategic information/opportunity); b) conceptual competence (capacity of analysis, problem solving and sound decision-making) and; c) learning capabilities needed to sustain the previous efforts. In fact, the survival odds depend increasingly on managerial action in terms of access to best prices/suppliers, follow-up/replication of competitor's strategies and increasing awareness of alternative opportunities of investment.

Warren (2004) also advocates the adaptation/change of the OMs competence in line with the firm's growth stage and environmental uncertainty. If a firm moves to the next growth stage without a correspondent change in the OMs behaviours/attitudes, a growth crisis is likely to occur (Cope and Watts, 2000; Kwo, 2004). In fact, a crisis event may put a given OM under pressure as job responsibilities exceed his/her personal management capacity (Warren, 2004). In the current phase in RAM, which corresponds to a stable environment, the OM competence/knowledge and firm's resources match the demand for such competences. And the OM may also mobilise 'extra firm' resources via management of the portfolio of formal/informal relationships. However in a different scenario (such as a major demand shock or firm's growth) the OMs may be unable to cope with the pressures/dilemmas.

5.5.3 Internet based informal learning

But in order to proceed with a well-balanced up-grade of competences/strategies a more positive attitude towards learning/innovation is required. It is argued that e-learning environments provide an excellent opportunity to practice learning capabilities, as they are different from traditional learning methods (Carayannis et al, 2005; Salojävi et al, 2005).

As seen above the OMs overwhelming control of daily operational issues imposes constraints in terms of time/effort available to spend in official and formal programmes of training/education. And in fact most OMs prefer the learning by doing approach. As a consequence it is suggested that the Internet provides learning opportunities which are not formal and therefore appropriate to the OM learning profile.

Despite the fact that learning skills are defined as a key resource it is not easy to mobilize OMs to enrol in traditional training programmes (Martin and Halstead, 2002; Rodriguez-Pose, 2001; Massey, 2006). In fact, the informal learning is the most frequent type of learning at the work place and it is based on daily routines and it is the OMs' preferred mode of learning. According to Marsick and Volpe (1999) 70% of learning opportunities, involve the work place setting Watkins and Marsick (1992) quoted in Marsick and Watkins (2003: pg. 134), define informal learning as "based on learning from experience; embedded in the organizational context, oriented to a focus on action; governed by non-routine conditions", exactly what OMs demand. Informal learning is defined exactly by integration work (consciously) and learning (unconsciously) and it is mainly unstructured, experiential, non-institutionalized, "tacit and integrated with work activities" (Marsick and Watkins, 2003: pg. 134). And Naidu and Oliver (1999) state that learning in authentic learning environments allows a quick adaptation of new concepts/ideas to real life situations.

Hence, it is suggested that the Internet based learning style matches OMs learning preferences in terms of location and timing. The Internet provides opportunities to access information and datasets for those with limited time available to learn and search. And an Internet based learning environment may 'reinforce learning outcomes' in terms of competences not developed in school (Martin et al, 2001: pg. 264). Martin and Halstead (2001) and Martin et al (2001: pg. 271) conceptualize the Internet as a useful device to "eradicate past unpleasant experiences at school". Hence there are reasons to suggest that the Internet should be conceived as a new and dynamic source of learning "capable of mobilizing those who had so far avoided all contact with formal learning since leaving school" (Martin et al, 2001: pg. 271).

In addition, it is asserted that the 'ICT experience' may call to mind learning behaviours and the development of competences so valued in the ambit of the Information Society (Castells, 2001). The use of Internet is related to emerging types of work, such as team work, sophisticated treatment of data and information, the capacity for solving complex problems in knowledge-rich domains and exposure to network activities (Colley and Comber, 2003). Concerning skills development, Naidu and Oliver (1999) show how the use of a Computer Based Supported Collaborative Learning model allowed the development of important competences, such as sharing of work experiences, engendering of collaborative understanding and problem solving skills development.

It must be acknowledged that Internet based learning is based on quite simple procedures and heuristics. In fact most firms are stuck in a low level of organisational transformation and implement only incremental modifications of existing arrangement. The pattern of change is incremental in nature rather than radical and as a consequence we should not expect OMs to use complex Internet applications. Thus, applications such as Data Warehouses, Database Marketing, Data Mining, Statistical Sales Analysis tools and Management Decision Support Systems are not applied by most firms. Quite simple heuristic tools such as Internet enabled scanning actions should be expected.

Further, Spanos et al (2001: pg. 670) show a weak direct relationship between strategy and the adoption of ICTs tools as the use of ICTs influences strategy indirectly rather than directly. But “even though ICT use does not influence the content of strategy per se, it does result in increased availability and enhanced quality of information on which strategic decision-making is based” (Spanos et al, 2001: pg. 670). Spanos et al (2001) termed such approach as ‘informating up’. As stated above a very informal and ‘personalistic’ use of the information gathered through the Internet should be expected.

5.5.4 Insights from critical incidents theory

Most Diffusion of Innovations Theory based studies assume a ‘deterministic’ profit maximisation on the firms’ part and acknowledge the alleged inevitability of the Information Society Project. However, as seen in Chapter 3, the process of re-territorialisation has deprived local firms in RAM from a strong impetus to explore innovative strategies. As stated by Montalvo (2006: pg. 313) “the first condition for a firm to engage in innovative activities is that innovation has to be contemplated by decisions makers as a strategic planned behaviour”. Firms must be willing to change and innovate. Thus willingness can be considered the first predictor of the firm’s innovative behaviour. Beaudry and Pinsonneault (2005) also acknowledge that adaptation behaviours are not automatic but depend on individual’s assessment, evaluation and interpretation of disturbing events and potential disruptive changes to the status quo. Later on, the users’ evaluation of disturbing events is reflected in coping behaviours. And the adaptation effort is also linked to the availability of resources (financial, material, physical, psychological, cognitive and social connectivity).

In fact, any complex thesis about the alleged benefits of the ICTs should be based on the rigorous identification of OMs' perceptions about the on going advances in terms of new technologies. Concerning OMs operating in RAM, we really don't know if the Internet's "impact seems fairly clear to the observer or whether the consequences are sufficiently definitive to leave little doubt concerning its effect" (Våland and Heidi, 2005: pg. 496). In fact, ICTs such as the Internet may be not devised as a high magnitude event and/or as a critical incident at the level of the firm. OMs may disbelieve that an accelerated process of social and technological change is demanding a constant alert to ways in which their strategies and procedures can be shaped to improve competitiveness and responsiveness in evolving social and economic circumstances. If most OMs believe that they still face a stable environment, change is not envisaged. In line with Bråten and Strømsø, 2006: pg. 1038) it can be stated that OMs "who conceive knowledge as given and stable were less likely to take advantage of the opportunity for Internet-mediated communication offered by the Internet". As stated by the Economist (2006), "the real problem, not just for Italy, and France but also Germany, is that, so far, life has continued to be too good for too many people; there is not yet a consensus that their economies are in seriously in trouble".

Ellinger (2005: pg. 392) suggests that the initiation of an "informal learning programme" is likely after an internal/external jolt or threatening events. And Marsick and Watkins (2001: pg. 29) assert that "new life experience may offer a challenge, a problem to be resolved, or a vision of a future state". In fact, Skule (2004) considers the frequency of exposure to crisis events as a critical factor conducive to learning behaviours. That is, learning may result from events and incidents when they are understood as a stimulus to change things.

The conceptualisation of crisis events as learning opportunities is one of the key contributions of the theory of critical incidents (Clinton and Getachew, 2003; Naidu and Oliver, 1999; Arnold et al, 2005; Våland and Heide, 2005; Arthur, 2001; Kwo, 2004). A critical incident is defined as a learning opportunity to reflect in/on action and ways of learning how to manage transitions. Critical incidents also provide an opportunity to achieve a balanced description of significant events, "as it views both the good and the bad elements of an experience, and examines whether expectations were confirmed or disconfirmed" (Pritchard and Havitz, 2006: pg. 29). And learning critical incidents may also be defined as opportunities to "reflect on past action, encourage search and

exploration, detect and learn from errors” and to construct meaning based on existing knowledge or “to reflect on ‘what was done’ as a way of intervening in ‘how things are done’” (Iedema et al, 2006: pg. 134; see also Clinton and Getachew, 2003 Kwo, 2004). A critical incident may trigger reflection and a ‘remise en cause’ of old methods and solutions (Iedema et al, 2006: pg. 135).

However a dramatic behavioural change depends on an obvious need for change. As OMs have been living in a relatively stable environment, their capacity to recognise and reward learning opportunities was limited (Naidu and Oliver, 1999). It can be asserted that given the stable economic and cultural environment, an entrepreneurial attitude (based on investment on organisational structure, employees training and aggressive price strategies) was not likely to be the optimal strategic approach. Wiklund and Shepherd (2005: pg. 73) suggest that “entrepreneurial orientation seems to have a larger positive effect on performance in hostile than in benign environments”. In fact, the adoption of a heavy/complex e-commerce strategy on the part of the local-oriented firms could eventually imply heavy sunk cost.

However OMs are now experiencing a transition from a familiar and stable way of existence to new and challenging contexts. Usually “a challenge to personal meanings and beliefs” results in painful experiences unless OMs acknowledge the changing environment, adopt a pro-change attitude and organize coping behaviours (Arthur, 2001: pg. 42). Therefore it is hypothesised that a major but subtle challenge offered by ICT concerns a ‘state of disorientation’ and dissatisfaction with the current state of affairs (Kwo, 2004: pg. 294). The ‘real revolution’ behind ‘ICT revolution’ may be linked to the ‘re-thinking of business models’, a different ‘state of mind’ and a pro-innovative attitude. In fact, the introduction of a new innovation generates a multitude of expected and unexpected consequences (Beaudry and Pinsonneault, 2005). The adoption of digital platforms is expected by the Information Society discourse but unlikely, in our view. The reformulation of strategies, business models and cognitive frameworks is not even discussed in most Diffusion of Innovations studies, as it is assumed that OMs are necessarily profit maximizers and well informed about all changes happening in their immediate surroundings.

Our fundamental premise is that the introduction of a new technology can bring about a potential disruption in terms of business models and strategic thinking. It is hypothesed that a crisis event (eg. macro-economic shock) rather than top-down programmes may

call to mind changing behaviours and trigger a 'cultural revolution' in terms of firms learning and technology trajectories (Van Delderer et al, 2005; Cope and Watts, 2003; Cope and Watts, 2000; Naidu and Oliver, 1999; Wiklund and Shepherd, 2005). Nonetheless, as stated by Beaudry and Pinsonneault (2005), if the ICT revolution or the changing environment is not perceived as a challenge/threat, coping efforts may be minor.

Thus in line with crisis event theory it is argued that a crisis scenario may trigger change in terms of behaviour and attitude (friendly attitude towards innovation/learning and ICT experimentation, etc). In fact, the major ICT related advantage may result from a different attitude towards change. A 'more receptive attitude' towards change rather than the development of 'specific competences' not yet valued by the market is what the circumstances require.

But as the adoption of ICT tools requires time to learn how to use it, "a crisis event period is not well suited for such demanding activity" (Atzeni and Carboni, 2006: pg. 140). Atzeni and Carboni (2006) explain how an investment in ICT tools may exacerbate learning problems when new capital is introduced in the production process. In fact, ICT solutions differ from traditional capital investment concerning compatibility with old equipments and organisational processes and the extent of skills and learning required (Rogers, 1995). Atzeni and Carboni (2006: pg. 140) declare that "ICT investment requires larger and more frequent learning which may explain large drops in productivity levels when new technologies are adopted". In consequence, Atzeni and Carboni (2006) do not advocate the adoption of the latest technology as they may "exacerbate standardization problems" and compatibility with the firm's organisational structure (see also Rogers, 1995). Atzeni and Carboni (2006: pg. 144) favour a "little and non frequent investment" approach in order to allow a proper learning by doing by the adopter firm. The analysis of Atzeni and Carboni (2006) is useful to understand that timing of adoption of ICT tools must not coincide with crisis events as usually there is not time for learning how to use the ICT tools and to cope with the on-going crisis. As asserted by Wong and Aspinwall (2004: pg. 55) the "OM in face of a new technology is forced to learn everything from scratch".

All this quite extensive analysis of the learning setting intends to suggest that OMs Internet use profile is a quite straightforward one and oriented to specific tasks/problems. And it is also suggested that in stable markets, the most important

Internet enabled 'advantage' may be linked to the 'awakening of the entrepreneurial spirit'. The conceptualisation of the Internet experience as an attribute/competence developer conforms to the mounting evidence about incremental learning as the preferred mode of OMs. In fact, most OMs' learning experiences are based on informal and incidental learning.

5.6 A tentative model to understand ICT adoption in RAM; key assumptions and hypotheses

Our theoretical excursion was based on the assumption that an automatic translation of theoretical insights based on 'well behaved (large and MNCs) firms' is not possible. As a consequence, the integration of multiple strands of theory was understood as a necessity, despite the fact that it may well increase the degree of complexity of this research project. Nevertheless, it is possible to reduce the degree of complexity of such a demanding approach by developing a line of reasoning based on a simple cost-benefit analysis, informed/enriched as necessary by other theoretical accounts and concepts. As seen above strategic planning at the micro firm level is mainly informal, unplanned, intuitive and opportunistic in character. OMs try to understand investments opportunities based on simple heuristics and rules of thumb. As a consequence, it is assumed that OMs envisage the adoption of ICT tools if the net benefit is somehow conceived as positive:

$$\text{Net Benefit} = \text{Benefits} - \text{Adoption Cost} > 0$$

However, that doesn't mean that OMs have perfect information about cost and benefits (Luehrman, 1998; Folta et al, 2005; Kylaheiko, 1998; Virkkunen, 2002). But they have at least clues (such as the adoption strategy of near peers and or competitors) on which to base their line of reasoning.

However a cost-benefit analysis is not straightforward concerning long term effects. ICT adoption involves intangible, difficult to recognize costs and long term benefits (Kylaheiko, 1998; Virkkunen, 2002). Concerning short term impacts it is assumed that the ICT adoption decision making is influenced by sector affiliation, industry standards and pressures from suppliers and customers, as assumed by the strategic positioning approach.

The analysis provided in section 5.3 and section 5.4 suggests that the critical parameter concerns costs (Bergendahl, 2005). According to Grandon and Pearson (2004) firms with limited resources may feel constrained in making investments from which they don't see financial returns (see also Grimes, 2005). In the SME context the financial constraints favour investments with an immediate/visible financial return. Becchetti et al (2003) notice a negative impact of 'heavy investment' in ICTs tools to the extent that sunk costs are generated, which limits the firm's investment capacity. As SMEs are dependent on 'retained profits' as a fundamental source of finance, OMs avoid high cost solutions unless they have reasons to think otherwise. But Sadowski et al (2002) highlight an extra dimension of the cost problem: time and efforts needed to match the 'business plan' with ICT strategies (see also Dimara and Skuras, 1998). In fact, at the SME level the entrepreneurial orientation is affected by limited capital, time and attention (Ravasi and Turati, 2005). For that reason, OMs frequently pass up investments distant from their established technological base.

ICTs tools, as General Purpose Technology (GTP) are heavily dependent on extra investment in organisational up-grades, creativity and time/effort to handle simultaneous multiple investments. These 'complementary investments', such as time and attention needed to align technology solutions with organisational structure may also be conceived as adjustment costs (Sánchez et al, 2005). From the Diffusions of Innovations literature it is quite evident that the "successful adoption is very complex, involving simultaneous changes in various business areas" even in the MNCs context (Bresnahan et al, 2002: pg. 339). And Lumpkin and Dess (2004: pg. 167) also argue that "if ICT investments are handled poorly, they diminish performance" (see also Sanchez et al, 2005). As a consequence it should be expected most that OMs 'reschedule' the adoption decision, as they do not have the resources to apply in such a risky and time consuming ventures.

Concerning benefit, it is important to acknowledge that "SMEs are rarely aware of their needs with respect to the adoption of advanced telecommunications" which results in the "non translation of real needs in ICT demand" (Sadowski et al, 2002: pg. 80). Consequently, it is argued that the current adoption status on advanced telecommunications on the SMEs part only provides a partial perspective of their external or objectively defined needs (Sadowski et al, 2002). There is evidence to suggest that OMs need to be convinced about the 'perceived benefits from ICT

adoption' (Teo and Ranganathan, 2004; Doherty et al, 2003; Ng et al, 2001; Premkumar and Roberts, 1999). Even in the context of larger firms, top management expect measurable tangible benefits rather than soft ones (Teo and Ranganathan, 2004: pg. 98; see also Devaraj and Kohli, 2003). And, there is a widespread belief that a negative gap between realized and expected benefits is quite common in the ICT field (Teo and Ranganathan, 2005). As suggested in section 5.2, quite often, there is no business case or strategic relevance to adopt complex ICT tools especially in the retail sector. And since 2001 the benefits of the Internet "have been put to question as a result of the crisis of the new economy" (Nieto and Fernandez, 2006: pg. 251). In fact, as stated by Ramsey and Ibbotson (2006: pg. 326) "SMEs have become complacent, as they believe the option of e-business is over hyped and less urgent and as a consequence the postponement of strategic planning and investment in e-business is the rule".

As seen in section 5.2, most OMs share a widespread "scepticism about the suitability of [e-]business models for many business activities" (Grimes, 2005: pg. 1079). Hence a large scale adoption should not be expected. Instead a 'cautious approach', can be expected, on the part of SMEs, due to the fact that many small businesses are waiting to see if the e-commerce "is viable and whether the return on investment will exceed the cost of adopting the new technologies" (Levy and Powell, 2003: pg. 179).

The scepticism amongst OMs about the alleged advantages of the Internet suggests that another critical factor (besides adoption costs) may be the compatibility between the technology and the modus operandi of the firm. As stated by Erumban and Jong (2006: pg. 310) "OMs are only impressed by products that have already demonstrated their worth and usability in other organizations" (Erumban and Jong, 2006: pg. 310). According to Devaraj and Kohli (2003: pg. 276) "technology usage results in organisational impacts only when the suitability of the application is matched with technology". In fact, in line with the strategic positioning approach, there are reasons to suggest that most OMs would adopt if convinced that the "Internet is well suited to the industry and the firms' desired way of doing business" (Baourakis et al, 2002: pg. 589; see also Dholokia and Kshetri, 2004; Levy and Powell, 2004). But Grimes (2005: pg. 1067) asserts that "many entrepreneurs fail to see the practicability of e-commerce in the context of their own business operations" even if they are quite successful entrepreneurs. Thus, low adoption rates may result from the fact that ICTs are not well suited for SMEs. For example, concerning the retail sector, Wilson-Jeanselme and

Reynolds (2005: pg. 165) declare that “many retailers have so far failed to convert these alleged revenues into profits”.

The suitability of ICT tools for SMEs depends on external pressures, the geographical scope of firms markets and adoption rates in the firms’ ‘inner circle’ (firm external environment). Mitchell and Clarke (1999) suggest that external driven adoptions (imposed by outsiders such as retailers) and firm’s external orientation (geographical focus) are critical to understand the ICT adoption rationale in rural areas. Firms integrated in ‘external trade networks’ and dependent on external operator’s technological requirements are an example of external and dependent driven option (see also Preissl, 1995; Wong and Aspinwall, 2004; Johnston and Wright, 2004).

Concerning locally oriented firms, the firm’s external environment is the critical conditioning factor (Sadowski et al, 2002; Preissl, 1995; Castro and Butler, 2002). Both Sadowski et al (2002), Preissl (1995) and Castro and Butler (2001) highlight the influence on the rate of ICT adoption of the ‘inner circle of the firms environment’. According to Preissl (1995: pg. 90) the level of diffusion of ICTs in the inner circle is the relevant factor for a potential user's introduction decision, as low ICT diffusion in the environment might discourage adoption (Sadowski et al, 2002; Cappelo and Nijkamp, 1996; Savage and Waldman, 2005; Litan and Rivlin, 2001). In fact, at the SME level, the real connectivity rates (the real number of firms’ suppliers and customers using the Internet) is more important than the potential connectivity in the firm’s inner circle (Cappelo and Nijkamp, 1996). Data concerning on-line shopping in RAM do not seem promising as less than 20% of individuals had some kind of experience with on-line shopping (Almeida et al, 2007). As a consequence, a rush to implement e-commerce platforms should not be expected, as a critical mass of adopters may be not reached. Dodge (2004: pg. 224) states that “despite the globalisation rhetoric behind much of e-commerce, local identities still matter in much of daily life”. And “much hype on the impact of online retail from the late 1990s has not come to pass and online retail's impact on the high street has been negligible” (Dodge, 2004: pg. 224; see also Murphy, 2004). And according to Soete (2001), the purchase of products and services will remain a social activity where personal contact, search, and experimentation continue to be an essential feature. If the communication needs of the firms customers/suppliers do not favour the use of ICTs as the share of non-substitutable informal communication is high, the introduction of ICT would affect the

efficiency of the communication process (Preissl, 1995: pg. 91). Non-adoption is also likely when the environment predominantly consists of very small firms or private households, as is the case in RAM (Preissl (1995: pg. 92).

But the generalised adoption of basic ICT tools in the RAM seems to suggest the existence of non-economic benefits (for example, visibility and reputation) which may counterbalance the negative impact of adoption costs. And among the legitimate reasons for adoption there may be an opportunistic one (Sadowsky, 2002; Preissl, 1995; Salmeron and Hurtado, 2005). The opportunistic approach describes adoption strategies as related to cost opportunities and resources availability and access to subsidies (Levy and Powell, 2003; Sadowski et al, 2002). Such an approach acknowledges an adoption rationale not conditioned by a 'logic of utility maximisation' but instead by access to funding and suppliers support.

I introduce now some final comments about the review of literature provided in this chapter and try to suggest some results that should be expected. It can be emphasized that a large scale adoption of complex ICT tools should not be expected, nor large number of firms benefiting from e-commerce platforms in terms of sales and access to external markets.

5.6.1 A final comment and assumptions

As stated by Lovering (2001: pg. 341) "rather than articulate a priori assumptions how they might (or should) behave", this chapter has developed efforts to understand 'real behaviours'. Data concerning SMEs' adoption profile of ICT tools suggest that traditional models based on the alleged distance shrinking powers of ICTs are ineffective in appreciating the ICT adoption rationale (Bell, 1995; Fillis, 2001; Kafmann et al, 2003). In fact, too many of the presuppositions about firm's behaviour are counterproductive as they impede a fine understanding of key adoption drivers (Sinkovics and Penz, 2006). Hence, our efforts to devise an alternative understanding that blends several strands of theory. Another reason to build-up an alternative model based on an eclectic approach derives from the fact we are dealing with a relatively unexplored area in terms of scientific research (Arenius et al, 2006: pg. 282). In fact, RAM may be conceived as an extreme case which represents a 'revelatory opportunity' to analyse a previously ignored phenomenon.

Based on the literature review provided in Section 5.2, it can be suggested that most SMEs may have very low-level technology requirements and as a consequence SMEs aren't likely to use complex e-business models. Such models may in fact erode SMEs survival odds as a complex ICT strategy may 'divert' scarce resources from what is really important (Ramsey et al, 2003: pg. 252). Barriers to ICT adoption are still a hot issue in most LFRs, even if most accounts do provided an extensive list of the alleged Internet advantages. However, the evidence is not yet there to say how SMEs operating in RUPs perceive the adoption barriers topic. Thus an account of local firms' understanding of adoption costs is needed. Both the Diffusion of Innovations Theory and the Resource Based View perspective (reviewed in Section 5.4) provide interesting theoretical insights to be used in our quest.

Section 5.3 provided us with a 'problematic' account of the local business culture and firms strategies. It must be acknowledged that local firms are a 'problem' as world-wide competition is not a concern or the affiliation to networks of inter-firm collaboration (Gils and Zwart, 2004). And the local firm's advantage is not linked to unique advantages based on knowledge assets, innovative entrepreneurship or aggressive entrepreneurial attitude (Arenius et al, 2006: pg. 286). Local firms are also not dependent on creative thinking, affiliation to international business networks, in-house R&D and close links with Universities.

In fact, the remote/peripheral context imposes additional constraints on firm's development. Most SMEs follow a nonlinear, opportunistic and irregular growth path and are exclusively dependent on local market prospects. The dominant business model is based on relational assets and value added in marketing and sales and most firms lack competitive products to sell in the international markets. Still in Section 5.3 it was asserted that multi-business entrepreneurs (local groups) have a higher degree of entrepreneurial attitude and/or access to 'special political and institutional resources. Thus higher levels of adoption of ICT tools should be expected on the part of these larger firms.

Section 5.4 provided a revision of three strands of theory that may help us to understand the ICT drivers in the ambit of the SMEs. There are grounds to conceive local SMEs as deprived of in-house resources (namely knowledge-based competencies) and experience in implementing complex organisational up-grades. If this is true, a low adoption rate of ICT tools should be expected, as such firms will incur unaffordable costs (Hyytinen and

Pajarinen, 2004). The Diffusion of Innovations Literature, the Resource Based View perspective and the strategic positioning approach provide useful frameworks to study adoption drivers and inhibitors. As family run businesses are predominant in RAM, the OMs attitude towards the technology is critical to understand ICT adoption rationale. The SME literature suggests that growth oriented firms are managed by innovative and non risk adverse OMs. It is also suggested that conservative OMs are not early adopters of innovations, they instead should be categorised as cautious followers or non-adopters. The 'attitude based model' approach does provide useful theoretical insights to understand OMs' attitude towards technology.

Section 5.5 suggests several focal points to understand the advantages that SMEs may reap from the adoption of ICTs. An increase in sales due to the development of a new sales channel is not expected, as only a minority of SMEs is adopting e-business models. Therefore, it was suggested that the development of dynamic capabilities, such as a positive attitude towards learning and opportunity recognition, may constitute the most desirable outcome associated with the current adoption status. As seen in Chapter 2, local firms have been sheltered against external shocks. Thus, how OMs assess the nature of the ICT revolution and its relevance to their firms' strategy is unknown. As stated by Beaudry and Pinsonneault (2005); "when a disruption occurs, one first asks: What is at stake for me in this situation?" Critical incident theory provides an interesting framework to understand OMs perceptions about the ICT revolution. If most firms perceive the Internet Revolution as an opportunity (to change the strategic thinking about the firm and the surrounding environment) rather than a threat, coping behaviours and learning outcomes may follow. Section 5.6 attempted to integrate some comments and the line of reasoning developed in the previous section into a simple cost-benefit framework.

As stated in Chapter 1, the objectives of our research are:

- to provide statistical information on the 'raw' rates of ICT adoption;
- to identify, by means of multivariate analyses, the main factors which affect the ICT adoption rationale at the local level;
- to understand the impact of the specific geographical and historical background affecting the adoption rationale; and

- to understand the link between RAM growth prospects and firm adoption strategies.

What should be expected of the adoption profile of firms operating in RAM? The evidence reviewed in Section 5.2 suggests that high rates of adoption should be expected for the general use ICTs tools such as e-mail and Internet access. However, as RAM can be categorised as an innovation-averse society, it would not come as a surprise adoption rates of such basic ICT tools below the EU average. The allegedly innovation-averse character of most OMs (see Section 5.3) in peripheral regions may be translated into negative attitudes towards the Internet. That is why I have used an attitude based model in order to assess the prevailing attitudes towards ICT tools amongst local OMs. As there are reasons to suspect that Internet related advantages are 'negligible' and customers are not pressing firms to adopt ICT tools, the adoption behaviour would be critically conditioned by opportunistic factors. Adoption rates for production integrating ICTs tools such as LAN, EDI and Intranets are expected to be low, as they require a business case, which is likely to be lacking. Most firms are operating in the retail sector where such technologies are not required. As declared above, the typical firm operating in RAM does not match the ideal profile of the technologically advanced firm. Most firms are micro/small in size, are locally oriented, invest predominantly in machinery and premises and are especially concerned in nurturing a dense web of personnel relationships. Local parameters for competitiveness are still based on personal relationships.

Adoption rates of marketing-oriented ICTs is also expected to be low, as most firms are locally oriented in terms of market scope and belong to the micro/small size category. All evidence available suggests that firm's web pages are mainly used to improve their visibility and to provide detailed information on their products but not to develop another sales channel. However, it would be interesting to check the drivers of the adoption of web pages to stress the similarities or dissimilarities of local firms in relation to SMEs in general. It would also be interesting to understand "if the adoption decision is affected by the firm's peripheral location" (Mitchell and Clarck, 1999: pg. 448).

Although email and access to the Internet can be understood as general use ICT tools, having access to these technologies does not necessarily imply using them effectively. Section 5.5 provides useful theoretical insights on which to base our understanding of

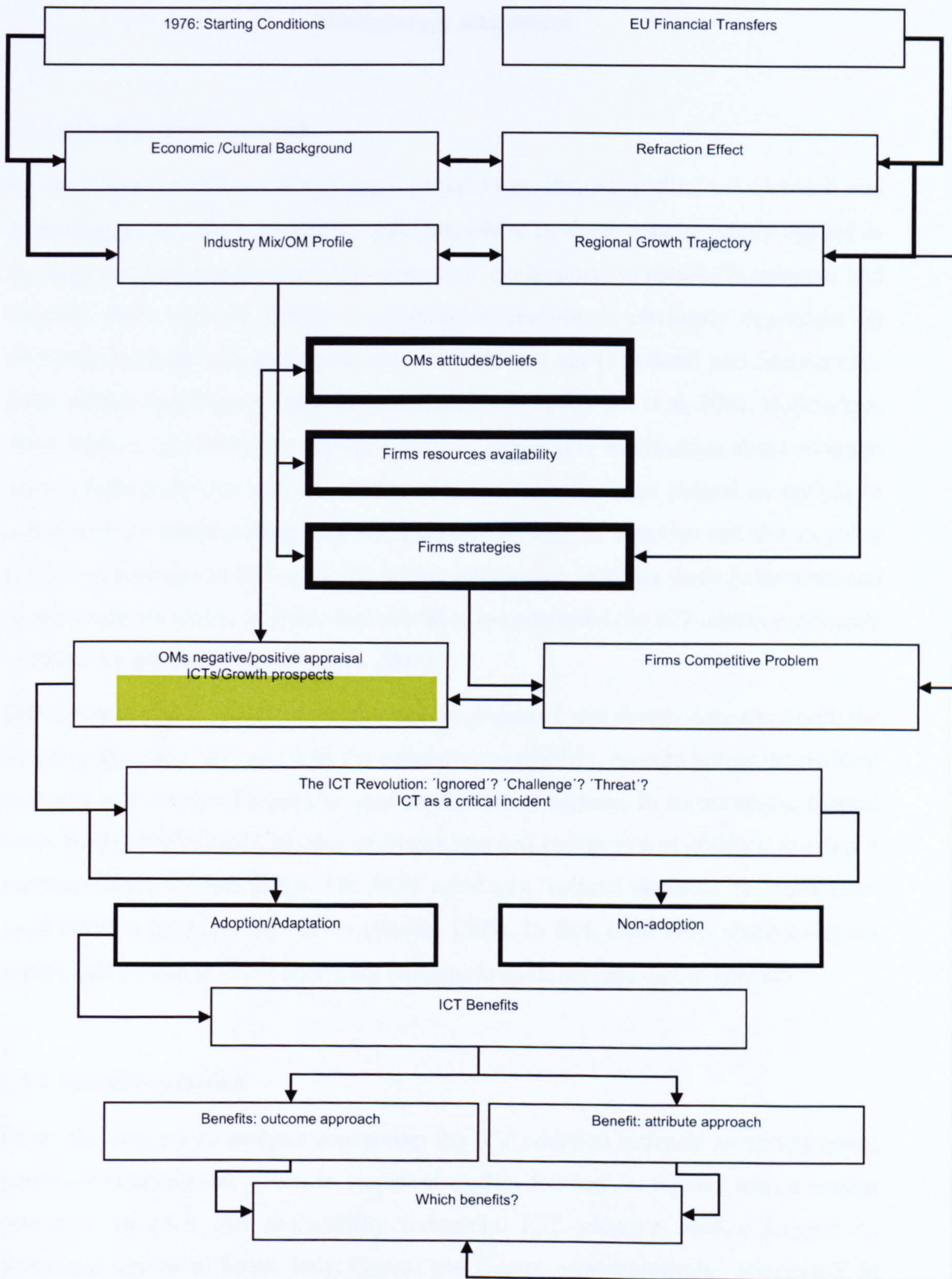
the potential benefits of ICT tools. It was argued that a direct link between adoption/use and sales growth should not be expected as local firms are not searching for new markets abroad. On the contrary, it was argued that the Internet may trigger a learning effect with firms assessing information more frequently. Intense use of Internet features in connection with market and technology scanning should also be expected. The development of a more innovation-friendly attitude and increased awareness of changes in the environment are also foreseen. Whatever the impacts of the Internet, the structures put in place to manage such use will be informal, chaotic and unplanned. However, a definitive answer will be available only in Chapter 6.

In conclusion, large scale adoption of *basic* ICT tools and moderate or low levels of adoption of *sophisticated* web pages should be expected. Intense use of Internet functionalities concerning two-way communication and access to information is also probable. However, the intensity and type of use is open to debate. The problematic background of OMs in educational terms and their likely preference for face-to-face contacts may limit interest on the OMs part in technology mediated communication modes.

The analysis developed in this chapter reinforces the line of reasoning developed in chapters 3 and 4, since as it is suggested that the majority of companies seem to be adopting only essential ICT tools. Given the likely low rates of adoption of e-commerce platforms it can be suggested that the Internet will tend to have a neutral effect in terms of the (region's) growth dynamics. In fact, there are no reasons to suggest that local companies are reaching foreign markets, and as a consequence there is no reason to suggest that the Internet is about to materially change the course of events of island development.

The line of reasoning for all questions raised in this section and in the previous one is provided in Figure 5.5. A note on Figure 5.5: The majority of the Diffusion of Innovations studies are concerned with decision making in terms of adoption/non adoption and with the impact of factors such as firm resources/firm strategies; however, the island context imposes a broader study of economic and political background to the extent that they affect the OMs attitude towards ICTs.

Figure 5.2: ICT adoption model



Chapter 6:

Methodology and results

6.1 Methodological approach

For the reasons mentioned in Chapter 1, a mixed (quantitative/qualitative) approach was deemed necessary. Both qualitative and quantitative methods may be jointly applied in the same research project especially when it is 'exploratory' in nature (Premkumar and Roberts, 1999; Belussi, 2005). A quantitative analysis is obviously dependent on statistical methods and surveys to create a rich data set (Lucchetti and Sterlacchini, 2004; Malher and Rogers, 1999; Spanos et al, 2004; Sadowski, et al, 2002; Hollenstein, 2004; Mole et al, 2004). An enlarged data set comprising information about adoption rates, adoption drivers and the characteristics of the firm was judged as critical to understand the adopter characteristics, the current status of adoption and the on-going process of adoption of ICT tools. To my knowledge only a single study (commissioned by the European Union in 2001) was available to understand the ICT adoption rationale in RAM (Lengrand & Associés et al, 2001).

Due to my previous experience with research projects I was deeply concerned with the survey's 'response rate' and with the collaboration of OMs. As seen before the political economy and culture of smallness feed an element of secrecy. In consequence, support from the ACIF (Funchal Chamber of Commerce and Industry) was obtained to select a random sample of local SMEs. The ACIF acted as a 'cultural mediator' to 'encourage' local OMs to complete the survey (Razak, 1995). In fact, local OMs share a distinct history and culture at least concerning attitudes towards surveys (see in annexe).

6.1.1 Variable selection

Given the scarcity of analysis concerning the ICT adoption rationale in remote areas, particular attention was given to empirical studies focused on regions with a similar economic structure and accessibility indicators. ICT adoption studies focused on peripheral regions in Spain, Italy, Cyprus and Greece were attentively 'scrutinized' in order to understand the key conditioning factors impacting on the ICT adoption process (Lucchetti and Sterlacchini, 2004; Canepa and Stoneman, 2004). Despite the 'revelatory'

character of this research project it is important to have a kind of benchmark in order to add credibility to my own results.

The selected variables are mainly based on the Diffusion of Innovations literature. Most variables and constructs are quite straightforward, and often applied in most studies. Therefore, “most variables require no further comment” (Lucchetti and Sterlacchini, 2004: pg. 155). As items taken from previous research studies were preferred, I was quite confident in terms of content validity (Harrington and Guimarães, 2005; Caldeira and Ward, 2002). In relation to the perceptual measures included in the survey, multi-item indicators were applied to capture the underlying theoretical domain of the construct. Most of the ‘perceptual’ items were measured using a five point Likert-type scale ranging from strongly disagree/not important at all to strongly agree/very important (Premkumar and Roberts, 1999). As stated above, in relation to the generality of the constructs and variables it is possible to discern a wide consensus in the literature (Caldeira and Ward, 2002; Lucchetti and Sterlacchini, 2004). Nevertheless it seems opportune to provide some ‘technical comments’ concerning several variables.

Concerning the self-assessment data, it is important to mention its generalised adoption in the literature. According to Skuras et al (2003) surveys of entrepreneurial *attitudes* are the only way to access to information about *behaviours*. The problem with self-assessment measures is obviously one of ‘reliability and validity’. According to Salorjavi (2005: pg. 105) “people tend to overestimate their own competence and achievements”. However, ‘self-assessment’ is relatively efficient in the extrapolation of “processes, behaviours and attitudes” but not in relation to a strict evaluation of OMs “own results and achievements” (Salorjavi, 2005: pg. 105; see also Biazzo and Bernardi, 2003; Moore et al 2002). But as I was not interested in absolute values, except in relation to each firm’s employment level, the ‘self-assessment’ approach is not problematic. In the end, and according to Salorjavi (2003: pg. 108), “we may assume that owing to the anonymity of the respondents there is no reason for them to lie when referring to their processes, practices and attitudes”. As the survey was promoted by ACIF, I (must) believe in the OMs’ own subjective evaluation and perceptions (Pasanen, 2003). Nevertheless, for some OMs the survey was obviously linked to an ‘undercover operation’ to reveal the firm’s accounting ‘secrets’.

It is important to mention the relative lengthiness of the questionnaire. Although this was a problem for most OMs, it was unavoidable given the lack of previous studies applied so far in this geographical area.

Other 'technical' comments about the research design and variable selection must be incorporated in this section. The choice of a cross-sectional analysis results from the impossibility to access longitudinal data. However, it is possible to 'delimit' the handicaps of a static analysis (Belussi, 2005; Hollenstein, 2004; Eder and Igabria, 2001; Davidson and Honing, 2003; Mole et al, 2004). If environmental stability is admitted concerning the macro-economic background and firms' growth objectives, and this seems acceptable in RAM, the potential benefits of a longitudinal approach are weakened. And if a growth model is admitted, (i.e., firms in different stages of growth) it is possible to conceptualise a dynamic process of the adoption of ICT tools.

It is important to mention some of the difficulties underlying the extraction of data from firms operating in the retail and construction sector. Basically, the research limits are linked to the quantity and quality of information available about financial data (Doms et al, 2004). In line with Dom et al (2004: pg. 596) "I do not offer much in terms of solving these problems".

In conclusion, the majority of the constructs and variables are quite straightforward and there are no "difficult-to-measure constructs critical to examination" (Yli-Renko et al, 2001: pg. 587).

6.1.2 Dependent variable

As most firms may be conceived as retail units (see below), advanced manufacturing ICT tools such as CIM/CAM and other complex Internet Based technologies (such as portal enabled technologies) are excluded from the analysis, as they are highly product and process specific (Mitchell and Clark, 1999). However, one item concerning the adoption of complex ICT tools and innovative business management concepts was included in the survey (Falk, 2004). The dependent variable concerns the adoption of basic ICT tools (access to the Internet and e-mail) and marketing oriented ICTs (web pages and e-commerce functionalities) (Oyelaran-Oyeyinka and Lal, 2004; Santos-Requejo and González-Benito, 2005). Oyelaran-Oyeyinka and Lal (2004) argue that e-business technologies may be considered as 'leading edge', as the adoption of new

technologies involves essentially the adoption of ICT tools. Two measures of the adoption timing of different ICT tools are also computed: timing of access to the Internet and timing of web page adoption (Hollenstein, 2004, Belussi, 2005).

As suggested above, data concerning finances is not available for SMEs. Most large firms based studies analyse the current status of firm's investments in ICT tools via ICT budget/revenue ratio, total Management of Information Systems (MIS) budget, MIS staff budget or the number of PCs and terminals as a percentage of the total number of employees. But at the SME level such data is unavailable, and as a consequence, I approach the value of the ICT systems in place based on an in-depth analysis of the marketing oriented ICTs tools adopted by such firms. Given the swift obsolescence of most hardware and software investments, it seems reasonable to take for granted a relatively similarity between the firms' positioning in the ICT adoption ladder and the firms' adoption status of marketing oriented ICTs (such as firms web page and e-commerce platforms). It is assumed that a firm operating an e-commerce platform is at the frontline of the Internet Revolution. In line with Fabiani et al (2005), I built a synthetic indicator of the firms positioning in the adoption ladder defined as the sum of the ICT tools adopted (see also Spanos et al, 2004; Lucchettini and Sterlacchini, 2004; Malher and Rogers, 1999).

The analysis of web page quality is based on Lucchettini and Sterlacchini (2004) and Doolin et al (2002). As suggested above in Section 5.2, in most cases adoption is strictly focused on marketing and advertising purposes. Concerning the analysis of the firms web pages, a 'quantitative approach' based on information content and/or availability of e-commerce functionalities is privileged at the expense of an analysis which is more qualitative in nature (in terms of site design, ease of navigation, etc).

6.1.3. Independent variables

The Diffusion of Innovations Theory literature provides us with an extensive list of adoption drivers (Falk, 2004; Skuras et al, 2003, Davidson and Honig, 2003; Bugamelli and Pagano, 2004; Fabiani et al, 2005). The firm's internal ICT capability may be evaluated by the level of its human capital in terms of percentage of collaborators with university degrees, existence of an ICT department and the OM's perceived skills in the ICT field. The human capital factor seems critical as better educated workers enjoy a

comparative advantage in terms of adoption of and adaptation to new technologies (Falk, 2004; Vodoz, 2003).

The firm's age is correlated with the firm's resources availability and access to social and business contacts. The firm's age is also an indicator of 'survival experience' and success in the market (Westhead et al, 2001; Faria et al, 2002; Mole et al, 2004; Haugh and Robson, 2005). The firm's size may be expressed in terms of sales and/or number of employees (Fabiani et al, 2005). Both measures were included in the survey.

The importance of the OMs' previous experience is understood as critical to explaining firms' overall growth strategy and performance (Davidson and Honing, 2003; Skuras et al, 2003). Davidson and Honing (2003), Skuras et al (2003) and Westhead et al (2001) consider the extension of OMs previous entrepreneurial experience essential to the acquisition of multiple managerial experiences and suppliers/customers contacts. All variables concerning the entrepreneurial event (the start-up phase) were also deliberately avoided given its sensitive character. At the end the survey was a result of a trade-off between the 'likelihood' of access to relevant data and anonymity concerns. The social capital dimension is assessed via affiliation to trade associations and local chambers of commerce. Based on Premkumar and Roberts (1999), Malecki and Phoeling (1999), Mitchell and Clark (1999) and Dimara and Skuras (1998), other items linked to the social capital dimension were included (access to subsidies, extension of the network of suppliers and participation in trade fairs).

The 'access to subsidies' is one of the 'mainstream' managerial activities in most LFRs. In most peripheral regions firms' investment is heavily dependent on financial support and as a consequence, the ability to access financial support is a critical one, since it reveals the ability to obtain financial resources and to survive the legal and bureaucratic processes linked to the access to such subsidies (Westhead et al, 2001: pg. 343; see also Skuras et al, 2003; Meccheri and Pelloni, 2003; Grimes, 2005).

As stated in Chapter 5 key constructs from the attitude based models were included in the analysis. The constructs 'attitude towards the Internet', 'subjective norm' and 'adoption intention' are based on Celuch et al (2005), Yoh et al (2003) and Burton (2004). The definition of these constructs was provided in section 5.4.

As suggested in section 5.4, intentions are not sufficient to understand ICT adoption. Even if the OM is uneasy with PCs as a result of technophobia or computer anxiety, the

firm's growth objectives may impose the adoption of ICT tools. Thus it seems appropriate to inquire about OM's enterprising behaviour and the firm's growth objectives. Concerning the firm's strategic choices, the SME literature highlights options such as internationalisation, market specialisation, market/product innovation and cooperation/alliance strategies (Smallbone et al, 1999; Feindt et al, 2002; Roper, 1999). However, SME growth paths are allegedly opportunistic in character and most OMs prefer an independent ownership status. Concerning growth strategies, the strategic positioning literature highlights the cost advantage approach, the early introduction of innovations and/or the exploitation of market niches (Faria et al, 2002; Mole, 2004; Porter, 2001) But, parameters for competitiveness lie in a multiplicity of factors other than cost advantages: marketing skills, established reputation and personal attention to the client needs (Beneth-Smith, 2002). OMs were also assessed about their perceptions concerning direct competitors' advantages in terms of critical success factors (Lee et al, 2004; Smallbone et al, 1999). The growth objectives analysis is based on Gils et al (2004) and Madden and Coble-Neal (2003).

The assessment of OMs' understanding of the on-going economic and political changes is critical as RAM faces a challenge to the status quo, as seen in Chapter 1. Concerning the on-going advances in the ICT field and namely in terms of Internet related technologies it may be interesting to analyse the OMs' assessment about competitors, customers and suppliers' Internet strategies (Taylor et al, 2004; Dholokia and Kshetri, 2004; Benneth and Smith, 2002; Skuras et al, 2003; Smallbone et al, 1999). I do not proceed here with a 'complex analysis' of the environmental uncertainty surrounding the firm although perceptual measures about the macroeconomic context were included in the survey (Gils et al, 2004; Haugh and Robson, 2005; Faria et al, 2002).

From the Diffusion of Innovation Theory literature the importance of the firms innovative history is quite evident. The firm's past experience dealing with the adoption of innovations and with advertising campaigns are analysed as they allow an understanding of the firm's absorptive capacity of new ICTs (Faria et al, 2002; Madden and Coble-Neal, 2003; Hollenstein, 2004; Dholokia and Kshetri, 2004). With regard to the conceptualisation of 'innovation', Amara and Landry (2005) highlight the lack of agreement in the literature. However, North and Smallbone (2000: pg. 147) consider a "fairly broad view of what constitutes innovation", as they include five different dimensions of the innovation concept were examined: new products and services;

market development (new market niches and geographical areas); marketing methods; production techniques; and technology (see also Haugh and Robson, 2005; Roper, 1999). Items concerning R&D intensity, R&D to sales ratio and the firm's number of citations in scientific publications were obviously excluded from the analysis (Harrington and Guimarães, 2005; Hollenstein et al, 2004). In line with North and Smallbone (2000) the survey include items concerning organisational, process and product innovation.

In order to assess the firm's organisational complexity, I include one question about the existence of formal business plans and a second about the firm's experience in providing training opportunities to employees (Orser et al, 2000; Mole et al; 2004).

As mentioned before, the predominance of SMEs limits the availability of financial data. Skuras et al (2003: pg. 956) state that "financial assistance, the firms' debts and profits" are not easy to get, as a result of ignorance or deliberate omission (see also Bugamelli and Pagano, 2004). Even if financial data is available, Skuras et al (2003: pg. 956) mention the reliability issue, i.e., the "difficulty to cross-validate this kind of data or to objectively assess their validity in any other way". As a consequence, the inclusion of specific questions about financial data was rejected. An alternative solution is to opt for employment growth as an indicator of success (Orser et al, 2000; Roper, 1999; Garton, 1999). But as a large fraction of the creation of employment can be linked to a minority of the SMEs, 'the so-called gazelles', the database may contain a large proportion of zeros (Orser et al, 2000: pg. 43).

Tzelepis and Skuras (1995: pg. 122) alert us to the fact that the definition of performance is a "controversial issue in business economics, largely due to the multidimensional meanings and goals with which entrepreneurship has been credited". Lee and Bose (2002: pg. 119) also highlight the "criticisms that have been pointed towards the use of inappropriate measures of firm performance and ICT investment". As seen above in section 5.3, the generic objective of many family-run businesses is "use the business for the betterment of the family, potentially across more than one generation" (Getz and Carlson, 2005: pg. 238). As stated by Pasanen (2003: pg. 421), "growth is obviously not an applicable measure of success for firms that do not have growth as an aim". Concerning life-style oriented OMs, success means satisfaction with the current sales level and market share. As there is no solution to the problem, the best approach may lie in the inclusion of several measures concerning success indicators.

Alternative measures of success should be envisaged. For example, the creation of new firms and group affiliation may be understood as the real symbol of success in the island context. As suggested in Chapter 3, there is no place for large industrial projects. Hence, extra growth is linked to multiple entrepreneurial projects. Westhead et al (2001: pg. 340) differentiates the 'one shot entrepreneur' from the 'multi-business entrepreneur' in terms of objectives, motivations, behaviour, growth and success. The 'multi-business entrepreneur' is more likely to show a positive attitude towards innovation and emphasis on R&D, more awareness of market opportunities, more export propensity and higher growth aspirations and to operate in market segments with better growth prospects. The multi-business entrepreneur also benefits from economies of scale in terms of ICT systems and other efficiencies. The inclusion of the dummy variable 'group affiliation' seems crucial to understand the ICT adoption phenomena in RUPs. Pasanen (2003: pg. 423) also recommends that it is important to study firms expected "to make a significant impact on local and regional economies".

Morikawa (2004) proposes, besides the inclusion of profitability measures, the inclusion of the firm's innovative history as an indicator of performance (see also Amara and Landry, 2005; Hempell, 2005; Bertscheck and Kaiser, 2004). But in the end, most authors opt for a relatively simple measure of performance: labour productivity growth (Serrano-Cinca et al, 2005; Capello and Nijkamp, 1996). Based on Roper (1999) and Skuras et al (2003), local firms' performance is measured in terms of turnover and employment growth.

It must be also acknowledged that "high-investment in hardware oriented ICT may not influence a firm's short-term performance such as financial profitability", but may impact upon the development of competences and attributes (Lee and Bose, 2002: pg. 121). Hitt and Brynjolffson (1996) conclude that the adoption and use of ICT tools may increase productivity and consumer surplus, but not necessary business profits. Lee and Bose (2002: pg. 119) similarly stresses that "it is unlikely that higher expenditures on ICT alone will ensure a firm's superior performance". Hitt and Brynjolffson (1996) also showed that there is no contradiction in the idea that the adoption of ICT tools creates value but not profits. Quite often, ICT investments may result in consumer surplus rather than financial/market performance. As seen in section 5.5, the adoption of ICT tools may impact upon the development of key attributes and processes important to sustain the firm's competitive advantage. Concerning the SME context, it is

acknowledged that ICT related competitive advantage emerges first from competences such as experience in terms of technological scanning, learning capabilities and technological experimentation. Consequently, items related to the OM's experience using ICT tools were included in the survey. In the short term, an ICT investment may only be translated into lower transaction costs, better consumer service and improved access to information and visibility in the market.

A final note about the econometric method applied in this research. Several econometric solutions have been proposed to explore the ICT adoption/performance link (Serrano-Cinca et al, 2005; Beck et al, 2005; Shao and Lin, 2001). Most Diffusion of Innovations Theory studies adopt a multivariate analysis and discrete choice models to investigate the ICT adoption drivers (Hill and Hill, 2002). Some studies adopt sophisticated models comportsing financial data, but given the lack of such data in my survey, I opted for a simple 'econometric approach' based on the discrete choice models and multivariate analysis.

As far as the inhibiting factors and Internet advantages are concerned, the literature provides an exhaustive account of all ICT adoption drivers. The items included in the survey are based on Grandon and Pearson (2004), Deakins et al (2004) and Salmeron and Hurtado (2005).

6.1.4 Field work issues

A questionnaire of 6 pages length was designed and pre-tested with 4 firms. It was then adjusted, corrected and re-worded according to the results of the pilot testing and comments about relevant questions to be included or excluded. Given previous experience with 'field work issues' in terms of response rate, a standard approach at the local level was applied, i.e., a personal visit by students. In line with Hadjimanolis (1999) and Premkumar and Roberts (1999), "the interviews for the questionnaire completion were face-to-face, since it was felt that the response rate with a postal questionnaire of such length and complexity would be unacceptably low" (as experienced by the Local Chamber of Commerce 2 years ago). In order to avoid the experience of Baron et al (1999), who received only 7 responses from 550 postal questionnaires, students were used to increase responses rates.

The sample size adopted diverges to a great extent from study to study (Smallbone et al 1999; Mitchell and Clark, 1999; Gorton, 1999; Malher and Rogers, 1999; Pisanen, 2003; Morikawa, 2004). As the ACIF database contains 1200 firms, at least 150 should be required to ensure statistical validity (Hill and Hill, 1998). In the end, the quantitative analysis is based on a sample of 238 respondent firms.

As mentioned before, the interviewees were the firm's OM wherever possible (or senior managers), as the OMs "tend to have a comprehensive perspective of all organisational issues, including ICTs" (Caldeira and Ward, 2002: pg. 126).

The sample may be conceived as a relatively unbiased picture of the population of firms operating in RAM. However, ACIF members may be more innovation prone than the typical firm is. And there is also a slight geographical bias as most firms are located in Funchal. But, as the support of the Association was deemed necessary to ensure a reasonable response rate, a better option was not available. However, I do believe that I am working with a representative sample of the local industry mix. And I strongly believe that this was a winning option as at least a certain degree of 'statistical significance' can be reached. In fact, this 'approach' based on micro firms is not usual in the literature. Belussi (2005: pg. 249) "selected a random sample of Italian district firms" operating in external markets. As a consequence, all locally oriented firms were excluded from the analysis. McAdam et al (2004) opted for a purposive sample that included only high growth SMEs. Hadjimanolis (1999: pg. 563) opted for a 'purposive sampling approach', since he wanted to analyse firm's innovation attitude. As a "probability sampling plan would result in the inclusion of too few innovative firms" Hadjimanolis opted for a large (140 firms), carefully balanced, judgemental and purposive sample in order to obtain representative figures in terms of size, innovative record, performance and sector affiliation. However, I believe that a random sample, though based on 'problematic' cases (in the sense that it is difficult to obtain data from micro firms), is a better choice than purposive samples.

A stratification approach by size was not applied as micro and small firms represent 95% of firms in RAM. However, a stratification by sector affiliation was applied (Madden and Cobble-Neal, 2003; Bennett and Smith, 2002, Lucchetti and Sterlacchini, 2004).

Box: 6.1 Database characteristics and selection procedures

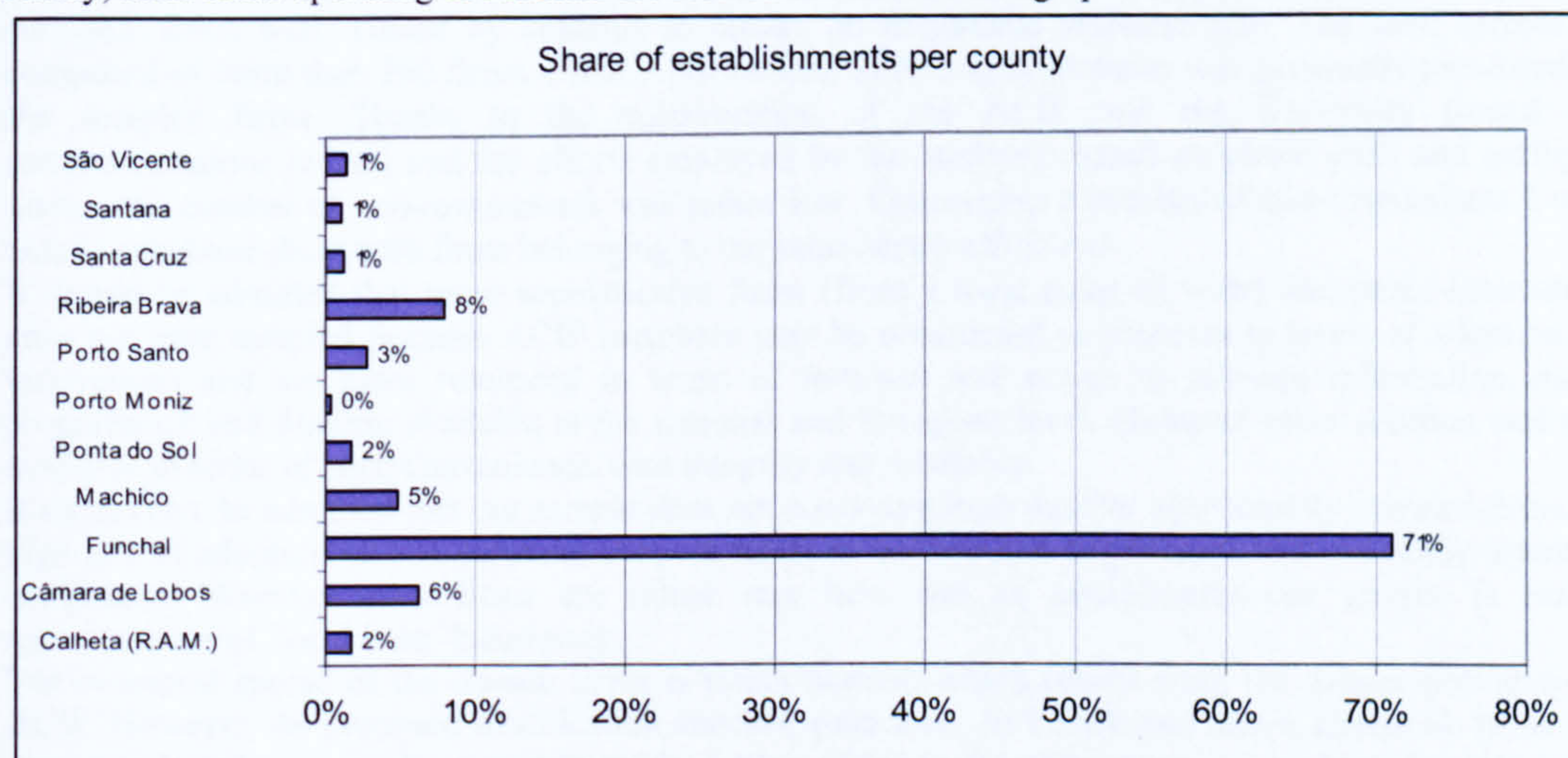
I provide now further information concerning the selection of firms and a detailed description of the firms included in the sample. Most firms belonging to ACIF are affiliated to the services and commerce sectors. According to the ACIFs web page, 45% of their members are included in the commerce sector, which comprises a wide range of activities/firms related to the traditional commerce and import-operations, such as grocery stores, supermarkets and mama and papa shops, chemists, appliances and computers shops and 'regional products'. Around 28% of local firms belong to the service sector, which includes consultants, business support services consulting services (engineering, accountancy, and so on), and other services (medical centres). Around 13% of ACIF members are affiliated to the industry sector, which comprises traditional industries (such as broidery and molasses), firms producing food and beverages and other regional products and firms operating in the construction sector and some 'modern' sectors. The ACIF web site claims that all sub-sectors are included in the dataset. The tourism sector (15% of ACIF members) includes travel agencies, rent-a-car, hotels, pubs and bars. The ACIF database includes 1200 firms.

Sectors	Perc. and examples of firms included
Commerce	45% (grocery stores, gas stations, photo shops, car dealers, pharmacies, wholesale)
Services	28% (maritime brokerage, accountants, driving schools, training centres, PC dealers, cleaning, real estate, financial services, clinics)
Industry	13% (construction, food and beverages, printing, broidery, wine)
Tourism	15% (travel agencies, entertainment, hotels, rent a car, B&B)

These firms are not entirely (statistically) representative of the whole business sector located in Madeira, because in such small area firms are rather affiliated to their own sector associations. Despite its small size, Madeira Island is populated by several sectoral associations: the Young entrepreneurs association; Chamber of Commerce of Machico (with 142 members); the Camber of Commerce of Porto Santo (with 140 members); the Madeira Farmers Association; the Association of Women Entrepreneur; the Association of Commerce and Service Activities; the Construction Industries Association (Assicom); the Young farmers of Madeira and Porto Santo Association; and the Business Council of Madeira which congregates all the former associations. But the most preminent companies operating in Madeira are ACIF members and ACIF is clearly the voice of Madeira business as it represents micro, SMEs and larger firms operating in all sectors excluding the agriculture sector. As a consequence, the ACIF database slightly under-represents the construction sector and firms located outside Funchal.

In spite of this, we believe that the qualitative findings of the survey are very likely to be representative of the Madeira business population as our sample has all the characteristics that make it an ideal candidate to represent the Madeira business population.

Firstly, most firms operating in Madeira are located in Funchal. See graph below.



Secondly, ACIF is the leading chamber of commerce and the most prominent and representative one. It is the only one to represent all sectors of the local economy, except for the primary sector. And no other association compares to ACIF in terms of membership, visibility and access to European funds. Membership of the ACIF opens up a wide range of critical business information and advice, frequent events and training programmes and networking opportunities in association with two European

Commission networks. The ACIF was established in 20th of January 1836 and in 1985 ACIF was declared an institution of public interests due to its contribution to the local development. Another symbol of recognition is related to the fact that ACIF hosts one of the European Euro Info Centres and one of the Europe Direct centres. According to European Commission web site the Europe Direct gives "General information about EU matters in any of the official EU languages; answers concerning questions on any European Union policy; practical information on subjects such as how to get your qualifications recognised or how to complain about unsafe products; contact details of relevant organisations you may need to deal with; and advice to help you overcome practical problems with exercising your rights in Europe. The European Euro Info Centre "provides up-to-date information on European Directives and Regulations, public sector contract opportunities, business opportunities, funding, research and development initiatives". The Euro Info Center was established in 1987 and the network has over 250 centers across the whole of Europe. ACIF locates one of them.

Thirdly, as the other associations operating in Madeira are rather specialised in one sector, ACIF was the only viable alternative in terms of access to a database of representative firms. And for the reasons explained elsewhere another alternative was not available at a reasonable price. I tried first to base the sample procedures on a sample provided by the National Statistic Office. However such approach was refused based on confidentiality concerns. It should be stressed that, to my knowledge, this research project is the first one carried by a non governmental entity. It should also be asserted that low responses rates are a problem even concerning official surveys, which means that it would be absolutely impossible to collect a large number of responses without some sort of official support.

Fourthly, the ACIF database includes firms from all sectors excluding the primary sector and the public administration sector. As a consequence, the ACIF database may represents about 90% of all firms , 72% of the Madeira value added and 68% of the total employment (See Table below).

	Share of Employment 2004	Share of value added 2004	Share of number of firms
Primary	8%	1,9%	2%
Industry (includes construction)	26%	16,3%	20%
Commerce and Services	42%	56,2%	69%
Public Administration and others	24%	23,6%	9%

In order to minimise the survey's cost and duration, a stratified random sample of the firms was extracted (by using industry as stratification variables) and with the purpose of interviewing at least 150 firms. Based on the data set provided by the ACIF (which only differentiated firms by sector) a numerical code was assigned to each firm and then a random sample was extracted based on usual random sampling procedures.

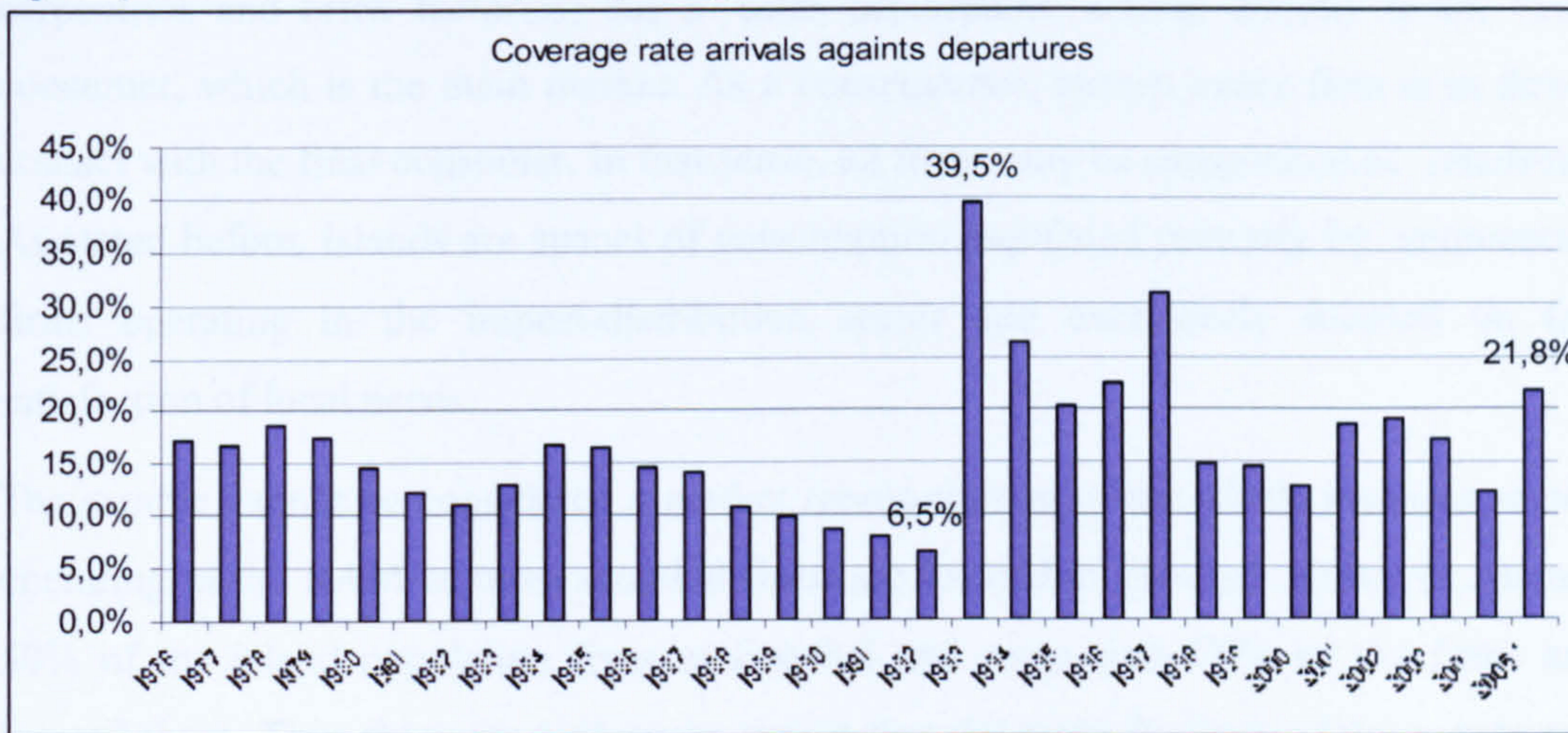
Due to concerns about low response rates (a usual problem here in Madeira even with compulsory surveys), firms were visited by students to ensure an acceptable response rate. The final sample is composed of more than 200 firms. From April to June 2006 a questionnaire was personally presented to the sampled firms. Thanks to the collaboration of the ACIF and the University (based on recommendations letters) and the efforts employed by the students (based on phone calls and multiple visits), the number of non-respondents was rather low. Concerning a number of non-respondents I was able to substitute them with firms belonging to the same sector affiliation.

It should be admitted that more sophisticated firms (from a local point of view) and prone-innovation ones are over sampled because ACIF members may be considered as pioneers in terms of adoption of innovations and are more resourced in terms of turnover and access to relevant information about programmes and funding available at the national and European level. However other solution was not available in terms of cost, convenience, data integrity and reliability.

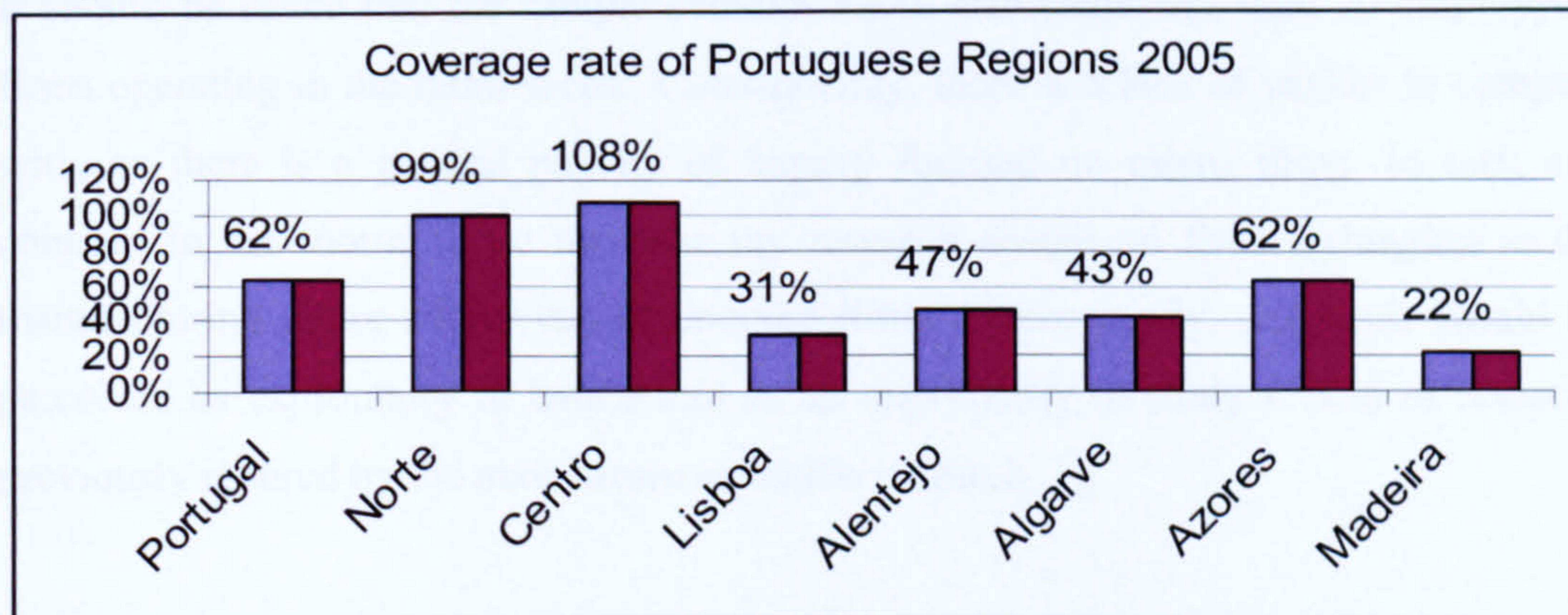
It should also be admitted that our sample does not contains a high number of externally oriented firms. A high rate of adoption of ICT solutions is more likely to be found in larger firms and externally oriented companies. However such firms are rather rare here and as consequence our sample is really representative of 'local born' businesses.

The industrial spread of the chosen firms is rather narrow, which results from the dataset provided by ACIF. However, the proposed stratification matches quite well. As I explained above, almost all firms are operating based on a mark-up margin model (value added in the sales phase on products brought from mainland) and most firms are not externally oriented. As a consequence, the differentiation factors amongst firms are related to the broad stratification proposed (industry, commerce and services and tourism) size, group affiliation and access to special relationships. Firms belonging to high-tech industries are relatively rare (although not absent). The range of niche markets on the Island is quite constrained, which means that the industrial spread based on 4 strata differentiates quite well the firms. The variability

of the data in terms of size range results from the fact that ACIF includes most of the market leaders at local level. Thus the data set includes large firms and micro-firms. Data concerning Madeira Island coverage rate of arrivals against departures shows is provided below (See Figure 1). As can be seen the ratio export/imports figure was 21,8% in 2005.



Madeira Islands is the less export oriented region in Portugal, as shown in Figure 2. Some local companies have succeeded abroad (Tribuna da Madeira, 21 May 2004 edition). However, only a few examples of local groups operating abroad are regularly quoted in the press, such as Pestana Group (a world tourism operator), Promosoft a leading a software company in Portugal, the SIRAM Group (another regional tourism operator) and other few cases.



6.2 Quantitative analysis

6.2.1 Data description

The data used in my empirical analysis is based on a representative sample of 238 firms belonging to the Local Chamber of Commerce (ACIF). The sample was stratified by sector affiliation to include retail, manufacturing and tourism firms. The distribution by sectors of the firms included in the sample is quite similar to the population distribution. Compared to the population, there is a slight excess of retail firms in the sample at the expense of firms affiliated to the manufacturing sector. Nevertheless, it is believed that

the conclusions are not affected as manufacturing firms involved exclusively in inter-industry trade are rare. Almost every firm in the manufacturing sector (for example, carpentries and brick factories) has a 'sales department' selling directly to the final consumer, which is the main market. As a consequence, almost every firm is in direct contact with the final consumer. In that sense, all firms may be categorised as 'retailers'. As stated before, islands are spaces of consumption populated primarily by commercial firms operating in the import-distribution sector and exclusively focused on the satisfaction of local needs.

The sample cannot be considered a perfect representation of the whole business sector operating in the RAM as most sampled firms are located at Funchal. However, almost 50% of the island population lives at Funchal and more than 70% of the firms are located there. Thus there are reasons to expect that the main findings of the survey are not affected as the sample has all the features needed to represent the RAM context.

It should be stated that the sample contains small size (with less than 10 employees) firms operating in the retail sector. Consequently, there is a lack of studies to compare with, as there is a general paucity of inquiry focused on micro firms. In fact, and contrary to the 'norm', I do not base my research design on firms belonging to the manufacturing sector and/or export oriented firms. Consequently, this work should be perceived as exploratory in nature and as an opportunity to study a field of research previously ignored by the mainstream scientific research.

6.2.2 Firm characteristics and OMs profile

I now provide a descriptive analysis of a number of variables which can help us to understand the main characteristics of the firms included in this sample. These variables are used as explanatory variables in the later analyses of the drivers influencing the ICT adoption process in which I follow a rank model (see Section 5.4).

Data concerning the characteristics of firms is included in Table 6.1. The typical firm is a micro/small retail firm, with a turnover of less than 500.000 €, and only 1 or 2 employees with a university degree. The 'typical' respondent was a male, 46 years old, with 12 years of formal education as their highest completed level of education, but with more than 16 years of experience in the industry. Most OMs (58%) are managing a firm with less than 10 employees. This profile is consistent with the picture provided by

the SME literature (see Section 5.3). But data concerning the innovation profile seems a promising one as most OMs seem somehow experienced with organisational and product innovations and advertising campaigns (See Table 6.2).

As the typical OM was born in 1961 (46 years old on average) he experienced the pre-1974 'spirit' in RAM. Most OMs were brought up in a historical period shaped by an authoritarian political regime and a problematic transition to democracy. The social and educational context at the time may be categorised as technology averse. Low rates of diffusion for technological and cultural innovations, high rates of illiteracy and low number of schooling years were a key feature of that period. However, the limited educational background is somehow complemented by a high entrepreneurial experience (16.4 years). And most Oms have an above average on-line shopping experience. In fact, more than 66% of them have on-line shopping experience, which contrasts with figures computed by Almeida et al (2007) concerning student's parents on-line shopping experience (only around 20%).

The earlier remarks (see section 5.3) concerning the profile seem partially corroborated as we are dealing with locally oriented micro and small firms. However, the 'average' OM is relatively well educated compared to the average individual in RAM (See Figure 6.1), with 42% of OMs having education up to high school level and 38% having experienced university education.

Data concerning the age of firms, number of employees and sales level are also included in Table 6.1 and Table 6.2. Concerning firm's size, it can be seen that 89% of firms have less than 49 employees and 58% of them have less than 10 employees. As a consequence, a simple organisational structure and direct OM control should be expected. As the average firm may be categorised as a micro or small business the theoretical profile addressed in section 5.3 may be applied to understand their adoption behaviours. And it can be asserted that organisational learning models cannot be applied.

Table 6.1 Sample Characteristics

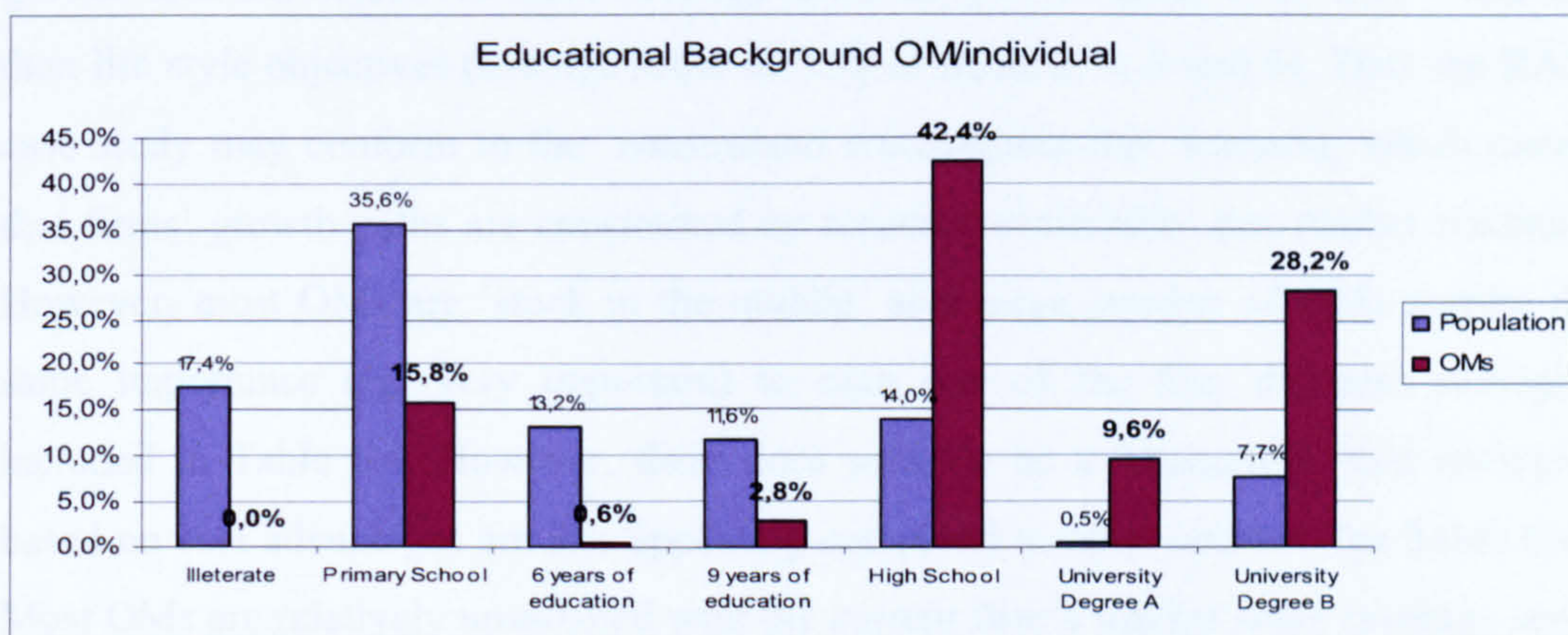
Sample Characteristics	Perc. of Firms
Industry Affiliation	
Manufacture	12%
Commerce and Services	79%
Tourism	9%
Company Size (number of employees)	
Up to 9	58.5%
10 to 49	30.8%
50 to 249	8.7%
249 to 499	0.5%
More than 500	1.5%
Annual Sales Revenue	
less than 50.000 euros	16.0%
50.000 to 100.000 euros	10.7%
100.000 to 250.000 euros	15.3%
250.000 to 500.000 euros	13.0%
500.000 to 1.000.000 euros	6.1%
1.000.000 to 2.500.000 euros	16.0%
2.500.000 to 5.000.000 euros	3,8%
More than 5.000.000 euros	17.6%
Annual Sales Growth	
-10% to 0%	12.2%
0% to 5%	16.0%
5% to 10%	26.0%
10% to 15%	17.6%
15% to 20%	9.9%
20% to 25%	6.9%
25% to 30%	6.1%
More than 30%	4.6%

Table 6.2 Firms' resource availability

Firms Resources	
Firms Age	22 years
Employees 2006	30.7
Employees 2003	22.5
Employees with a university degree	1.7
Number of Trade Associations	1.4
Percentage of firms with a business plan	71.0%
Percentage of firms operating in external markets	21.6%
OMs with a degree in engineering	8.2%
Percentage of firms involved in collaborations	42.2%
Percentage of firms with access to subsidies	26.7%
Percentage of firms offering training to employees	64.2%
Percentage of firms experienced with marketing campaigns	68.3%
Perc. of firms introducing process innovations	65.3%
Perc. of firms introducing organisational innovations	50.9%
Perc. of firms introducing product innovations	43.3%
Percentage of firms belonging to a group	22.9%
Percentage of OMs declaring creation of a new firm	28.7%

Concerning firm's age the 'European Union accession factor' is evident as more than 2/3 of the firms sampled emerged after 1986. The entrepreneurial event is thus linked to an easy access to extra resources and investment opportunities. However, the comments provided in Section 5.3.6 about the 'unlikely' entrepreneur must be revised as the typical OM is relatively well educated.

Figure 6.1: Educational background of local OMs vs. the average population



Source: INE and own results

More than 20% of sampled firm's have commercial links with the mainland and/or Azores. This is quite a high figure as tourism firms accounts for only 10% of the sample. Data concerning sales level shows, as expected, low turnover ratios (60% of firms have a turnover of 1,000,000 euros or less). Concerning employment growth, less than 50% state increased numbers of employees. As only 28% of firms were affected by a decrease in terms of number of employees most firms seem to be stable. Concerning sales growth it can be seen that only 12% of the sampled firms declare fall in sales.

6.2.3 Firms strategies: some unexpected results

Data concerning firm's strategy do not corroborate the traditional stereotype. Most OMs declare themselves to follow a business plan (70%), in contrast with an expected opportunistic or random growth path. According to Mole et al (2004) experience with formal planning means a certain managerial style and is said to impact positively on the adoption of complex technologies. About 42% of the OMs have experience with 'formal cooperation programmes, either with public institutions and/or other firms,

which is a plausible figure, due to the large number of EU/Portugal 'funding schemes' available. About 27 % of the firms received funds from the government.

Concerning firm objectives, a very high score (3.8) is attained concerning the average of all items (See Table 6.3). Most OMs seem attached to growth oriented management models as the objective 'creation of employment for the family' scores low (2.9). A continuous improvement in terms of product and service quality is also well placed in firms' strategies (average score of 4.5). Contrary to what was expected, OMs value growth oriented objectives more (average score of 4.04 of items 1, 3, 4, 5, 7 and 10) than life style objectives (average score of 3.38 of items 2, 6, 8 and 9). Thus the RAM case study may conform to the 'constrained entrepreneurship' scenario, which means that firms' growth paths are constrained by resource availability and market potential. However, most OMs are 'stuck in the middle' as a large number of OMs ascribe the same importance (eg. very important) to each one of the four different strategies included in Table 6.4. However, there does seem to be a 'consensus' that strategies based on cost advantages are less appealing compared to other options (see Table 6.4). Most OMs are relatively unsatisfied with the current firm's market share (average score of 3.2) and are ready to adopt all organisational and strategic up-grades needed to reach higher levels in terms of sales and visibility and reputation in the market (average score of 4.4) (See Table 6.5).

Thus one of our initial assumptions (predominance of life style oriented OMs) is not validated. There are reasons to suggest that most OMs have a willingness to pursue a growth based agenda. As suggested in Section 5.3, if OMs have a positive belief about an investment opportunity, such OMs will be able to provide the finance needed. In fact, SMEs' growth constraints are more linked to lack of business opportunities than motivation to pursue growth.

Table 6.3: Owner objectives (from not important at all (1) to very important (5))

Owner/Firm Goals/Objectives	Average
Continuous improvement of the quality of firms products offered by the firm	4.5
Being innovative in the sector	4.36
Continuous growth in terms of sales, assets, etc	4.35
Achieve a reasonable standard of living	3.95
Detection of new markets	3.85
High level profitability	3.71
Belong to the sector top-5	3.52
Continuity of the business in family	3.35
Self-employment	3.28
Creating job opportunities for the family	2.96
All objectives	3.78

Table 6.4 Firms strategies

Strategy	Average
Strategy based on cost advantage	3.12
Strategy of differentiation of products and services	4.16
Strategy of (technological, organisational) innovation	4.01
Emphasis on the wealthier market segments	3.59

Table 6.5: Average score of OMs vision about family vs. firms objectives

Family and personal aims are more important than business aims, so I desire a growth path that reconciles family and business aims	3.47
I intend to develop all efforts needed to boosts the firm's growth prospects	4.43
I am satisfied with the current firm's market share	3.20

It is evident that a lead in the market based on cost advantages is not valued as strategic or critical to prosper in the market (average score of 3.1), as most firms value more differentiation (average score of 4.2), innovation (average score of 4.0) and access to the wealthiest niches of the market (average score of 3.6). Concerning advantages over competitors, a certain degree of advantage in all items except price is perceived by most OMs as they are convinced of having advantages in terms of customer service (average score of 4.3) and experience with innovations (average score of 3.8). It can be suggested that most OMs are quite confident about their level of competences and advantages over competitors. There are no reasons to suggest that most OMs are under pressure and experiencing a state of disorientation and dissatisfaction with the current state of affairs.

In fact, it seems that their job responsibilities do not exceed their personal management capacity. As a consequence, there are no reasons to adopt and learn different behaviours and attitudes.

Most OMs have 'willingness to pursue a growth based agenda but based on old behaviours and rules of thumb. As suggested in Section 5.5, the decision-making in stable markets is depending on "existing tacit knowledge and rules of thumb" (Eisehnardt and Martin, 2000: pg. 1114). Such benign evaluation concerning competences and behaviours may lead to a 'changeless trap', with most OMs not interested in learning and changing behaviours (Kwo, 2004: pg. 298). And, in line with Bråten and Strømsø, 2006: pg. 1038) it can be suggested that OMs "who conceive knowledge as given and stable were less likely to take advantage of the opportunity for Internet-mediated communication offered by the Internet".

Table 6.6 perceived advantages over other firms

Firms advantages over competitors	Average
advantages in terms of price	3.45
Advantages in terms of experiences with innovations	3.80
Advantages in terms of early introduction of technologies	3.78
advantages in terms of customer service	4.26

As we shall see below in the qualitative analysis, each firm may be conceived as a monopolistic operator competing in a small niche and able to define the mark-up margin. OMs understand their firm's competitive advantage as de-coupled from efforts to "pursue customers indiscriminately through discounting, giveaways, promotions, channel incentives and heavy advertising" (Porter, 2001. pg. 72). On the contrary, they understand the 'physical presence' and advantages in terms of "convenience, service, specialisation, and customisation" as the real advantages in the market (Porter, 2001: pg. 72).

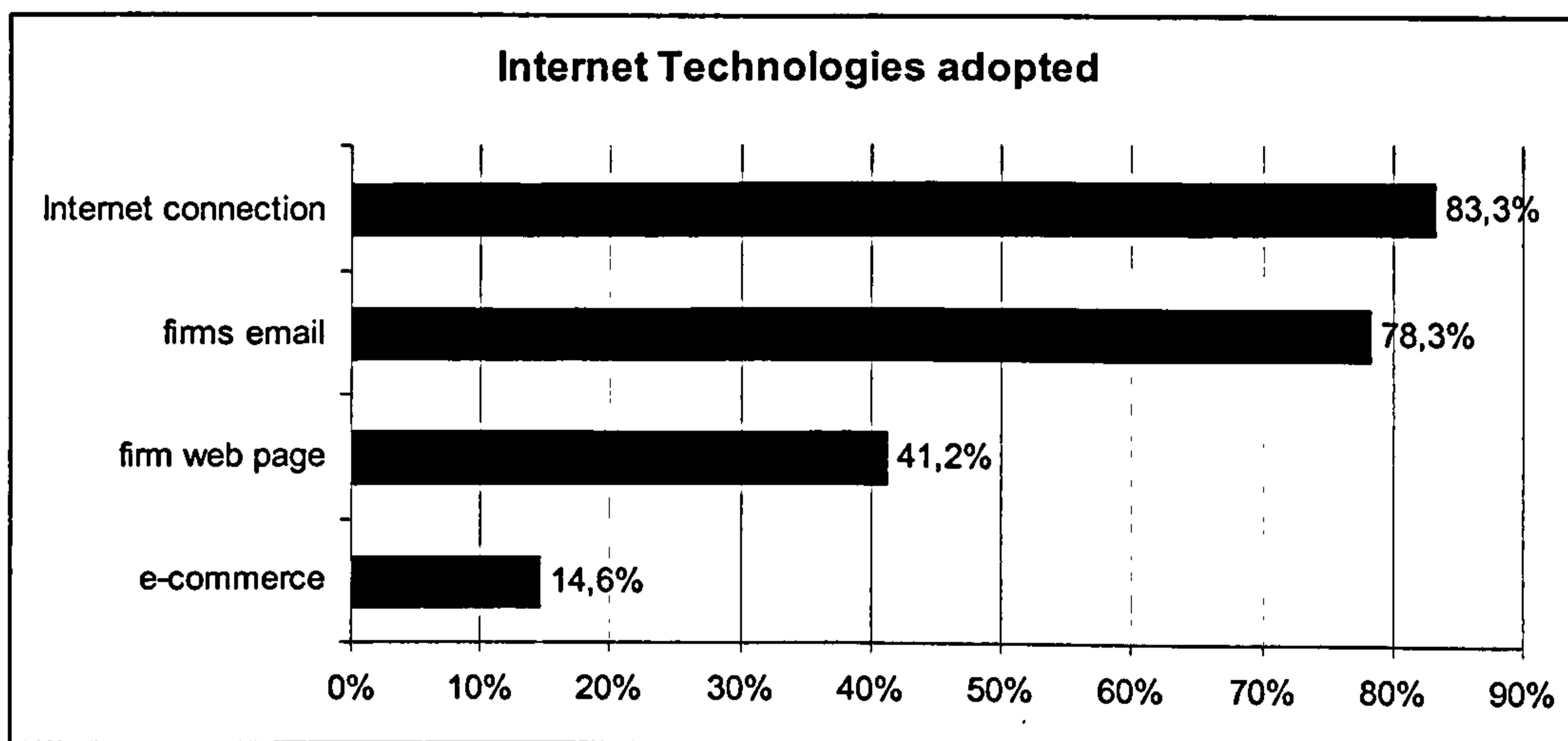
6.2.4 ICT adoption profile: Internet uses, planned investment and adoption/diffusion path

As expected, an extensive access on the firms' part to basic Internet/e-mail services is evident (See Figure 6.2). In line with Lucchetti and Sterlacchini (2004: pg. 158) it can

be stated that “it is hard to find business units without access to e-mail and the Internet. The absence of these facilities almost implies that these firms did not buy even one PC during the first years of the new Millennium”. Results concerning the RAM case study are in line with previous expectations and results obtained by other authors (see for example Lucchetti and Sterlacchini, 2004; Grimes, 2005; Levy and Powell, 2003; Fabiani et al, 2004; Drew, 2003).

About 84% of OMs have access to e-mail/Internet at work. Furthermore, about 76% of OMs access the Internet at home. Concerning non adopters, only 6% have no access at all either at work or at home. About 10% of OMs have access to the Internet only at home. More than 50% of the OMs have double access to the Internet: at work as well as at home. Thus, our first assumption (that is, a large scale adoption of basic ICT tools) is validated as most (90%) of OMs have at least one point of access (see Section 5.7). As the same figure computed for a cohort 35-55 years old parents students in RAM is only 20%, it may be stated that local OMs belong to the ‘Internet generation’, in the sense that their rates of adoption are close to those computed for the younger generation (Almeida et al, 2007; Almeida and Freitas, 2007). However it should be acknowledged that we are dealing with ‘pioneers’ with ‘privileged’ access to information about EU/Portugal schemes.

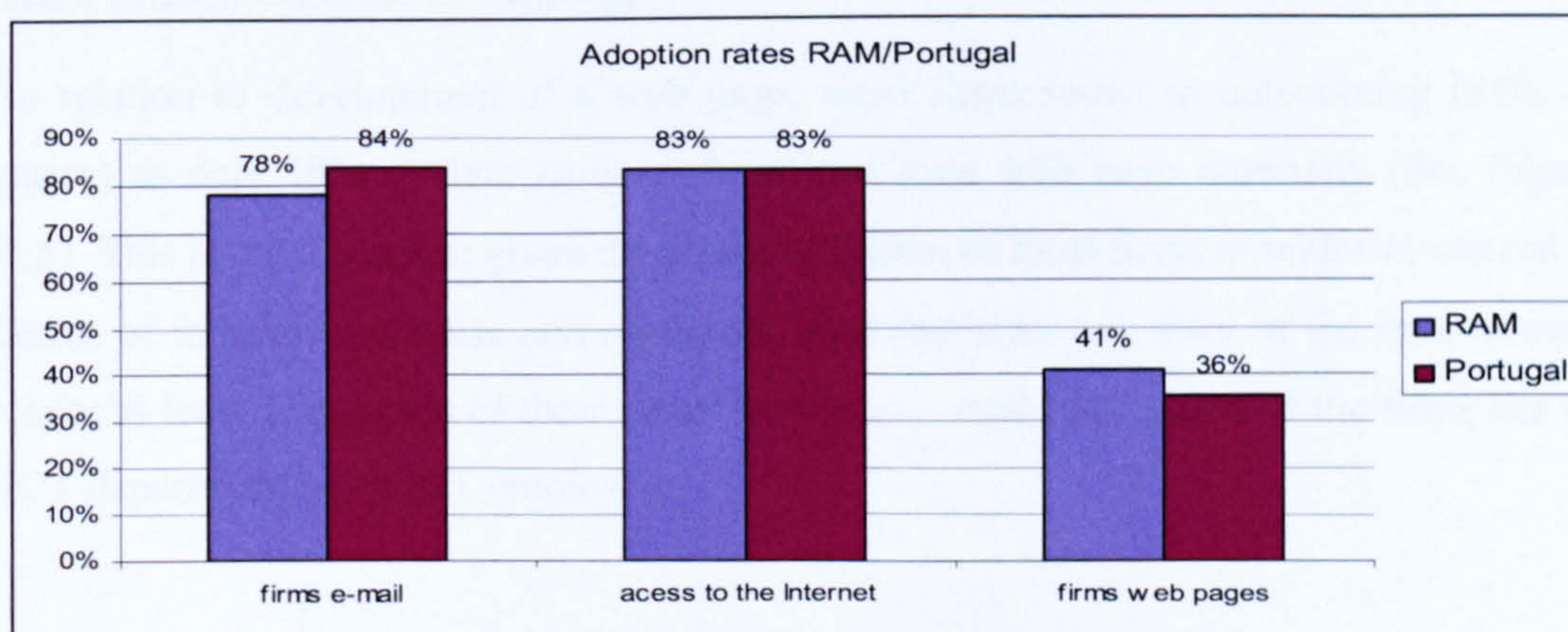
Figure 6.2: Access to Internet Technologies



Concerning e-mail access, 78% of the firms can be reached by e-mail, but only 41% of them have a web page. In relation to e-commerce functionalities (eg. on-line orders), it

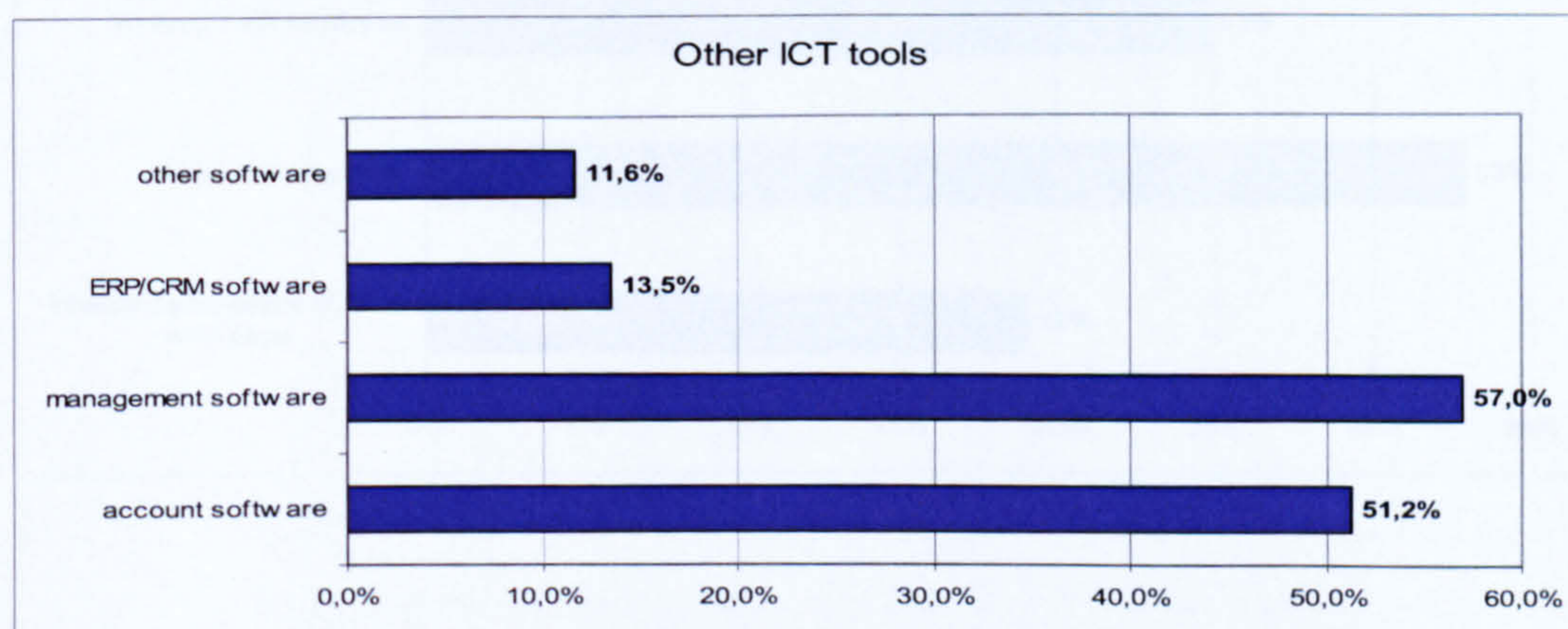
involves less than 15% of firms. As expected 'general-use ICTs' (according to the terminology of Lucchetti and Sterlacchini, 2005), i.e., e-mail and access to the Internet have very high rates of adoption. However, a large number of firms have not enough resources or incentives to provide a Web page. And as expected, SMEs have not integrated their websites with their back-office systems as the adoption of internal networks or e-business systems is quite low. In the end, in line with Levy and Powell (2003: pg. 173), it can be asserted that "there is little evidence to suggest that SMEs do more than develop websites and adopt email". However, these results are in line with those computed on the mainland (see Figure 6.3).

Figure 6.3: Adoption rates in RAM and Portugal



Source: INE (National Statistic Office) and my own results

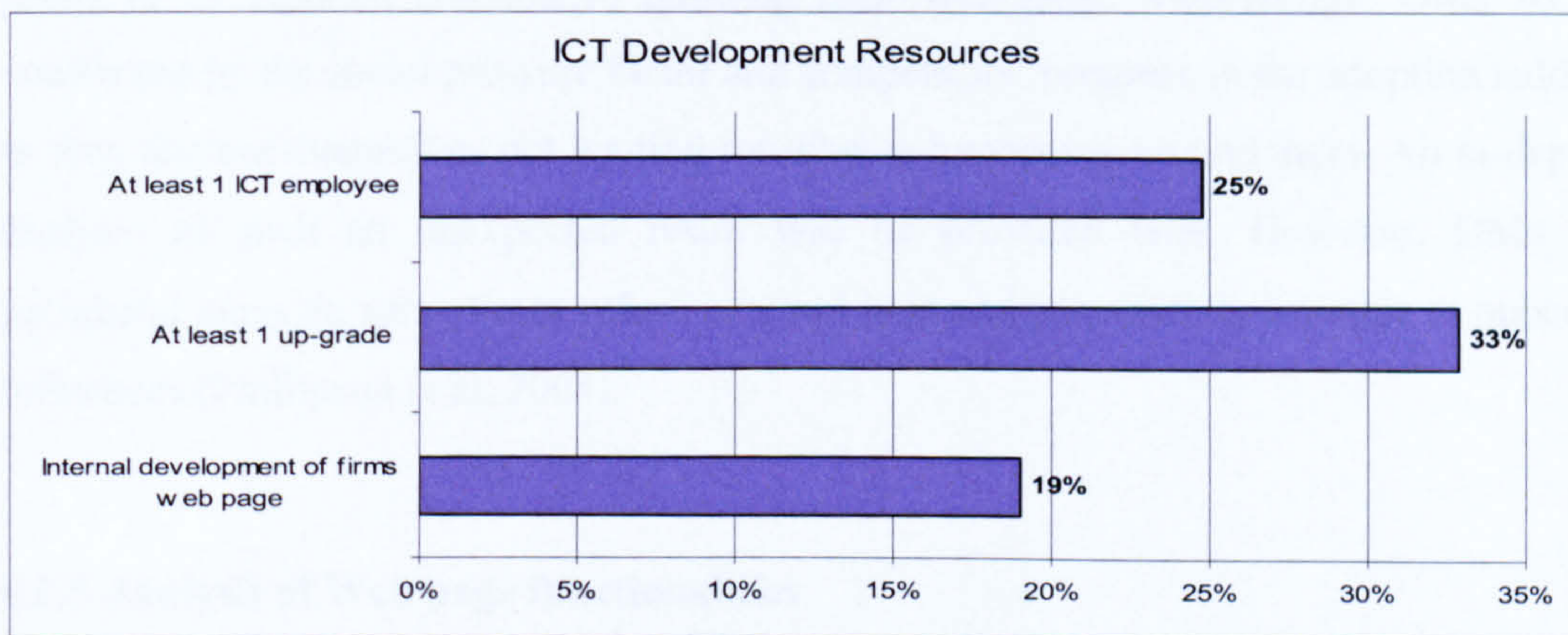
Figure 6.4: Access to complex ICT tools



In line with Mitchell and Clarke (1999: pg. 449) “the use of ICTs tools in production, which are highly product and process specific were excluded from consideration”. However, we gather data about the adoption of such complex ICT tools. About half of the firms have software for accounting operations (51.2%). But adoption rates of ERP and CRM systems and intranet systems (included in the item other software) are quite low, which corroborates the initial assumption concerning the strategic irrelevance of such complex ICT tools. The adoption of complex Internet Based Technologies (such LAN, EDI and Intranets) and production-integrating ICTs (eg. CAD/CIM), demands besides a business case, a heavy investment in hardware/training, compared to general use ICTs (See Figure 6.4). Of course, the adoption of such complex technologies by retail firms, should not be expected.

In relation to development of a web page, most firms resort to outsourcing (81% of cases) as only 19% declare to have developed their web page internally (See Figure 6.5). This is not a surprise given the characterisation of local firms as under-resourced in terms of in-house expertise and resources. And less than one third of the interviewees claim at least 1 up-grade of their firms’ web page. And only 1 in 4 of the firms has an ICT department or an ICT employee.

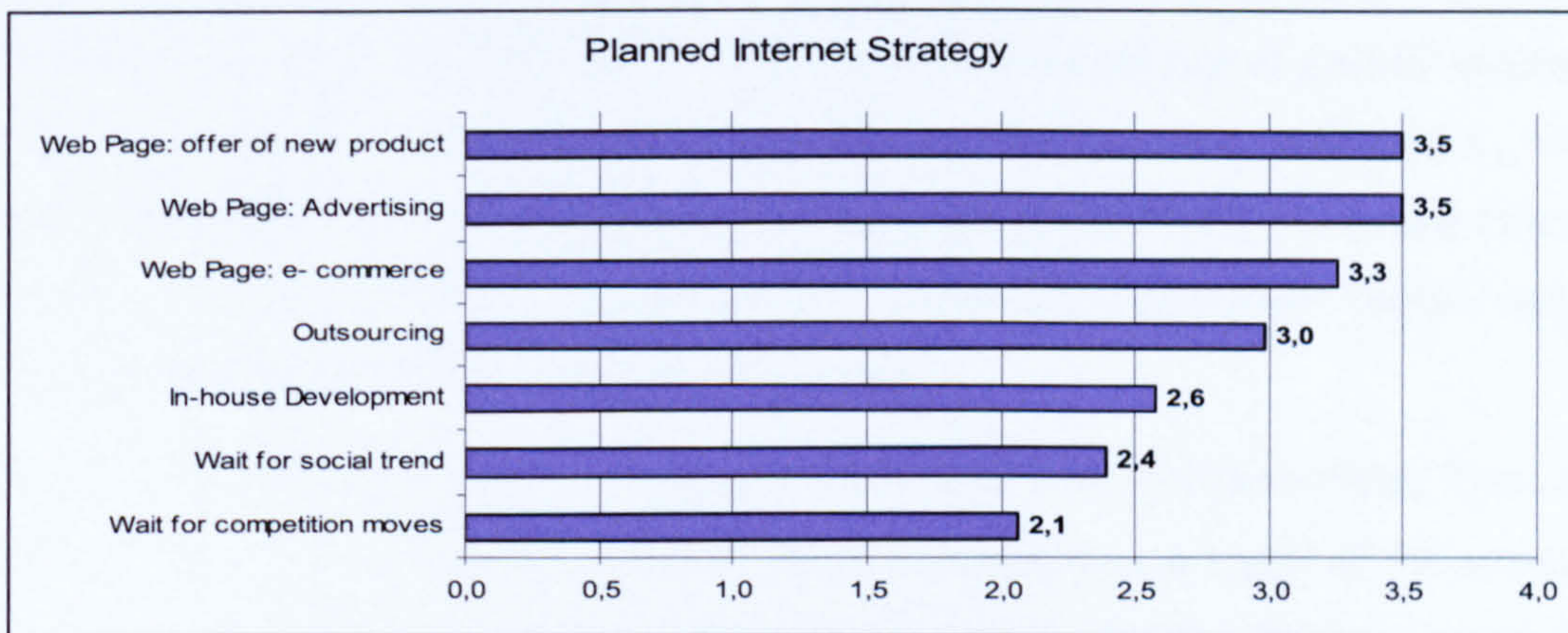
Figure 6.5: ICT Development strategy



A small number of firms without a web page intend to adopt a web page and/or e-commerce functionalities. However, only a minority of firms answered this question. It may corroborate the initial assumption that ICT strategies are not planned but

opportunistic in character. In fact, data concerning the diffusion process suggests that the saturation point will be reached very soon. Hence, a large scale adoption programme of relatively complex ICT tools (such as web pages) by non-adopters should not be expected.

Figure 6.6 Planning Internet Strategy: average score (from very unlikely to very likely)



Concerning the planned Internet strategy, most firms are interested in offering new products (average of 3.5) and on-line advertising (average of 3.5). The 'e-commerce' functionality (on-line sales) is also well placed (average score of 3.3). Most firms will resort to an external solution to build-up their web page. Surprisingly, OMs seem unaffected by the social pressure factor and competitors' progress in the adoption ladder as they declare themselves not waiting for what is happening around them. An in-depth analysis of such an unexpected result will be provided later. However, OMs in peripheral areas do some times refuse external help and are relatively immune to outside influences (Phillipson et al, 2004).

6.2.5 Analysis of Web page functionalities

Having a Web page does not imply that a firm is engaged in e-commerce (i.e. in buying, selling or exchanging goods and/or services via the Internet) or in e-business (a broader concept which, along with e-commerce, includes also servicing customers and collaborating with business partners by means of digital transactions). A way to establish the real attitudes of OMs towards e-business practices is to observe the

richness of their firm web pages. I analysed firm web pages and evaluated them according to their content. The evaluation was focussed primarily on quantitative aspects (such as how much information is provided and e-commerce functionalities) rather than qualitative features related to design and aesthetics. The list of variables used to rate the Web sites' quality is shown in Table 6.7, (based on Lucchetti and Sterlacchini, 2004) which also reports the percentage of web sites having a given characteristic.

The number of web pages containing functionalities needed to carry out e-commerce operations is rather low: only 25% of them allow the possibility of on-line ordering. Data concerning firm's web page features points to a 'brochureware' strategy (i.e., "web page containing only basic information and data about the firm") (Levy and Powell, 2004: pg. 179). It was found that almost 60% of the firm's web pages contain only a brief description of the firm's contacts and products.

In fact, the firm's web page is not understood as a method of direct selling. Thus, the existence of a firm's web page should not be understood as a signal of the strategic importance attached to the Internet. Most firms seem pleased with web pages containing simple data. The web sites are not seen as a marketing and sales channel but as a simple advertisement. In line with Lucchetti and Sterlacchini (2004: pg. 153) it can be asserted that "Web sites are mainly used to improve the firms' visibility and to provide detailed information on their products".

Sadowski et al (2002: pg. 77) state that the level of complexity of a web site "requires some strategic considerations with respect to the extent to which it should be utilized to engage in different forms of on line business activities". As firm's web pages either don't exist at all or are quite limited in terms of content, it may be assumed that local firms do not value the strategic importance of the Internet as larger firms do. If we understand the complexity of Internet strategy as linked to improvements in the firm's long-term market positioning, it is evident that most OMs do not add an Internet 'component' to the firm growth strategy, as it has been conceived by the EU normative framework. However, a distinction must be made between active e-commerce (i.e., adoption of e-commerce platforms and e-business) and passive e-commerce (i.e., use of the Internet functionalities to access supplier's web pages, legal information and two-way communication) as we shall see below in the qualitative analysis (Section 6.3).

Table 6.7 Quality of firm's web pages

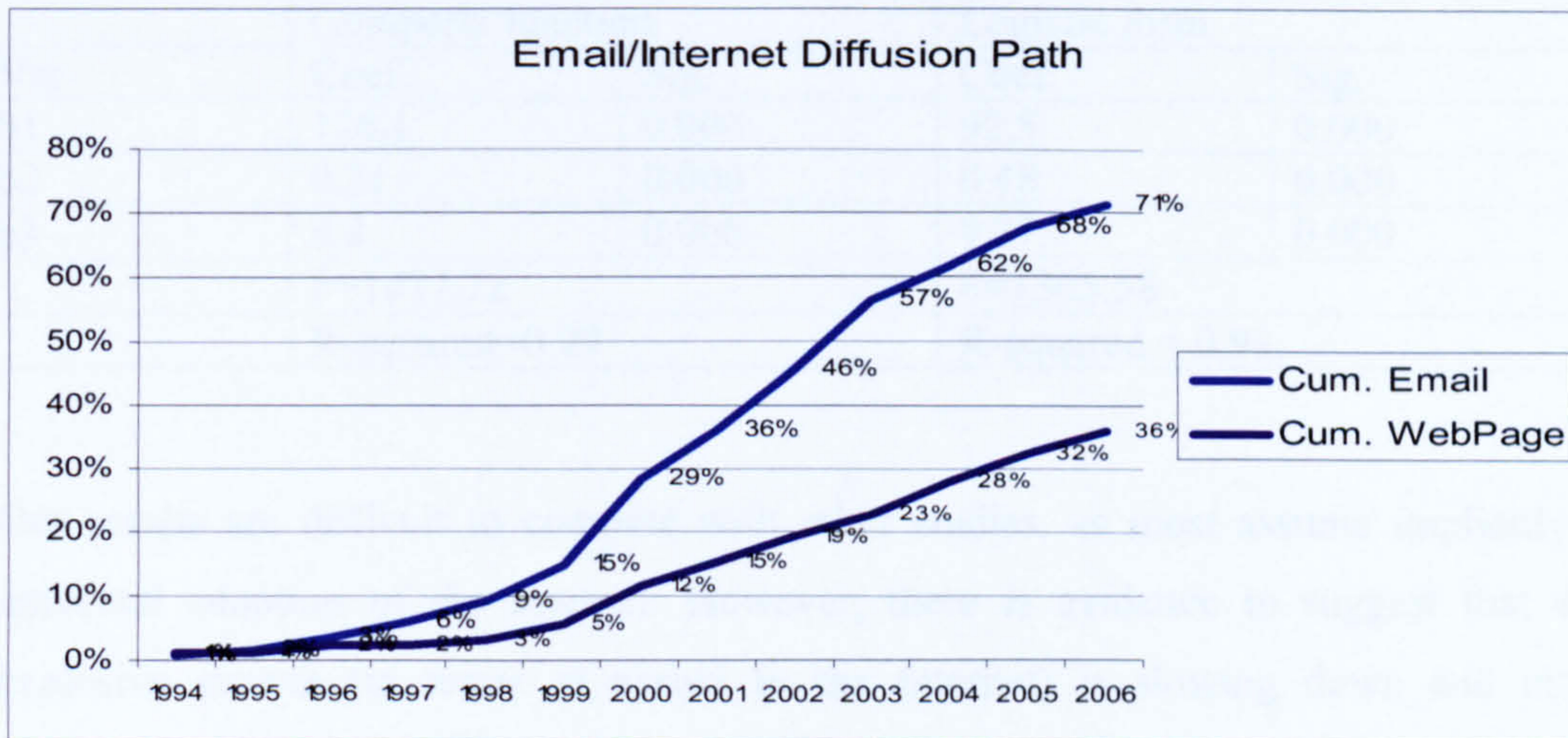
Category name	Perc.
a home page with little information	60.5%
the pages on the site are available in several languages	13.5%
the site provides some feedback forms other than e-mail addresses	15.6%
a catalogue of the firm's product is available	37.1%
detailed products' descriptions is available	40.3%
on-line ordering facility is available	25%
the site provides on-line job offers	3.7%
the site can be found by searching on common Internet engines	92.5%

6.2.6 Analysis of the adoption diffusion path

The adoption of web pages on the local firms part is still below the EU average, as only 41,2% of firms in RAM have adopted a web page. The adoption level for the EU is 63% according to Eurostat. Thus it is important to assess if a swift convergence to the EU average should be expected. All evidence concerning the diffusion path seems to suggest that the saturation point will be reached shortly and the process has entered the slow growth phase (See Figure 6.7). Acceleration from 1999-2000 onwards in terms of the adoption of web pages, which reflects a 5 year delay compared with EU core regions, is also apparent. The 5 year delay corroborates the RUPs stereotype (RUPs as backward regions and late adopters of relevant technological innovations).

The data also suggests an on-going process of technological learning, since the adoption of a web page tends to happen 2 years after access to e-mails is attained. However, in most recent years, there has been a simultaneous adoption of firm email and firm web page. The cost factor may be an explanation to the 'double' adoption process as prices are still falling. The existence of an adoption ladder model should not be dismissed as firms experience first of all access to the Internet and e-mail and then progress to more sophisticated uses.

Figure 6.7 Email/Internet Diffusion Paths



The diffusion path is now analysed in detail. The methodology developed by Santareli and D'Altri (2003), Devezas et al (2005) and Botelho and Pinto (2004) applies both a standard logistic curve and a Gompertz function in order to estimate the saturation point. The diffusion process of web page and e-mail seems to conform to a sigmoid or an S-shaped curve (especially in the e-mail case). Such evolution may be expressed by a differential equation of the type $dN_t/dt = \phi t * N_t * (N^* - N_t)$ where N_t concerns the cumulative number of subscribers at time t , N^* concerns the saturation level, and ϕt corresponds to a coefficient of diffusion. The growth rate is dependent on the number of existing subscribers and on the difference between the saturation level and the number of existing subscribers. Two functional forms of the S-curve are usually applied: the logistic (Pearl-Reed) function and the Gompertz function.

a) Gompertz function $y_t = b1 \exp^{-b2 \exp(-b3t)}$

b) logistic form $y_t = b1 / (1 + b2 \exp^{-b3t})$

Data concerning the estimations of the Gompertz and logistic functions (related to the diffusion process of web pages) is in Table 6.8. As can be seen, the two functional forms point to different saturation levels. According to the Gompertz form, the saturation point will correspond to 126 firms. The estimation concerning the logistic form points to 93 firms. The results suggest that the saturation point is reached for low levels of adoption, between 50% and 60% of the sample.

Table 6.8 Gompertz and functional functions

Var	Gompertz function		Logistic form	
	Coef.	Sig.	Coef.	Sig.
b1	126.1	0.000	92.5	0.000
b2	0.21	0.000	0.48	0.000
b3	9.4	0.000	9.37	0.000
	F=1477.72		F=1365.58	
	R-squared=0.99		R-squared = 0.99	

Our results are difficult to compare with other studies, as most assume implicitly a universal adoption of the Internet. However, there is evidence to suggest that the explosive growth (in terms of access to the Internet) is slowing down and most countries are experiencing a transition into a new phase (Devezas et al, 2005). Concerning Internet adoption by individuals, Devezas et al (2005) suggest that the diffusion process of the Internet will reach a ceiling within the next decade of about 14% or less of the world population. The European Commission (2002) suggests the flattening of the cumulative adoption rates concerning the adoption of e-commerce platforms. What can be said from my analysis is that the 'incantatory' (exuberant) phase is gone and it is also evident that local OMs cannot be categorised as innovative individuals as the diffusion process started only after 1999.

6.2.7 Analysis of Internet uses

Concerning Internet uses, the importance attached to access to on-line financial and banking services (average score of 4 on a 5 Likert scale, ranging from not important at all to very important) and communication (via e-mail) with suppliers (average score of 3.9) is evident. Other important uses concern accessing legal information and searching for information about suppliers (See Table 6.9). The results concerning items linked to e-business conform to the expected. It is evident that the use of the Internet is not linked to the e-commerce sphere, but focused rather on communication with suppliers and customers, access to on-line banking, technological/market scanning and access to legal information.

Table 6.9 Internet uses

Internet uses	Average
Access to on-line banking and financial services	3.99
Sending/receiving of emails from suppliers	3.86
Sending/receiving of emails from customers	3.55
Search for information about suppliers	3.42
Access to legal/government information	3.41
Internal communication at the firm level	3.05
Reception of digital products	2.85
Scanning of the national/international market	2.81
Scanning of the local market	2.73
Scanning of the most direct competitors	2.64
Advertising/promotion of firm products/services	2.55
Purchase of goods/services via suppliers web pages	2.51
Access to after sale services	2.46
E-procurement	2.09
E-commerce	1.45

In line with Grimes (2005) and Capello and Camagni (2005) it can be assumed that local firms are attached to the first adoption philosophy, as ICT tools are employed to automate the firm's administrative tasks and for environmental scanning. However, a high degree of experience with almost all Internet functionalities is evident. Thus, OMs have a clear 'identification of the way the Internet may be useful for business purposes'. Although firms do not adopt e-commerce platforms, there is an intense use of most of the other Internet functionalities.

6.2.8 Comments on adoption profile

From the figures above, it is possible to understand the importance attached to the Internet. Most firms are stuck in a static approach, in that although about half of the firms have taken the first step (the adoption of a web page), they are not progressing further on the adoption ladder. Most firms are not excluded from the Internet revolution, as access to the Internet is close to 100%, but adopt a wait and see approach regarding the adoption of relatively complex ICT tools. Reasons concerning access to resources (upgrade costs, internal ICT resources) may explain the static approach. Another reason

concerns the lack of business case. The Internet is not relevant for front line operations (contact with customers) in the case of local retailers. OMs seem to accept that “competitive advantage does not require a radically new approach to business, but a fine tuned management of proved principles of competitive advantage” (Porter, 2001: pg. 71). The Internet is understood at the most as a “complement to traditional ways of competing”. For most OMs the Internet is only another tool to handle communications with suppliers, banks and other institutions.

6.2.9 Analysis of inhibiting factors and reasons behind Internet adoption

I start the analysis of the OMs attitude towards the Internet by looking at OMs’ understanding of the barriers to adoption issue. Barriers to adoption are still a fundamental issue, in spite of all claims about the end of the infrastructure gap and falling prices of Internet technologies. However, the figures about the inhibiting factors suggest that most OMs don’t attach much importance to the adoption barriers topic (average of all items: 2.95). All factors seem equally important as there are ‘no extreme cases’ (See Table 6.10). The most important obstacle concerns the financial issue (lack of funds to invest), which is expected given the dependence of firms’ investment strategies on retained profits and/or access to subsidies.

Table 6.10: Perceptions about adoption barriers

Adoption inhibitors	Average
Lack of financial support on the governmental institutions’ part	3.27
Lack of funds to invest in ICTs	3.23
Adoption costs above benefits	3.17
Very high costs of maintenance of the web page	3.14
Lack of time and resources to invested in training	3.14
Lack of competence in the ICT area on the employees’ part	3.06
Lack of interest in the Internet on the customer’s part	3.01
E-commerce as a non profitable investment	2.93
Lack of time and attention to learn about the Internet	2.87
Compatibility of the Internet very difficult in our daily practice	2.79
Internet technology not important in the sector	2.75
Without enough knowledge about how to adopt the Internet	2.63
Employees resistance to ICT adoption	2.62
Non adoption on the part of direct competitors	2.47

Most OMs are quite certain about their level of competence in the field as the item 'without knowledge about how to adopt the Internet' scores low (an average of 2.6). These results point to a relatively favourable financial and cognitive context. This should not come as a surprise as 90% of OMs adopt quite simple ICT tools. But the professional use of the Internet does not differ from a more domestic one. In fact, both OMs and the average individual may afford simple access to the Internet or even a 'static web page' as prices are falling. A different story would result from a widespread adoption of more complex technologies or integrated solutions. In fact, the acquisition of connectivity facilities is not an expensive task (today). Ramsey and Ibbotson (2006: pg. 322) point in the same direction (i.e., a lack of knowledge about the cost involved in the adoption of complex ICT tools as the reason behind such optimistic approach) as they concluded that OMs in North Ireland "strongly disagreed that the concept of e-related activities required a complete change to their traditional business practices, with 72 percent of SMEs strongly disagreeing that an e-business strategy was highly risky for their business". According to Ramsey and Ibbotson (2006: pg. 324) "only 2 percent of these small firms had completely integrated all information systems to facilitate strategic e-business". This means that 98% of the SMEs surveyed ignored the costs involved in adopting and adapting ICT tools to their current way of doing business.

Data concerning reasons behind ICT adoption is now subject to analysis. A profound concern with the firms' customer base is evident as the factor 'to serve the firm's clients better' scores high (average score of 3.87). Another important reason to adopt concerns the 'opportunity to expand and sales/markets growth' (3.68) (see Table 6.11). The items 'keep up with the evolution of direct competitors', 'pressure to reach operational efficiency' and 'reduction of costs' are also valued by OMs. But items 'suggestion from friends, relatives and/or other businessmen' (2.3) and 'potential threat of reduction of the firms customer base as a consequence of competitors' adoption of web page' score very low (2.36). Pressures on the customers/suppliers' part (i.e., the 'subjective norm' effect) is not understood as an important conditioning factor of the decision making. Therefore, the 'subjective norm effect seems irrelevant to understand the adoption process. This corroborates the previous analysis of firms' planned Internet strategy, which demonstrated a 'de-coupling' of OMs decision making from society trends. Contrary to what was suggested by Mitchell and Clarke (1999: pg. 453), it can not be

concluded that in RAM “businesses are adopting ICTs because of pressures imposed upon them by their customers and suppliers”.

Table 6.11 Internet adoption drives

Factor	Average
Provide enhanced service to our customers	3.87
Opportunity to expand and growth	3.68
Need to keep up with existing competitors	3.64
Operational efficiency/reduction costs	3.62
Previous IT skills/knowledge	3.46
Prestige reasons	3.23
Industry trend	3.21
Employees with competences in the field	3.20
Interested in a new sales channel	3.15
Experience derived from Internet use at home	2.97
Advice/support coming from trade associations	2.78
Pressure from customers	2.67
Promotions of the suppliers of web pages	2.58
Pressure from suppliers	2.53
Threat of competitors with web page to take our customers	2.36
Suggestion on the friend/family member part	2.31

As can be seen, there is ‘cognitive dissonance’ between the OM’s discourse and the ‘richness of web pages’. Although Internet adoption is valued as a factor to improve customer service, OMs do not insert a rich set of data in their web pages or update them regularly. However Grimes (2005: pg. 1076) also provides an example of excess of optimism and cognitive dissonance, as he suggests that responses offered by Greek OMs about the impact of the Internet were based largely on perceptions and less on the actual experience of using these technologies. The “benefits of ICTs for peripheral areas can sometimes be more imagined or perceived as opposed to real and tangible” (Grimes, 2005: pg. 1076).

6.2.10 Application of an Attitude Based Model

In order to understand the ‘individual’ dimension of the ICT adoption process, an ‘Attitude Based Model’ was applied. Measures employed in our survey consisted of

items developed in other attitude based model, but adapted to the specific entrepreneurial context under analysis. The final questionnaire included measures of OMs perceptions concerning attitude towards internet, the subjective norm for using the internet and internet self-efficacy. The attitude-based models try to explain behavioural intentions related to internet adoption. A Structural Equation Modeling (SEM) approach was employed for model evaluation using SPSS 10.0 and AMOS 4.0. The SEM approach requires an assessment of measurement model fit. Firstly, as suggested by Pestana and Gageiro (2003) we examined whether all items were significantly related to their specified constructs, which was the case. The construct measures exceeded the accepted reliability standard of 0.7. Concerning the validity of our measures, as they were derived from previous studies and repeated in most studies, I am confident that content validity is not a problem. As stated above, a SEM was employed for model evaluation. Or analysis is based on Celuch et al (2005) as the subject (SMEs OMs) under analysis is similar. The results of the proposed model using SEM analysis are provided in Table 6.12. There were no warning messages from the AMOS software. These results suggest that the models fit the data well in terms of the usual indicators used to assess the SME validity (RMSEA, CFI, and SRMR indices).

As can be seen, attitude (positive evaluation of the Internet) is a strong predictor of usage behaviour. OMs have been subject to large scale programmes to increase awareness about the alleged Internet advantages and share a positive attitude towards the Internet. However, such positive feelings are not translated into adoption behaviours. 'Internet adoption' is perceived as an 'acceptable behaviour' and as a consequence, firms adopt only some basic functionalities in order to conform to the 'social norm'.

Table 6.12 Attitude Based Models results

	Estimate	Prob.
Perceived usefulness-attitude	0.210	0.000
Self efficacy-attitude	0.438	0.000
Subjective norm-attitude	0.088	0.051
Attitude-adoption	0.240	0.008
Perceived usefulness-adoption	0.349	0.000
Subjective norm-adoption	0.188	0.007

It must be acknowledged that we are dealing with the post-2001 hype. The alleged advantages of the ICT Revolution are now well understood, as most OMs have substantial experience with Internet functionalities. These results also suggest that extra efforts to increase OMs awareness about the alleged Internet advantages may be worthless. On the contrary, ICT development programmes should be focused on inducing website usage rather than on 'increasing technological awareness'.

6.2.11 Analysis of ICT adoption drivers

In order to structure the analysis of the drivers of the ICT adoption, the independent variables are categorised as: a) firm characteristics, geographical orientation and sector affiliation factors; b) OMs background; c) firm strategy and management style; and d) and firm performance. In order to assess the determinant factors of IT adoption, independent t-test (concerning the difference in measures) and discrete choice models were applied. Concerning the variable 'years of adoption', and 'number of Internet related technologies adopted', we opted (based on Fabiani et al, 2004) for a Tobit regression with truncation at point zero as most firms have not adopted web pages.

Geographical factors and resources availability

As expected, the external orientation (as expressed by tourism affiliation) impacts the likelihood of adoption. The group affiliation factor also differentiates adopters from non adopters. The external orientation factor and access to 'extra' resources are thus critical to understand the ICT adoption process.

Independent t-tests concerning the adoption of firm's web site and e-commerce functionalities are included in Table 6.13 and Table 6.14 concerning geographical related factors and in Table 6.15 and Table 6.16 concerning resource related factors. As can be seen, both affiliation to the tourism sector and group affiliation are important to understanding ICT adoption. Concerning firms' long term ICT strategy (years of adoption) and total numbers of Internet technologies adopted, both group affiliation and location are found important to differentiate early adopters from late adopters and non-adopters. The logit/tobit analysis corroborates the results from the independent t-test.

Concerning web page adoption and the adoption of e-commerce platforms, the factor external orientation is again evident. As far as the total number of technologies adopted is concerned, the sales level factor (as a proxy for the resource level) is significant. The firm's age factor also impacts the timing of Internet adoption. As expected, the resource availability factor is crucial to understand the ICT adoption rationale.

Data concerning the impact in terms of adoption/non-adoption of a wide range of firm's characteristics and strategies is included in Table 6.17. All variables are important except the 'access to subsidies' to discriminate adopters from non adopters of web pages. As expected ICT adopters are more resourced in terms of experience with innovations and human capital indicators. The result is in line with the Diffusion of Innovations Theory and the Resource Based View perspective as tangible and intangible resources such as competences in the innovation field are critical to understand the ICT adoption strategy. As stated by Saarenketo et al (2004: pg. 369) the "window of opportunity for the firm is constrained by its existing routines and capabilities and the firm's resources". In fact, the 'window of opportunity' in terms of ICT strategies is clearly constrained by firm's technical and financial resources.

Table 6.13 Geographical factors independent t-tests: web page adoption/e-commerce adoption

	T	Sig. (2-tailed)	Mean Difference
Tourism	1.271/0.358	0,011*/0,016*	-0,116/-0,26
Local	-3.268/-2.540	0,196/0,72	0,078/0,03
Group	-2.590/-1.640	0,001*/0,11	-0,225/-0,13

*significant at 5% level

Table 6.14: Geographic factors: logit/tobit results

Variable	Model 1(logit) Web page	Model 2 (logit) e-commerce	Model 3 (tobit) years of adoption	Model 4 (tobit) totalintertech
Local	-0.454 (0.402)	-0.289 (0.566)	-1.665** (-2.21)	-0.481** (-2.14)
Group	1.155** (0.390)	1.177** (0.458)	1.807** (2.40)	0.851** (3.76)
Tourism	1.204* (0.644)	1.264** (0.644)	-0.321 (-0.26)	0.501 (1.40)
Constant	-0.634** (0.217)	-2.130** (0.321)	2.91** (0,89)	2.019 (16.13)**
Log likelihood	-104.323	-66.209	-384.609	263.848
LR chi2(3)	16,02	11.34	11.98	22.38
Prob > chi2	0.001	0.010	0.007	0.001

*significant at 1% level; ** significant at 5% level

Table 6.15 Resource factors independent t-test: web page/e-commerce adoption

	t	Sig. (2-tailed)	Mean Diff.
Sales level	-2.204/-0.843	0.03*/0.378	-1.308/-0.561
Exportation status	-3.579/-2.385	0.01*/0.024*	-0.241/-0.254
Number of employ.	-1.683/0.819	0.096/0.418	-35.718/-17.750
Firms age	-0.027/0.66	0.97/0.511	-0,094/3.959

*significant at 5% level

Table 6.16 Resource factors: logit/tobit results

Variable	Model 1(logit) Firmsite	Model 2 (logit) Ecommerce	Model 3 (tobit) years of adoption	Model 4 (tobit) Totalintertech
Saleslevel	0.081 (0.784)	-0.719 (0.127)	0,291** (2.64)	0.084* (2.02)
Export status	1.379** (0.499)	1.115* (0.562)	1.219 (1.60)	0.941** (3.26)
Numberemployees	0.008 (0.009)	0.010 (0.010)	-0.002 (-0.32)	0.02 (1.02)
Firms ages	0.009 (0.011)	0.006 (0.133)	0.0039* (-2.37)	-0.003 (-0.60)
Constant	-20.458	-10.464	79.75 (2.42)	8.89 (0.71)
Log likelihood	-67.079	-47.73	-251.695	-175.54
LR chi2(3)	15.72	8.44	20.72	23.57
Prob > chi2	0.003	0.07	0.000	0.000

*significant at 1% level; ** significant at 5% level

Table 6.17 Other factors independent t-test: web page/e-commerce adoption

	T	Sig. (2-tailed)	Mean Diff.
Number of empl. university degree	-2.772/-1.220	0.007*/0.235	-2.029/-2.120
Number of associations	-0.896/-0.965	0.372/0.344	-0.223/-0.399
Number competitors	-0.361/-1.047	0.719/0.305	-1.386/-8.144
Number of suppliers	0.861/0.819	0.719/0.415	-2.595/4.813
Number of fair trade attended	-2.111/-1.889	0.039*/0.077*	-1.392/-3.403
Business plan	-3.909/-3.573	0.000*/0.011*	-0.257/-0.244
Formal collaboration	-4.261/-1.835	0.000*/0.075*	-0.318/0.193
Subside	-1.960/-0.128	0.052*/0.899	-0.137/-0.012
Training	-2.451/-0.227	0.017*/0.822	-0.172/-0.023
Experience with advertising	-3.544/-0.642	0.001*/0.525	-0.237/-0.060
Process innovation	-5.378/-0.466	0.000*/0.644	-0.354/-0.047
Organisational innovations	-3.440/-0.921	0.001*/0.364	-0.262/-0.100
Product innovations	-3.528/-0.401	0.001*/0.691	-0.270/-0.044
New firm creation	-3.700/-0.710	0.000*/0.482	-0.268/-0.073

OMs profile

The results from the independent t-test and logit/tobit models highlight the importance of OM age and OM education on the firm's website adoption (see Table 6.18 and Table 6.19). To be young and well educated increases the likelihood to adopt a web page. No factor seems important in predicting adoption of e-commerce functionalities except the OMs educational background. All factors except formal degree in engineering seem to impact upon both the earliness of adoption and the total number of Internet Based Technologies adopted.

As expected, well educated and younger OMs are more sensitive to the Internet Revolution. But the younger generation faces extra barriers as they must cope with an increasingly uncertain and hostile environment as a high amount of financial transfers is no longer available. And the importance of the educational background is a problematic one as it calls to mind state dependence phenomena problems (see section 4.3).

Table 6.18 OMs factor - independent t-test: firm's web page/e-commerce adoption

	t	Sig. (2-tailed)	Mean Diff.
OM age	2.319/1.93	0.022*/0.848	5.023/0.545
OM educational back.	-2.264/-1.795	0.025*/0.080	-0.642/0.621
OM experience	0.697/0.488	0.487/0.630	1.316/1.235
Engineer degree	-1.328/1.137	0.187/0.261	-0.063/0.054

Table 6.19: OMs' factors: logit/tobit results

Variable	Model 1(logit) Firmsite	Model 2 (logit) Ecommerce	Model 3 (tobit) years of adoption	Model 4 (tobit) Totalintertech
OM age	-0.025 (-0.019)	0.009 (0.029)	-0.085** (0.036)	-0.022* (0.012)
OM education	0.347* (0.137)	0.318 (0.182)	0.605** (0.228)	0.218** (0.076)
OM experience	0.027 (0.026)	0.012 (0.30)	0.197** (0.047)	0.039* (0.015)
Engineer degree	0.542 (0.961)	... (...)	-1.321 (1.932)	0.047 (0.623)
Constant	-1.38 (1.000)	-3.719 (1.524)	1.089 (0.608)	1.461 (0.608)
Log likelihood	-80.30	-51.71	-298.4004	-216.731
LR chi2(3)	11.29	3.44	21.18	13.27
Prob > chi2	0.023	0.328	0.000	0.010

Firm performance and ICT adoption patterns

Data concerning the link between firm's ICT strategy and performance indicators is included in Table 6.20. As can be seen, both sales growth and employment growth do impact upon the probability of adopting a web page. And both the adoption timing and total number of technologies adopted also seem immune to performance indicators. But multi-business entrepreneurs seem more sensitive to ICTs as the variable 'new firm creation' is significant. In fact, multi-business entrepreneurs have access to extra resources (in terms of economies of scale/scope) and 'sophisticated' in-house resources. If a firm sales level is understood as a symbol of success, successful firms adopt a wide range of ICT tools early on. The current firm's sales level results from 20 years of presence in the market and also informs us about firm's adaptability to the 'local ecological system'.

Table 6.20 Performance indicators: logit/tobit results

Variable	Model 1(logit) Firmsite	Model 2 (logit) Ecommerce	Model 3 (tobit) Years of adoption	Model 4 (tobit) Totalintertech
Salesgrowth	0.097 (0.118)	-0.014 (0.152)	0.070 (0.200)	0.048 (0.070)
Newfirm	1.085* (0.512)	0.045 (0.631)	-0.248 (0.863)	0.393 (0.302)
Emp growth	0.008 (0.011)	0.068 (0.051)	-0.001 (0.007)	0.002 (0.002)
Saleslevel	0.028 (0.095)	0.064 (0.112)	0.474** (0.159)	0.125* (0.055)
Constant	-1.215 (0.0543)	-1.707 (0.670)	1.386 (0.904)	1.33 (0.318)
Log likelihood	-64.7	-50.743	-248.616	168.47
LR chi2(3)	10.74	5.84	10.51	13.84
Prob > chi2	0.029	0.211	0.032	0.0078

The results obtained so far suggests that the direction of causality is growth-ICT, and not ICT-growth (Capello and Nijkamp, 1996). As it can be seen, previous growth

(expressed by a high level of sales) and resource availability is required before the adoption of complex ICT tools takes place.

6.2.12 Some preliminary conclusions from the quantitative analysis

An interesting but controversial pattern of ICT adoption results from this analysis. A widespread adoption of simple technologies and an intense exploitation of most Internet functionalities is evident. However, the typical OM is focused on a 'minimal adoption strategy' in terms of active e-commerce as most firms only adopt simple Internet functionalities needed for the 'automation phase'. Hence, the internet is not (apparently) "changing the business landscape", as OMs are at a low level in the "Internet hierarchy of effects and adoption commitment" (Celuch et al, 2005: pg. 1). As expected given their 'retailer' nature, local firms still rely heavily on traditional brick-and-mortar models, pursuing their traditional strategy, i.e., the development and nurturing of personal relationships. And despite the positive scores attached to the 'attitude' construct, the adoption profile does not match the optimistic EU expectation. In fact, the high expectations attached to the Internet Revolution were not translated into adoption behaviours in terms of the adoption of a web page and e-commerce platforms.

The adoption profile indentified matches a 'wait and see approach'. Such a strategy does not imply high adaptation costs and as expected the internal administrative and organisational structure was not adjusted as would be the case concerning the adoption of complex digital platforms. In the end, the adoption costs incurred do not exceed those experienced by domestic adopters. And most OMs seem pleased with their positioning in the adoption ladder, given the relatively low figures concerning up-grades and planned strategy.

There are reasons to suggest that the local firms' Internet strategy cannot be inferred from the 'traditional ICT adoption models', as the degree of integration of the Internet strategy in the firm's strategy differ substantially from what should be expected from the enthusiastic discourses about alleged Internet advantages. As can be seen, firms use basic Internet tools such as access to the Internet and e-mail with (about 50%) of them adopting a web page. However, about 50% of micro/SMEs do not progress further. But, if there is a business imperative, local firms will for sure adopt complex ICT tools as they declare to follow a growth pursuit strategy. Seeing as most firms are locally

oriented, the Internet will not be used to develop new markets and products for the time being.

The first surprise concerns the OM's profile in terms of educational background and ICT expertise. As can be seen from the results, local OM's are more technologically savvy than the population in general. And an intense use of almost all Internet functionalities was evident. Therefore, it can be suggested that OM's are well aware of their needs with respect to the adoption of ICT tools. In fact, firms' technology needs may be effectively translated into demand, because those needs are well recognized. And I cannot accept the line of reasoning of Mole et al (2004) that smaller firms have fewer resources (eyes and ears) to observe or to hear about the benefits of the Internet. The Internet usage scores computed suggest a profound knowledge and experience with most Internet functionalities. Thus, the actual pattern of usage of advanced telecommunications by SMEs may, in fact, provide a reasonable guide to their needs. However, a different argument (that local firms are still not clear how the Internet adds value) should also be admitted. In fact, the typical OM is quite confident about his 'competence in the field', which is not matched by his experience handling complex ICT tools.

As declared above, the average score concerning attitude towards growth contradicts the stereotype of a backward, isolated and innovation averse population of firms. Contrary to what was expected, most OM's declare that they intend to pursue a growth strategy. Most firms are not technology averse but 'see and wait' until profitability (concerning complex ICT tools) is demonstrated. In fact, data concerning the adoption of 'other soft innovations' suggests that firms invest if they perceive any advantage.

There are reasons to suggest that the local firms' ICT strategy seems quite rational. According to Preissl (1995), Castro and Butler (2002) and Sadowski (2002), the environment of the firm is the key determinant factor shaping the adoption/diffusion process. As both parameters for competitiveness and data concerning customers on-line shopping experience exclude a 'high adoption' rate of on-line shopping scenario, the short term rational response is to postpone any planned investment in e-commerce platforms.

All the evidence available seems to point to the fact that parameters for competitiveness are going to be based on direct personal contact. The "process of completing the sale, including negotiating and agreeing contractually, making payments" will never be a

digital one for most products (Lumpkin and Dess, 2004: pg. 164). As a consequence, and as stated by Levy and Powell (2003: pg. 175) it is “only those SMEs that are looking for new markets or diversifying their business that consider e-commerce solutions”.

However other reasons should be considered to understand the lack of interest in e-commerce platforms. As shown by Porter (2001), Wilson-Jeanselme and Reynolds (2005), Pires (2002) and Meijers (2005), the Internet reduces differentiation amongst products and services and promotes a focus on price discounting. But as seen above, local OMs value other strategies besides costs advantages. Hence, it can be suggested that a pure Internet strategy or even click and mortar (mixed strategy) will never be understood as a possibility to provide a substantial increase in performance. Quite often OMs and some commentators end up asking why the results of heavy investments in digital platforms have not materialised. Such is not the case in RAM, as OMs seem well aware of both the Internet potential and critical parameters for competitiveness in the retail sector.

In conclusion, e-commerce platforms are not being conceptualized as a crucial step to gain and sustain competitive advantage in the market; in fact, most OMs presume to be at advantage in terms of traditional competitive advantages such as customer service. Another factor that seems to work against the adoption of relatively complex ICT tools results from the fact that most OMs enjoy a certain degree of monopolistic power, based on differentiation in terms of products, services and location. Each firm occupies a small geographical area and tries to adopt a differentiation approach offering slightly different products.

From the analysis of firms' web pages, it was evident that most OMs are not expecting old communication modes to be replaced by technological solutions, as feed-back functionalities are not provided on the firm's web pages. Once again it can be suggested that OMs still acknowledge the importance of the informal and personal based modes of communication in relation to formal and technology based methods.

Consequently, and as stated by North and Smallbone (2000: pg. 152), a “lower investment in advanced technology does represent the short term rational response by the owners and managers of these firms to the conditions facing them in their local business environment”. In fact, there is an obvious interest in postponing the adoption

of complex ICT tools or even never to adopt, as long as adoption rates in the firms' inner circle (eg. suppliers, customers, etc) stay low. And for the time being there are no reasons to expect a different adoption status. As stated by Sadowski et al (2002: pg. 90) the probability of adoption of offensive strategies (based on adoption of e-commerce platforms) is less likely compared to defensive strategies where firms are satisfied with "merely being connected, waiting until the market requires more aggressive tactics to develop strategic implementations". It is also evident that local firms do not adopt 'generic packaged solutions' (that is, e-commerce platforms) but instead exploit an Internet use model that fits their particular strategies and modus operandi.

Until now, nothing suggests that the RAM case study is substantially different from other case studies except regarding the specific and 'atypical' sample (retail based) under analysis. However, this research project highlights two interesting points that should receive attention. Firstly, the data concerning the OMs' growth strategies suggest that a 'stereotyped' analysis must be avoided. The positive attitude towards growth reflects the willingness to explore investment opportunities. However, most OMs should be categorised as 'constrained entrepreneurs' as growth strategies are constrained by geographical and historical factors (that is, market potential) and not by life-style reasons. In fact, there is no room for a large number of sectors and market niches. The only way to reach the next growth phase is via investment in other niche markets.

Secondly, the importance of the 'group affiliation' factor is 'problematic' as only a small fraction of local firms may reach the next growth phase where complex ICT tools may eventually be required. As the local groups are in the forefront of the Internet Revolution the adoption/use of ICTs tools is contributing to the reinforcement of the current levels of differentiation between micro firms and larger firms. In fact, the adoption of ICT tools may be understood as a 'two-speed phenomenon' that reflects access to resources and growth prospects.

As only multi-business entrepreneurs are adopting complex ICT tools, a large scale adoption of ICT tools (e-commerce platforms) should not be expected. This result contradicts the EU expectations about the diffusion path of complex ICT tools. And there is no evidence to suggest that ICT tools are levelling the playing (competitive) field. On the contrary, it is possible to conclude that ICT adoption tends to be higher in firms already favoured in terms of access to resources. In fact, the ICT tools are

extending the power of the most powerful (multi-business) entrepreneurs. Local groups are getting experience in coping with the adoption of complex ICT tools. Although the adoption and use of ICT tools is not directly linked to extra performance, any advantage that may exist will be concentrated in the most experienced and successful firms, that is, 'larger firms' and local groups. Thus there are reasons to suggest that the adoption of ICT tools may 'speed up' the selection mechanism, introducing an extra factor of differentiation and discrimination that works against the micro and small firms. As stated by Lumpkin and Dess (2004:170) "what may be good for a few companies have been devastating for others" (see also Porter, 2001).

It can also be concluded that most firms are focused only on first order changes, i.e., incremental changes of existing processes and decision making procedures. However, the extensive use of Internet functionalities suggests increasing levels of experience in terms of market and technological scanning. Hence, second order changes (up-grade of cognitive frames and business models) are being experienced by some firms. A process of Internet based learning seems to be developing. But the impact of the extensive use of some Internet functionalities may impact the firm's strategy only marginally. As stated by Spanos et al (2002) "ICT are influencing the firms strategy more indirectly than directly, ..., even if ICT does not influence the content of strategy per se, it does result in increased availability and enhanced quality of information on which strategic decision-making is based".

As expected small firms do not show a significant disadvantage (compared with larger firms) in terms of the adoption of basic ICTs tools such as access to the Internet and e-mail (Lucchetti and Sterlacchini, 2004: pg. 164). But there is a clear divide in terms the adoption of relatively complex ICT tools. Access to resources and external orientation are key drivers of the adoption of non-basic ICT tools.

Our research shows that the adoption and effective use of ICTs among SMEs depends, firstly on the business case and secondly, on resource availability. Externally oriented firms adopt web pages and e-commerce facilities, in order to comply with industry standards. Larger firms and local groups are more innovation prone and adopt complex ICT tools even if the business case is lacking.

Local OMs have been quite efficient focusing on what is best to boost their firm's growth prospects. But for the time being, though, the firm's Internet strategy is

subsumed to the overall firm strategy as there are no reasons to expect a change in terms of parameters for competitiveness.

The main conclusion from the quantitative research is that there is little sign that SMEs in RAM see the Internet as a critical agent of change. As stated by Levy and Powell (2003: pg. 180) “SMEs have considered the role of the Internet for their businesses, but their approach is generally cautious as most firms do not see the value of the Internet (that is, digital platforms) to their growth strategy”. In fact, local OMs are well informed about local parameters for competitiveness and are interested in pursuing a growth agenda. However, they do not conceive the Internet as a critical factor driving their firms’ growth prospects.

6.3 The qualitative approach

6.3.1. Case study protocol and content analysis procedures

As suggested in Chapter 1 the exploratory character of this research project demands a qualitative approach in addition to quantitative in nature methods (Hurst et al, 2000). Levy and Powell (2001) based their study of SMEs’ adoption rationale on a research design that included questions concerning business objectives and strategies, the competitive environment, attitudes towards technology and e-business development. The authors were interested in an in-depth analysis of the impact of firm’s strategies on Internet adoption and deemed the ‘case study approach’ as the only viable option to collect OMs comments on the subject. Based on a sample of manufacturing firms operating in Portugal, Caldeira and Ward (2002) also applied a qualitative research design to access factual information regarding the level of ICT adoption/use and perceptions concerning the influence of ICT adoption drivers. In an analysis of the ‘Portuguese management style’, Cunha (2005) also chose a qualitative approach without an initial formal hypothesis, in order to inductively generate theory.

The selected research design is based on Levy and Powell (2001), Caldeira and Ward (2002) and Cunha (2005), given their ‘proximity’ to my research project in terms of subject and research questions. The questions included in the semi-structured interview

schedule are listed in Box 6.1. The inclusion of these questions was based on the review of the Diffusion of Innovations literature (Mole et al, 2004; Smallbone et al, 1999; Mitchell and Clark, 1999; Taylor et al, 2004; Bennett and Smith, 2002; Keeble et al, 1999) and on the ICT adoption model proposed in Section 5.5.

The selection of case study firms did not follow random criteria. Nevertheless I tried to include several key dimensions in my 'purposive sample': adoption status, the size of the firm and geographical orientation. Whenever possible the OM was the interviewed individual, as is usual in most SME studies. OMs usually have an exhaustive knowledge about the whole decision making process. It seems that the number of cases (17 case studies) is sufficient enough to reach theoretical saturation, which occurs when "incremental learning from extra case studies is negligible because repetition of phenomena is appearing" (Mehrtens, 2001; pg. 167; see also Cunha, 2005).

Concerning the number case studies, the literature shows a range between 11 and 50 firms (Malecki and Poheling, 1999); Efstathiades, 2000; Mitchell and Clark, 1999; Caldeira and Ward, 2002). However, as 'theoretical saturation' was soon reached it is possible to accept our 'sample' size as large enough to sustain my line of reasoning.

Box 6.1. Case study protocol - key questions included in the semi-structured interview

- 1) factual data about the adoption/use of ICT tools;
 - 1a)planned strategies in terms of adoption;
 - 1b)global perception about the utility/suitability of the Internet for the business;
 - 1c)reasons for adoption and barriers to adoption;
 - 1d)perceived competence in the ICT field;
- 2) OMs assessment of their firms strategies
 - 2a)identification of critical parameters for competitiveness in the regional economy
 - 2b)firms advantages in relation to competitors;
- 3)perceptions and opinions about the individual use of Internet;
 - 3a) assessment of society and market trends;
- 4) other information relevant.

According to Caldeira and Ward (2002), the quality of a case study may be assessed according to construct validity, external validity and reliability. The construct validity was ensured via use of multiple sources of evidence and the definition of chain of evidence by a generally accepted framework (eg. attitude based model and the Diffusion of Innovation Theory approach). An exhaustive analysis of literature concerning ICT adoption/use provided constructs related to barriers, objectives and adoption drivers at the micro/small firm level.

The external validity issue refers to the question of generalisation through case studies. As mentioned by Yin (1994), case studies do not provide statistical generalisation and the number of participants is not relevant. The case study approach allows analytical generalisation, and as Yin (1994: pg. 36) states, “in analytical generalisation, the investigator is striving to generalise a particular set of results to some broader theory”. The results obtained are considered to be compatible with Diffusion of Innovations Theory and other theoretical frameworks available concerning peripheral areas. Further, as some results are controversial, conclusions drawn from other studies are put alongside my own results to serve as a benchmark.

The reliability issue is related to concerns of minimising errors and bias. As it is suggested by the literature, a case study protocol and a case study data base were established. As far as possible, the triangulation of evidence, via analysis of firms’ web pages was pursued, so as to determine the validity of the information concerning the current ICT adoption status.

Semi-structured interviews lasting about one hour were held with OMs to discuss the Internet ‘problem’ and the likely impact of recent events in the macro-economic sphere on OMs’ perceptions about the ‘Information Society paradigm’. The case research was carried out during the spring of 2006. A brief profile of each firm is provided in Table 6.21.

All interviews were based on the same structure, and all data was structured and catalogued in a consistent way and in line with Crang (2002). The content analysis of the primary data revealed the existence of striking similarities. As stated above, theoretical saturation was soon reached, given the obvious repetition of common themes and concerns.

Concerning data analysis, I proceeded accordingly to standard procedures. The interviews were tape-recorded (except one), transcribed into Portuguese and some quotations were translated into English. Each sentence included in the transcripts was coded and cross-referenced to the model built-up in Section 5.5, namely concerning adoption drivers and reasons behind the adoption. After identifying in the transcriptions the references concerning adoption drivers/inhibitors and OMs evaluation of the impact of ICT tools in their own business, I went on to summarise the data in tables. As a meaningful pattern took shape the line of reasoning concerning the OMs' understanding of the Internet became evident. In relation to each case study (firm) a global evaluation of the adoption profile was produced to get the whole picture of its positioning on the adoption ladder.

Quite often transcriptions were sent back to interviewees to obtain a confirmation that their views were well understood "and not unduly influenced by the interview process" (Caldeira and Ward, 2002: pg. 133). As interviews were tape-recorded and OMs were only interested in a brief summary of the study conclusions, no feedback was required.

6.3.2. Sample characteristics

The case studies were chosen to include both micro firms, small firms and two larger firms. All firms have been operating in the local market for a large number of years. In order to control for sector affiliation, firms from manufacturing, retail, tourism and construction sectors were included. But as mentioned before (section 6.2), the real divide in terms of the adoption of ICT tools is related to access to resources and external orientation. Most case study firms are micro/small, but three of them may be categorised as large firms.

As stated above, the first stage of the analysis was linked to efforts to provide a categorisation of each of the firms in terms of their level of ICT adoption and intended plans. Figure 6.1 shows the position of each of the firms concerning their current status of adoption of ICT tools and access to resources, and grouped into four clusters that may be assumed to exist. However, one cluster may be labelled as the 'missing cluster', as it corresponds to global born SMEs (i.e., small firms that are established from inception into international or global markets) that don't exist. The 'basic adoption' cluster comprises all locally oriented firms that share in common the absence of a

business case to adopt complex ICT tools. The 'prestige cluster' comprises all firms still locally oriented but sufficiently resourced to pursue an 'image' agenda in terms of the adoption of ICT tools. That is, a web page is provided due only to prestige and visibility concerns. Such adoption may eventually affect the firm's profitability but only marginally. The 'industry standard' cluster comprise all firms that must comply with technological standards in their sector, such as those affiliated to the tourism sector.

Figure 6.8 attempts to show that most locally oriented firms are not planning to progress in the adoption ladder. The arrows indicate OMs' intentions concerning further steps. As can be seen, all externally oriented firms (except one) intend to keep up to date with all technological advances.

Direct quotes are used below to provide examples of contextual information about the issues highlighted in the interview process. Further, as stated above, due to the explanatory character of this research project, examples coming from other research projects are paralleled with my own results in order to add credibility to the comments provided and for comparability purposes.

Figure 6.8: Firms positioning in the ICT adoption ladder

(Firms are labelled A-S)

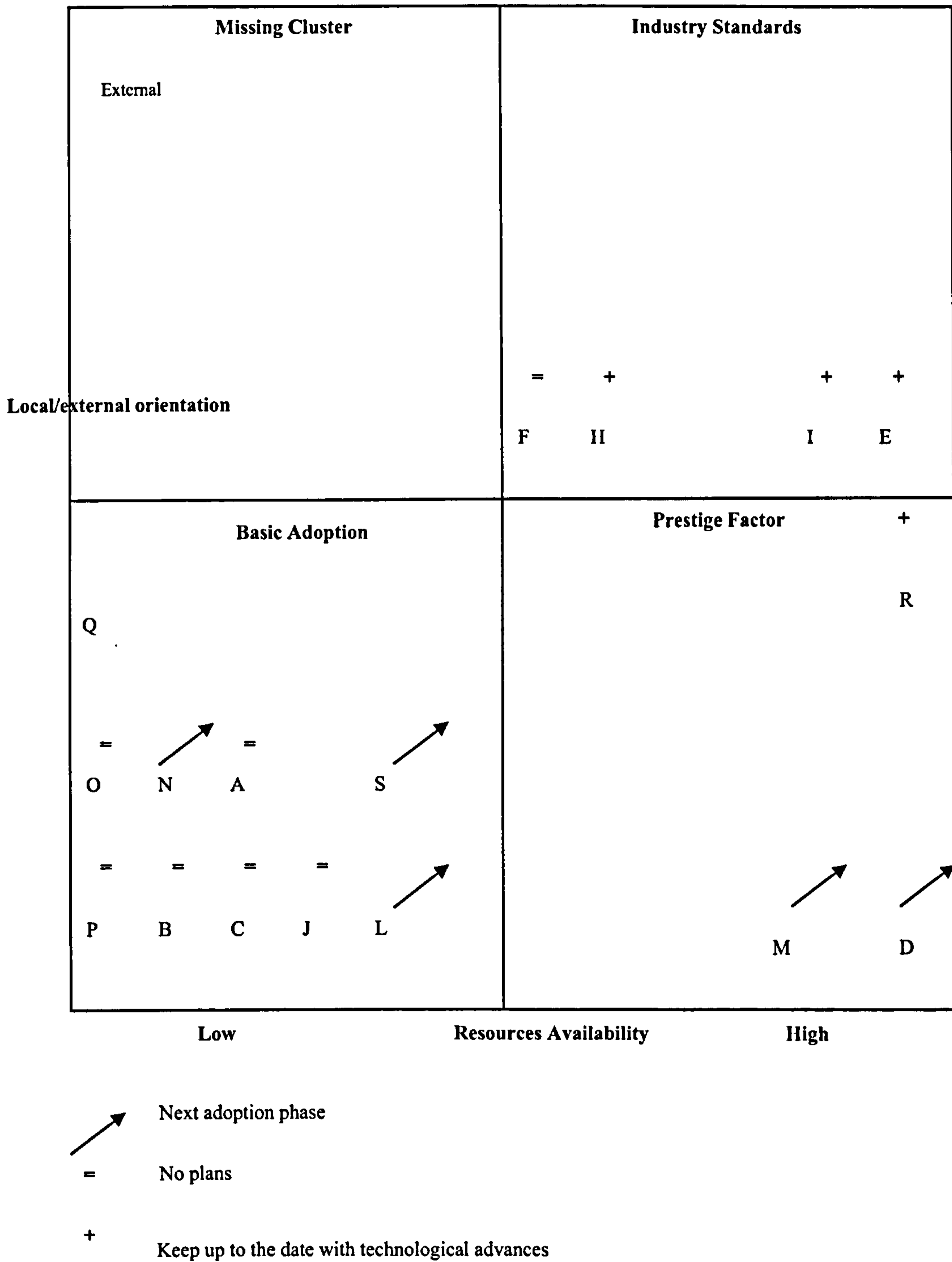


Table 6.21: Case studies characteristics

Firm	Sector	Turn-over €	Num. Employees	Ownership	OM Edu. Background	Adoption Profile	Strategic use	Firms Strategy
Firm A	Agriculture	1,000,000	10	independent	4 years	Non use;	strategic	Survival; Tradition; Informal
Firm B	Construction	600,000	12	independent	6 years	Minimal;	non-strategic	Survival; Quality; Informal
Firm C	Construction	1,000,000	30	independent	6 years	Non-adoption;	strategic	Survival; Quality; Informal
Firm D	Construction	130,000,000	750	group affiliation	University	Web-page,	strategic	Growth; Quality/Price; Formal
Firm E	Construction	160,000,000	600	group affiliation	University	e-business;	strategic	Growth; Quality/Price; Internationalisation
Firm F	Hotel	5,000,000	50	independent	University	Web page;	strategic	Quality/Life-Style; Quality
Firm G	Hotel	2,500,000	25	group affiliation	12 years	Web page;	strategic	Survival; Price
Firm H	Hotel	6,000,000	60	independent	University	Web page;	strategic	Growth; Quality/Price
Firm I	Transport	50,000,000	250	Group affiliation	University	e-business;	strategic	Growth; Quality; Innovation
Firm J	Industry	800,000	30	Independent	6 years	Non-adoption;	non-strategic	Survival
Firm L	Industry	2,000,000	50	Independent	12 years	Non-adoption;	non-strategic	Growth; de- industrialisation
Firm M	Retail	12,000,000	50	group affiliation	University	Web page;	strategic	Growth; Internationalisation
Firm N	Retail	500,000	4	Independent	University	Minimal;	non-strategic	Survival/Growth
Firm O	Retail	250,000	2	Independent	12 years	Minimal;	non-strategic	Survival;
Firm P	Services	100,000	3	Independent	12 years	Non-adoption;	non-strategic	Survival;
Firm Q	Services	500,000	25	Independent		Basic;	non strategic	Growth; Innovation
Firm R	Services	50,000,000	100	group affiliation	University	e-business;	strategic	Growth; Innovation

6.3.3 ICT adoption profile: positive beliefs, real (in)experience

As expected, most OMs perceived the Internet as far from essential. In fact, the OMs' 'ICT discourse' is rather a history of silence and 'vague ideas'. Instead of examining what is being commented on by OMs, it is also possible to proceed the other way round, that is, to examine what was not said by them. According to Pritchard and Havitz (2006: pg. 31) "attributes (episodes) that are salient and readily accessed from memory tended to be the first thing mentioned". What results from the content analysis is a quite vague, generic but overtly optimistic discourse about the ICT revolution. OMs do not mention technical experiences that would provide a testimony of their experience managing complex ICTs tools in a professional setting. The positive beliefs about the ICT revolution must be understood in the context of the widespread belief that "technology offers vast opportunities for instant international market access, as well as improved domestic market performance for small firms (Fillis and Wagner, 2005: pg. 604)". In fact, the OMs' vision about the Internet seems to reflect media and governmental propaganda. As stated by Shang et al (2005) to adopt the Internet is a socially acceptable and fashionable behaviour. In fact, most OMs seem to believe that non-adoption is conceived of as an abnormal and irrational decision.

However, such positive beliefs are not translated into real ICT adoption behaviours, namely concerning the adoption of relatively complex ICT tools (such as a web page with an enriched content) or knowledge management systems put in place to handle all information gathered via the Internet. In consequence, it can be assumed that the 'benefits' discourse is, as stated by Grimes (2005: pg. 1076), "based largely on perceptions (imagination) and less on actual experience (real and tangible) of using these technologies". However, the gap between discourse and behaviour should not come as a surprise. Belussi (2004: pg. 248) also identifies a strong divergence between entrepreneurial visions (opinions, perceptions, sense making in terms of ICT tools) and the current ICT adoption behaviours. In fact, as stated by Belussi (2004: pg. 261), "people may have different cognitive frames and talk in different ways but still act similarly when they come down to business [and adopt ICT tools]".

The OMs' cognitive frame and attitudes toward ICTs should not be conceived as a 'discriminating factor' between adopters and non-adopters of firm's web pages, as most

interviewees brand ICT tools as 'extremely important technological solutions' despite the on-going non adoption of such technologies. However, most OMs would adopt complex ICTs tools (web page) in an ideal scenario (leadership in the market). For the time being, as long as they remain as small retailers and locally oriented there are no reasons to adopt complex ICT tools.

Concerning the ICT adoption profile there are only two examples of adoption of complex ICTs tools (Firm E and Firm R) and one example of a sophisticated e-business model (which includes the adoption of intranets) in place (Firm I). None of the respondents pointed out 'sales advantages', except for two firms (Firm H and Firm F) affiliated to the tourism sector. However, even for these firms e-commerce represents only a small fraction of total sales. In fact, local tourism firms are not examples of externally driven adoption, as tour operators control the market.

Firms' web pages contain only limited data. But on average, the ICT adoption profile is similar to what has been seen elsewhere and corresponds to what should be expected. As stated by Lucchetti and Sterlacchini (2004 pg. 163) "it appears that the main aim that firms pursue when setting up a web site is that of exposing their supply (possibly in the most effective and detailed fashion) and improving their visibility, rather than actively encouraging their customers to buy directly via the site".

Concerning non-adoption, reasons for such behaviour may be linked to 'lack of ICT competences'. However, a different explanation was offered in some cases, such as 'I am not very interested in computers' (Firm A, C and P). Firm P declares that:

"I confess that I am not interested in working with computers; I worked for years as a secretary; I have chosen to change my lifestyle; I can work with computers but for now I am not interested and I don't like to work with computers; my husband helps me if needed; however, I can access all information that I need"

But even if OMs have no direct access to the Internet, they are not excluded as they have indirect access through relatives/friends or employees. Concerning firms A and C, OMs may request family/friends to provide 'technical support' when necessary. Concerning firm P, a key employee uses the Internet in the work setting to provide all data and information needed to run the business. Thus, there are no cases of total exclusion.

As suggested above, these results are in line with other studies about the degree of adoption of e-commerce platforms and the richness of the firms' web pages. See for example Mitchell and Clarck, (1999), Drew (2003), Fabianni et al (2004) and Grimes (2005). As stated by Ramsey and Ibbotson (2006: pg. 319) with respect to Ireland, "trading online remains very slow where smaller firms have not moved beyond the awareness, access and presence stages" despite policy led efforts to increase the adoption of e-commerce platforms.

6.3.4 ICT adoption profile: intense invisible and passive Internet use

Although most micro/small firms are not adopting complex ICT tools, that doesn't mean that OMs are not heavy users of more basic ICT tools. In fact, there is an invisible, complex and intense use of the Internet that may be branded as 'passive e-commerce'. This is rational behaviour in a consumption space, as there is no business cases to justify heavy investments in digital platforms (Houghton and Winklhofer, 2004; Grimes, 2005). There is also an increasing use of e-mail (as an example of automation) concerning orders. However, even if suppliers may in fact suggest access to their web page, this is not done on a regular basis, as they are also interested in personal and face to face relationships. In the end, both suppliers and local firms do prefer the traditional communication method, especially concerning the critical steps of the commercial relationships: first contact; product selection; order, etc.

Passive use, technology scanning and shrinking distance

Even if adoption rates are low and e-commerce platforms absent, the strategic irrelevance hypothesis (that is, the absence of impacts as a result of the adoption of ICT tools in terms of long term survival prospects) seems partially invalidated. In fact there is an intense and strategic use of the Internet in terms of technological and market scanning. One of the most innovative uses of the Internet is linked to the analysis of suppliers' web pages before travel abroad to trade fairs. In order to maximise the outcomes of such visits, OMs try to access all relevant data included in web pages and other technical data before departure. In fact, despite the apparent non-complexity of technology/market scanning practices, most OMs are quite efficient in accessing

external sources of information. An example is provided by firm C operating in construction.

“Thanks to the Internet I can look at examples of fireplaces and see more or less how I can apply them; it is also good to know more about the suppliers who will be at the trade fair”. Firms F, H, I, M, and Q report a similar use of the Internet.

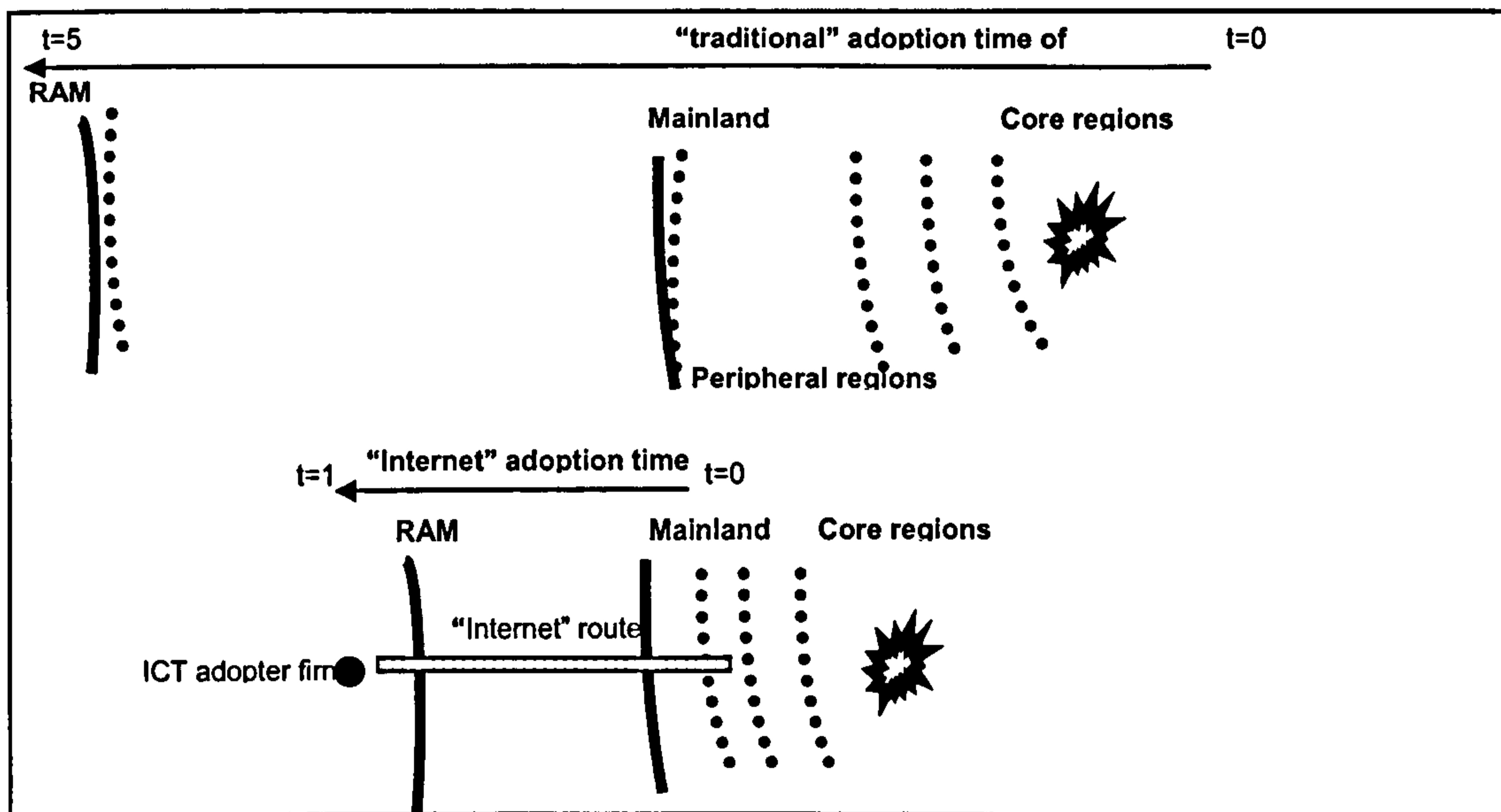
Concerning technological and market scanning and access to external sources of information, most firms still depend on trade fairs and suppliers’ support, but circumscribed by the continental/European space. However, most innovative retailers have been able (as a result of their Internet based technological scanning) to extend the supplier search to Spain (due to geographical advantages) and China (due to price advantages). OM competences in terms of scanning/search seem to be critical to bolster firms’ competitiveness in a region such RAM. But there is an educational divide, as OMs with a superior educational background are able to reach other geographical areas. Some OMs were able to contract special prices and after sales service for example in Spain. Despite the apparent non-complexity of technology/market scanning practices, most OMs are efficient at accessing external sources of information and are already profiting from the Internet.

As a consequence, although there is only one example of an e-business model, the Internet is not an insignificant business tool, as it might be expected from the non adoption of e-commerce functionalities. In fact, despite the fact that the Internet use is ‘invisible’, important consequences may result from such use. As suggested in Chapter 5, access to the Internet is translated into opportunity recognition, identification of innovative suppliers and business concepts. Thus, the firms’ survival odds are being affected by Internet use, as old business concepts (and traditional products) are more easily replaced by fresh ideas. Technology scanning is therefore a straightforward method to overcome the traditional geographical scale limitations (RAM-Portugal). Most innovative firms are now exploring geographical scales beyond Lisbon and the mainland in terms of access to suppliers and business models. However, most OMs are still attached to their traditional niches, as all the innovative efforts are translated into improvements in the business model currently in place. As a consequence, access to the Internet is linked to ‘an evolution in continuity’, and not to a full replacement of the industry mix and business models.

Internet based market scanning accelerates the introduction of new business concepts and technologies. However, ICT adoption triggers a selection mechanism putting old family-run businesses at risk, as the 'intelligent use' of the Internet favours a non-representative segment of firm's population (that is, the younger, literate and skilled generation and multi-business entrepreneurs) and as a consequence it may represent another discriminatory factor working against family run businesses.

The analysis of OMs' technology scanning experience shows that the Internet may well be a 'space-shrinking technology' in terms of access to and diffusion of business innovations. Thanks to the Internet some OMs are able to accelerate the pace of introduction of new business concepts and innovations (See Figure 6.3). However, contrary to what is expected, the 'space-shrinking experience' properties of the Internet are not related to access to external markets based on e-commerce platforms. In the end, local firms stay 'inward looking' despite efforts to 'look outside'.

Figure 6.9: Internet impact in terms of the early introduction of business concepts



6.3.5 ICT adoption profile: rationale behind ICT adoption

Concerning reasons explaining the non adoption of complex ICT tools (that is, firms' web page), it was evident from the content analysis that 'proximity to customers', 'high

level of trust in the commercial relation' and 'informality/trust' are the key reasons behind the lack of interest in the adoption of relatively complex web pages. Surprisingly, only Firm I points out financial constraints as an important driver of the ICT adoption rationale. Quite ironically, it is the most advanced firm in terms of the adoption of ICT solutions. Several reasons may explain the interesting result that most firms don't mention costs. The similarity of uses between the domestic and professional setting may be one of the factors, as access costs at the firm level are not much different from the costs incurred at home. Another reason may lie in the fact most OMs do not understand the level of organisational and financial actions required to adopt complex ICT solutions. Ramsey and Ibbotson (2006: pg. 322) point in the same direction (i.e., a lack of knowledge about the cost involved in the adoption of complex ICT tools) as they concluded that OMs in Northern Ireland "strongly disagreed that the concept of e-related activities required a complete change to their traditional business practices, with 72 percent of SMEs strongly disagreeing that an e-business strategy was highly risky for their business". According to Ramsey and Ibbotson (2006: pg. 324) "only 2 percent of these small firms had completely integrated all information systems to facilitate strategic e-business".

It was also evident that reasons for non-adoption result from the lack of pressure on the part of customers, competitors, and suppliers. In fact, only tourism firms are subject to direct external pressure and competition as competition in most sector is local. As there are no direct reasons to adopt, it may be quite useful to pursue a different approach in order to understand the adoption rationale of those firms that are locally oriented. In fact, despite the lack of direct pressure to adopt, some firms invested in a web page. Such adoptions are due to factors such as visibility and reputation in the market. As most web pages only contain limited data, it is clear that OMs intend to profit from the e-prefix factor. As stated before, glamorous prefixes such as Silicon, Cyber, Intelligent, e-multimedia are linked to ambitious and futuristic growth plans (Mosco, 2004; Robinson and Crenshaw, 2002; Meng and Li, 2002). Even at the firm level, the 'symbolism and modernity' of ICTs should be acknowledged. The reason behind the adoption of web pages on the part of firms interested in pursuing an internationalisation approach is rather different. Contrary to what happens with locally oriented firms, those firms interested in 'external ventures' must launch a web page. Local reputation and visibility is now insufficient and extra marketing efforts, partially supplied via the

Internet, are required. For those firms interested in accessing external markets, a web page is conceived of as a useful technological artefact to enhance corporate image abroad. Such firms do not want to add an extra 'piece of evidence' to the negative image of local firms as backward, isolated and resistant to change.

From the above analysis of adoption reasons, it is possible to define two geographical effects at work to minimize the degree of interest in ICT tools. First, a proximity effect (from the consumer point of view) linked to close physical proximity in a restricted geographical space. The rational option is non-adoption of on-line shopping on the local consumers' part. In fact, there is little likelihood that they would benefit from accessing the web page of a firm located within a radius of less than 1 mile from home as the trip to the nearest shop is shorter than the time needed to access the Internet (Aoyama, 2004). The concentration of population/wealth in a restricted geographical area also limits the interest in a web page as an advertising channel. The negative impact of the proximity effect was also experienced in Singapore. Wong (2003) considers the limited geographical size of Singapore as the key reason behind the non-adoption of on-line business models on the local firms' part. Further, there are also reasons to suggest that local customers do prefer social exchange and face-to-face interaction. Most customers have been used to interacting with a regular and stable network of suppliers for decades and quite often the "transactions are often extended to or supported by social interactions or are family relationships based" (Buhalis and Deizemi, 2006; pg. 315; see also Soete, 2001; Oliveira et al, 2002; Malecki, 2003).

The second geographical effect (from the firm's point of view) is linked to long standing customer-supplier links between firms located in Madeira and suppliers on the mainland. This geographical effect also limits the 'business case' to adopt. In fact, it is evident that a total replacement of communication modes by technological artefacts is out of the question. The local firm's preferences in terms of communication models with customers and suppliers are not unique. Houghton and Winklhofer (2004: pg. 370) point to the fact that exporters' are interested in avoiding conflict that may result from the adoption of e-commerce functionalities (e.g. price information on the web page). What matters is to keep long-term relationships going. It can be asserted in line with Yli-Renko et al (2001: pg. 11) that most OMs do not want to affect "the level of social interaction between the firms", and "the quality of the relationship in terms of goodwill, trust and reciprocity" (see also Preissl, 1995; Mitchell and Clark, 1999).

Both suppliers and local firms seem not interested in changing the rules concerning communication modes. Given the extensive amount of contacts and transactions, some OMs search for new suppliers only in a reluctant way. In fact, most local firms profit from long-standing investments in specific commercial and relational linkages and are not interested in changing suppliers.

As suggested above the option for traditional communication methods (fax, phone and direct contact) is not only a result of a local preference. As stated by Firm O:

“Well they (suppliers) say you can use our email, but in the end, I call them on phone”.

And as explained by Firm P, most suppliers are also interested in close direct links with local firms' to access information flows.

There are reasons to believe that technology based communication models do not fit well with long established commercial relationships, as they only allow a very narrow and limited transfer of information and contextually poor codified knowledge. As shown by Almeida and Pereira (2007), local OMs travel every 50 days on average between Funchal and Lisbon, which means that local retailers are interested in having a close look at all products that they are going to offer to their customers. In line with Belussi (2004: pg. 248), it can be assumed that “physical and social proximity could remain for long time a very important factor hidden behind ICT adoption. In other words, the delocalizing power of the Internet and ICT technologies, in contrast with what was initially forecast could be modest or even non-existent”. Still quoting Belussi (2004: pg. 251), it can be asserted that non adoption of complex ICTs is “not just a sign of backwardness, because firms rightly choose a low-cost social technology that could successfully be implemented”. In fact, as declared by Jarvis et al (2006: pg. 163), the “Internet is not a suitable method of securing new business” as in the context of the LFRs, “traditional methods of establishing customer relationships are still successful”.

Thus, it is acceptable to conclude, in line with Belussi (2004: pg. 211), that relational and geographic proximity renders “partially redundant the registration of transactions through complicated electronic applications”. In fact, as stated by Malecki, 2003: pg. 211) “many aspects of business remain possible only with a real presence with real people in a physical facility” (Malecki, 2003: pg. 211).

As stated above, “attributes that were salient and readily accessed from memory tended to be the first thing mentioned” (Pritchard and Havitz (2006: pg. 31). Only one OM

pointed out suppliers or government initiatives to assist him with his e-business venture. This was a surprising result as there are a small number of web page factories, certainly interested in encouraging a large scale adoption of web pages.

6.3.6 Indirect drivers of ICT adoption: OMs profile and Business Culture

As suggested in Section 6.2, most firms believe that they are unique. This is not a result of a consistent niche approach as it is currently understood. In fact, even though the local market is quite small, geographical segmentation is pronounced. For example, as the administrative partition of the island comprises 11 counties, in some market niches there are at least 11 local leaders. Another reason available to explain the market segmentation is the fact that most OMs are supplied by different supplier and offer slightly different products to quite a specific geographical area. As a consequence, most firms believe that they customize products/services and in fact they have a certain degree of monopoly. As a result, they can often charge higher prices than the industry average. As suggested in Chapter 5, price is dependent on special family/friend relationships.

The inclusion of information about price on the web page lessens the capability to handle complex price strategies (Porter, 2001). Song and Zahaedi (2006: pg. 222) states that “firms with a mixed strategy are bound by their brick-and-mortar prices and are less flexible in competing on price”. Furthermore, the initial success of pioneering online vendors is attributed to competitive pricing policies. According to Porter (2001) the basis for competition (over the Internet) shifted toward price. In fact, some e-business models are based on heavy discounted prices and destructive price competition that erodes a firm’s distinctiveness. But local OMs seem to be not interested in decisions that may erode the attractiveness of their business and undermine profitability. On the contrary, local OMs prefer a case by case approach concerning price in order to manage the dense web of special relationships.

Another key dimension of the local culture deserves our full attention. Most OMs are absolutely convinced that all relevant ideas, innovations and business concepts are external in origin. It is now possible to understand their alleged indifference to other local firm’s strategies/behaviours. In fact, as declared by Farrugia (1993) the neglect of local initiatives and the preference for imported business models may be the best

approach to avoid cognitive lock-in. As suggested in Chapter 5 the lack of a local innovative milieu prevents “closer proximity to urban industries, and urban skills base”, and, therefore, access to up to date information (Jarvis et al, 2006). Further, the existence of cohesive social spaces and strong proximity/relational effects enhances an ‘isomorphism processes’ (that is, the convergence of management philosophies and strategies amongst the population of firms operating in a close geographical area) that is not beneficial to the diffusion of innovations (to the extent that they stop adopt new innovations). It is important to clarify this point, as the research concerning travel patterns of local OMs does suggest a strong attraction for ‘external sources of innovation’ (Almeida and Pereira, 2007).

As suggested in Chapter 5 the decision-making process in stable environments is quite often based on old success stories (well-known solutions) even though the number of critical incidents is mounting. In the ‘evolutionary field’, this kind of lock-in phenomena is designated by path dependency and involves difficulties to ‘abandon’ accumulated experiences, routines, technologies, products and markets (Sornn-Friese and Sorensen, 2005; Durand et al, 2003). As a consequence, the ‘external-orientation’ of most local OMs in terms of access to innovations is well placed. Some OMs declared to travel regularly to the mainland in order to have personal contacts with suppliers and sense the evolution of the market. Thus, the RAM case study provides evidence to contest the importance of localised processes of knowledge, creativity and inter-firms linkages. Alternative theoretical models are required to accommodate this result, as some assumptions behind the fashionable models are unsustainable.

However, there might be less ‘positive’ reasons behind the external orientation. Kenyon and Gilbert (2005: pg. 386) highlight factors such as “reluctance to seek local help” due to “concerns over confidentiality and not wanting to be seen as weak”. In fact, the lack of interest in the analysis of the competitor’s web pages may result from the relative poverty of these web pages. And most OMs seem suspicious about other OMs’ intentions. As stated by Firm H:

"You must recognise that most people are going to lie or not tell the whole story for the reasons that you already know";

Firm J stated:

“I have already had the opportunity to visit a competitor’s factory; well he is not really my competitor; if we were competitors I would not have had the chance to visit the company”

Therefore, it can be suggested that another reason to ‘avoid’ the adoption of relatively complex web pages can be linked to the application of ‘defensive measures’ in relation to the competitors technological/market scanning.

The ‘secrecy factor’ is another reason to understand non-adoption of e-commerce functionalities. As stated by Firm F:

"We must be careful about the information that we add to the hotel's web page; we try to be extremely innovative, offering new initiatives all the time to our clients who expect to be ‘spoiled’; our clients expect to be surprised, as they pay reasonably well; if all information is available on the firm’s web page on the Internet, our competitors would easily copy our initiatives".

6.3.7 Indirect drivers of ICT adoption: investment strategy and learning behaviours

As expected, most firms will invest if industry standards require an up-grade of the technological systems in place. However, few investments in the ICT field are planned, as key critical factors seem stable (in terms of customer/supplier links, geographical orientation, and managerial skills). And although the degree of readiness to invest is quite high, most firms have an absorptive capacity problem in terms of adopting intangible innovations. In fact, OMs are prepared to invest but in traditional equipment/machinery. But if there is ‘business case’ even in the ICT field, it can be declared, in line with (McAdam and McConvery, 2004: 213) that “SMEs were found to be effective at changing things quickly and efficiently, and also in giving it full consideration before a decision was taken”.

As stated above in section 5.3, investment strategies are dependent on the OMs management philosophy. And as expected there are reasons to assert that most OMs prefer a tight control of all external interfaces and daily operations. As a consequence, there are limits in terms of time and attention available to pursue learning behaviours and strategic thinking. In fact, the ‘tight control’ of daily operations limits the number of extra projects which can be handled. But as the parameters for competitiveness

depend on the OMs' control of daily operational decisions, especially in terms of the management of the dense web of relational and proximity effects, which are extremely demanding activities in terms of time and energy, OMs can not afford a different approach. Therefore there is little availability of time and resources for strategic thinking. And as most micro/SMEs are struggling with limited managerial and firm resources, to pursue an investment not directly related to improvements in terms of classic parameters for competitiveness may impose a diversion of critical resources (attention/time) from the really important issues. There are reasons to suggest that efforts applied in non-operational issues may be interpreted by outsiders as meaning that the OM is not interested in more mundane (although critical) daily operational issues. In the end, only innovative firms with redundant resources (economies of scale) in terms of managerial skills and qualified personnel may be able to pursue a double approach (traditional investments plus innovative investment). As stated by Firm D, which is planning a major investment abroad:

“Only those firms with many resources and qualified employees can progress simultaneously at the internal and external level”

It is evident that this 'restricted ICT adoption approach' fits well with firm's strategy and OMs modus operandi, as it is not demanding in terms of time/attention. These firms are not excluded from the Internet Revolution, as evidenced in section 6.2, but are at a lower level in the “Internet hierarchy of effects and adoption commitment” (Celuch et al, 2005: pg. 1).

As stated in Chapter 5, an understanding of the firms' Internet strategy demands an explicit theory of the firm. Although we do not provide a complete theoretical account about firms behaviour, some comments are provided about OMs' attitude towards growth, learning and innovation practice. As seen before, an overwhelming control of daily operations on the OMs' part is evident. Such overwhelming control is also extended to the firms' learning processes. In fact, the process of learning is a 'one man show', especially where micro/small firms are concerned. Employees are not involved in the process of change as hypothesised by the organisational learning approach, except in terms of the operational issues. As expected the Internet based learning is limited to the OM and 1 or 2 key employees. The reasons can not only be found in OMs' preference for an overwhelming control of business operations, but also in the non-availability of qualified staff.

The ICT adoption rationale is conditioned by the preferential learning mode. The majority of OMs privilege informal and problem focused learning (as expected, given the OMs' background), expressed in a focus on a hands-on approach. Incremental innovations prevail and most OMs only accept minor changes. In fact, the key local sectors (construction/retail) are categorised as mature industries characterized by low tech/innovation scores. As stated by Firm E:

“In the construction sector everything has already been invented, it is not possible to find new ways of building bridges”

Local OMs seems to privilege a managerial approach not linked to knowledge/information sharing, employee empowerment or decision making decentralisation. On the contrary, the adoption and implementation of technological and organisational innovations quite often demands strong commitment and determination on the OMs part as employees seem to resist innovation. In order to understand the idea, four direct quotations are provided.

“Firm N: “our employees are always afraid to do new things”

“Firm L: “: "I offered two employees a CAD training programme; one of them 'strangely' refused because he was not interested in spending time and having to live for a while outside our village; now 'he walks' around (not concerned with career opportunities, promotions or even if he is to be fired) but he does not seem very worried about it’

“Firm Q "One of the annoying experiences happened when one of the pastry makers decided not to use Belgian chocolate but instead the first one which he came across; that whole batch was ruined and the clients noticed a change in the flavour; our product was having a huge success and we could have ruined everything; ... "we must control everything". (This OM and his associate, despite the absence of initial experience in pastry making, managed to accumulate valuable experience in about 2 years via direct experimentation with new products. Although they work with some of the best bakers in the market, the whole process of innovation/testing is supervised by them. As they are not sure about the level of commitment of their employees they try to understand all the process. Therefore, they work for 16 hours a day. And it must be highlighted that the educational background of this OM and his associate is a University degree in management sciences).

“Firm J: “When I invest in a new machine/process, employees usually say that it is not possible or that it is not going to work; I must go near them and tell them and show them how it works, to show that it is possible; if they insist on saying that it is not possible, I force them to do the work as it must be done; to avoid such a reaction we buy and apply kits (doors) which are much cheaper than if they were produced here in the saw mill; with kits it is possible to calculate the time needed to do it and pay per item... I know the three ‘crooks’ who work here with me very well”.

But the episodes of resistance and aversion towards innovation are not specifically local. The factor ‘user’s resistance’ is also important to understand the innovation averse attitude elsewhere, as stated by Hope (2004) and Gretzel (2001).

However, it must be admitted that the absence of a ‘managerial style’ which recognises employees’ contributions to innovation is not only a result of employee resistance to change. In line with Wong and Aspinwall (2004: pg. 51) it can be suggested that when an OMs “hoards knowledge, controls every aspects of his/her business, discredits trust and punishes mistakes may well impede the building of a knowledge (and innovative) friendly environment”. In fact, the ‘problem’ may be linked to a ‘suspicious’ attitude as it is easy to develop a ‘siege mentality’ (a ‘no-go’ area attitude) about employees’ competences and commitment. The RAM case study is in line with the results provided by McAdam et al (2004: pg. 214) as they acknowledge a “surprising level of resistance to change, especially in relation to empowering employees to become involved in innovative activity”.

But there are other (more or less surreptitious, unconscious or parochial in motive) reasons that may be more important than the alleged employees’ lack of concern with innovations. A reason underlying employees’ non-involvement in decision making may be linked to the fact that OMs are not interested in sharing information/technical experience with employees, as it may result in ‘spin-offs’ (as was possibly practiced some years before by the OM). The majority of OMs do not practise an open management style and prefer (distant in geographical terms if possible) trusted relationships, in order to avoid “contact risks with well-known partners [i.e., their employees]”. In line with Wong and Aspinwall (2004: pg. 55), it can be stated that local OMs tend to limit the “sharing of knowledge for fear of losing this control and they may resist providing knowledge by deliberately avoiding training and development opportunities for employees in certain areas pertinent to their own personal expertise”.

6.3.8 An 'indirect' model to understand ICT adoption in family-run businesses

Other factors should also be taken into account when we are dealing with family run-businesses. As suggested in chapter 5 risky strategies are avoided by life-style oriented OMs. Family-run businesses adopt growth/innovation strategies compatible with both family and 'corporate' goals. As seen before, the company is the main source of income, which results in "risk-averse strategies to be pursued in order not to jeopardize the family security or the property legacy" (Maes et al, 2005: pg. 19; see also Moshavi and Kosh, 2005; Phillipson et al, 2004). Management errors may cause the loss of individual and family assets, and/or bankruptcy. Thus, OMs avoid putting all of one's eggs into one basket. Contrary to the USA case there is a stigma linked to bankruptcy (Philipson et al, 2004).

The dilemmas faced by business/family in terms of risky investments can be expressed in a schema (See Figure 6.3). Let us assume that a given OM x is confronted with an investment decision (eg. adoption of e-commerce functionalities). It can be assumed that the entrepreneur faces a competence constraint in terms of capacity to control non-traditional investments. Risky investments such as the development of a digital platform may produce profit rewards (the scenario A) but also heavy losses (scenario D). How to proceed to make a sound decision? It should be acknowledged that most OMs had an 'employee' status some time ago. As a consequence they are better off if their annual income exceeds their level of income as an employee (the scenario C).

Contrary to what happen in core regions it can be suggested that a profit maximisation approach points to a 'minimum investment approach' (i.e., strict compliance with industry or competition technological standards), which is represented by scenario B. Scenario B can be associated with low innovative scores in stable markets. But, from OM point of view of, both scenarios A and B are better than option C (employee average wage). But as scenario B is risk free in a context of stability, it should be admitted as a first best.

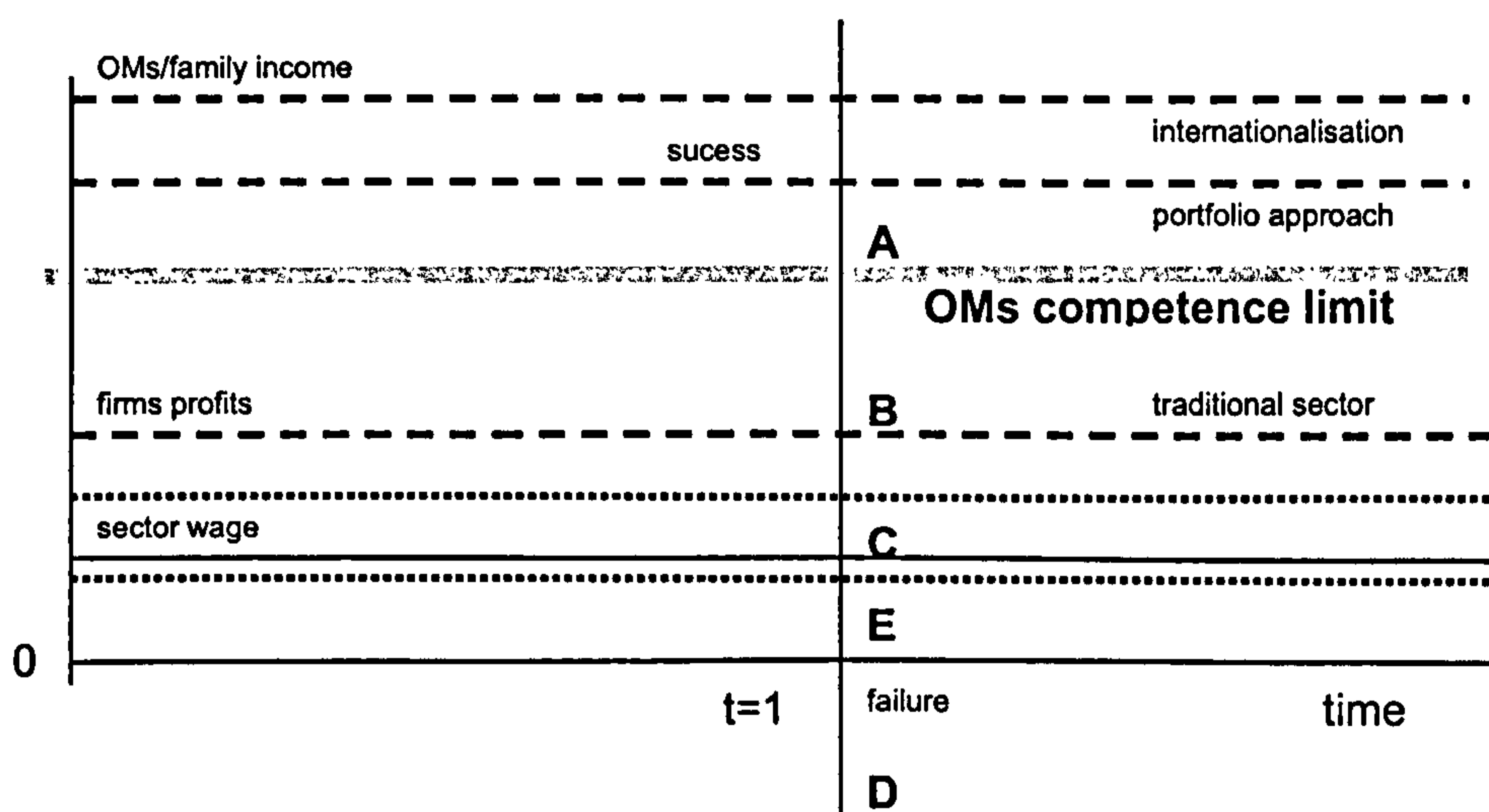
In fact, scenarios characterized by average income (profits plus wages) superior to the average wage in the sector (scenario C) may be understood as a better position, even though the firms OM is running an under-resourced firm in terms of organisational and strategic structure. Risky investments may imply a loss of family assets and the failure

stigma, as may happen in the case of scenario D (Skuras et al, 2002). From a utility maximisation point of view, we will have:

$$B > A > C > E > D$$

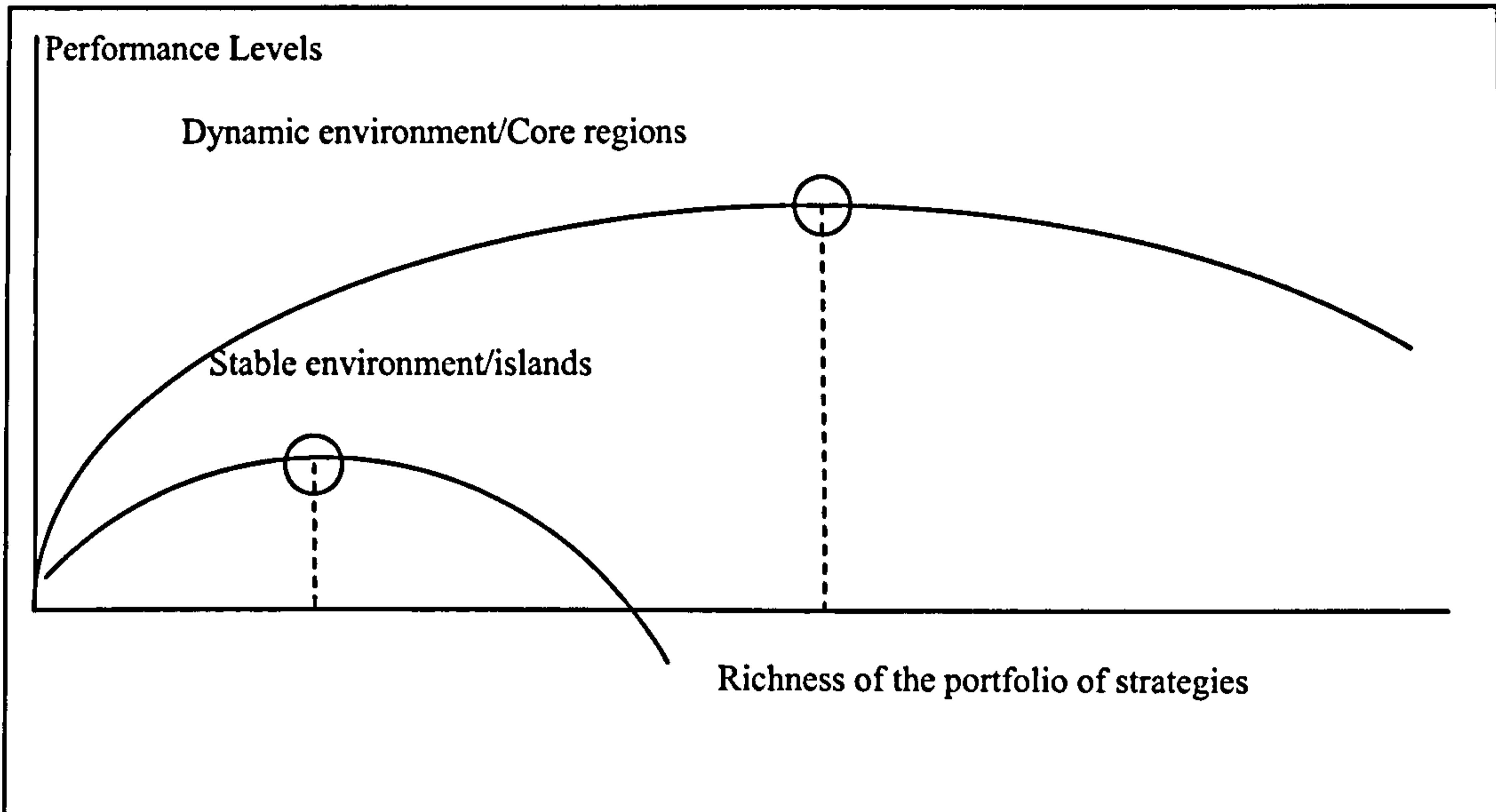
That is, it is suggested that an acceptable income superior to the average sector wage (scenario C) is available without substantial investment, which is especially appealing to OMs that “only wish to obtain and maintain a minimum level of income, rather than endeavour to maximize profits and sales” (Fillis and Wagner, 2005: pg. 605).

Figure 6.10 investment dilemmas faced by family firms



Although SMEs can not be categorised as complex business structures, local OMs should not be categorized as backward and ignorant as they have been quite successful. The entrepreneurial orientation, which is based on a restricted number of strategies and innovative behaviours, fit the stable context quite well and should be interpreted as a first best (See Figure 6.3.3). A prospector approach (based on aggressive innovation strategies) would probably be a second best and linked to 'sunk costs'. In the end, no matter which efforts are deployed by local OMs, the geographical constraints in place limit the performance scores available to be reached.

Figure 6.11 Performance and entrepreneurial orientation in stable environments



In fact, local OMs can be categorised as “profit maximizing entrepreneur, the rational decision-maker who innovates only following a strict profit rule, as portrayed by standard economic theory” (Belussi, 2004:pg. 3). It can be accepted that the rational homo economicus entrepreneur predominates as the adoption of new technologies is based on economic calculus, utility foreseen and profitability. In fact, ‘market opportunity’ is the key investment rule.

But it must be acknowledged that we are not dealing with a population of ‘innovative’ firms. Most OMs pursue incremental adjustments and innovations within a limited range of potential changes. SMEs operating in RAM do not make significant contributions to the accumulation of technological expertise and external competitiveness. And most OMs opt for a ‘defender’ or ‘reactive approach’ focused on cost advantages, operational efficiency and minimum scores in terms of quality standards. Although investment strategies are not ignored tout court, most firms seem to pursue a cautious investment strategy. However, the myth of changelessness must be refuted as most OMs declare they pursue growth-oriented agendas (Kow, 2004).

6.3.9 ICT adoption rationale and firms growth strategies

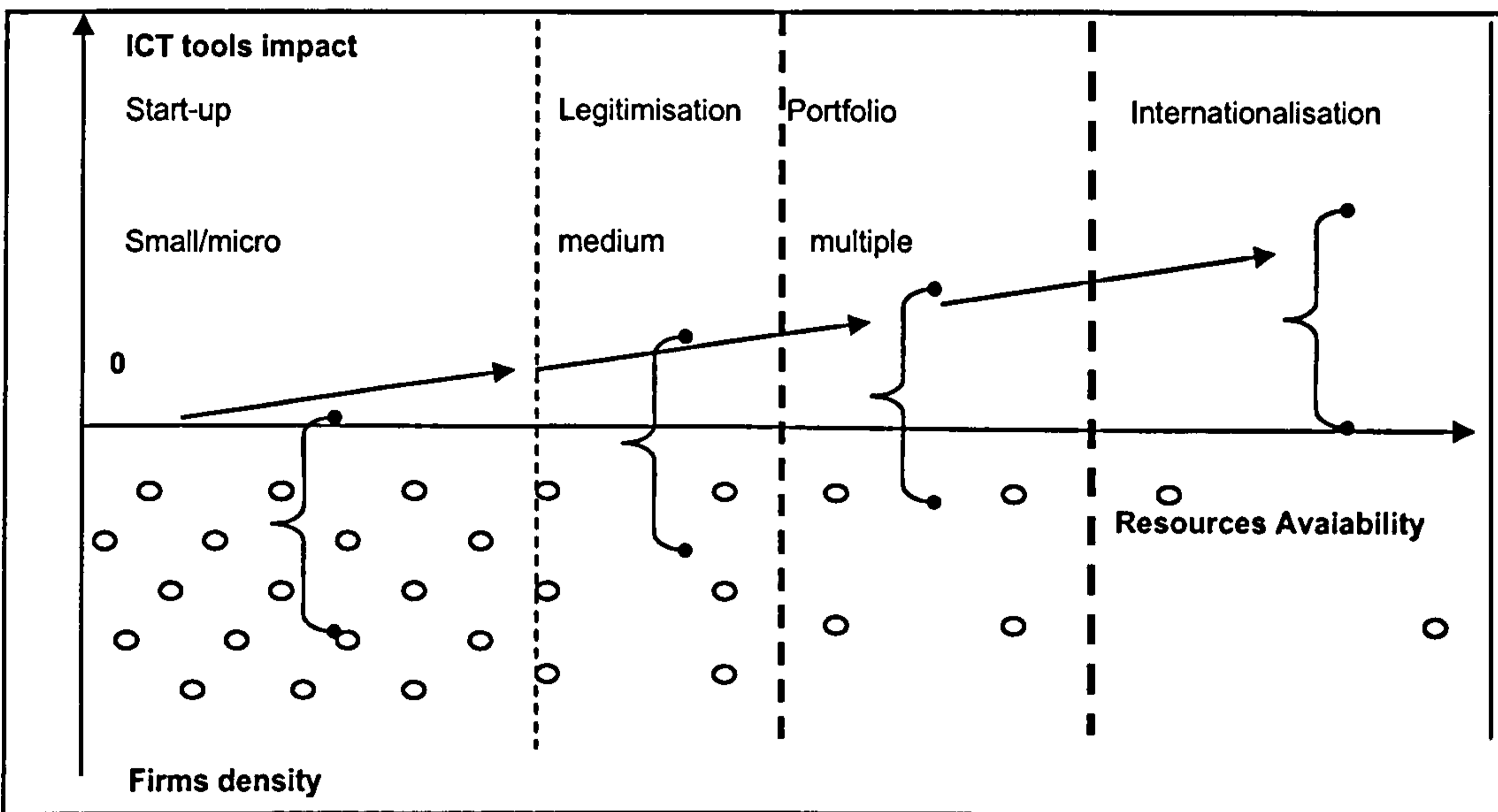
Most firms start small and remain so. However, some firms do progress to the next phase of growth (termed as the legitimisation phase which is characterised by leadership in the market). Now such firms have access to extra resources and exhibit increased levels of organisational complexity. They face lower investment risk, as there is extra capacity to implement internal solutions. As shown by Caldeira and Ward (2002: pg. 137) in-house technology knowledge may be used to develop tailored software that fits the production processes and increases bargaining power with ICT suppliers for the acquisition of ICT tools. And outsourcing is more accessible to the 'big players'. Further, as larger firms experience moderate levels of competition, they may pursue alternative growth strategies. Micro and small firms located in the same geographical area are now unable to pursue price wars as they cannot profit from economies of scale as the larger firm do. And as a consequence of accumulated experience and access to economies of scale, it is observed, in line with Orser et al (2000: pg. 54) that "growth provides an impetus for subsequent growth".

There are, however, geographical and psychological thresholds that are not easily managed by most OMs. My line of reasoning is based on the pattern of growth experienced by all firm considered except Firm R. In fact it seems that all growth phases must be experienced as there are no examples of 'global-born firms'. Local firms reach the internationalisation phase only after sequential and slow growth. The leading local retailer took about 50 years to open their first shop in Lisbon.

As suggested in Chapter 3, there are limits to the percentage of firms to be included in the following growth phases. Due to market potential constraints, there is no economic space for a large number of 'growth-oriented firms' pursuing growth only in the local market. In the end, only a tiny fraction of firms can reach the next growth phase and have access to resources and a business case needed to support the adoption decision. As a consequence it can be suggested that complex ICT tools are suitable for only a small fraction of firms. As suggested in Figure 6.4, positive outcomes in terms of adoption of relatively complex ICT tools are only available in the last growth phase. A complex ICT strategy is almost certainly linked to negative outcomes in the start-up phase. A short note about Figure 6.4: in the 'start-up phase' are included all firms that

do not progress further in the growth ladder and remain small in size. Firms belonging to the legitimisation phase are local leaders in their specific niche market. In terms of size, they may be categorised as medium size firms. The portfolio phase includes all multi-business entrepreneurs. As suggested in Chapter 5, due to market potential constraints it is often impossible to move beyond the medium size level. Extra growth opportunities are only available in other niche markets. The internationalisation phase involves a physical presence abroad and/or access to distant markets. It is believed that only a 'insignificant' fraction of local firms are involved in external ventures.

Figure 6.12: Firms' growth phases and outcomes of a complex ICT strategy



As seen in section 6.2, we cannot stigmatize local firms as ignorant, backward and innovation averse concerning Internet based technologies. On the contrary, SMEs are quite sensitive to the Internet revolution. But the 'island penalty factor' demands such high scores in terms of business case and firms' resources that the share of the rational adopters is very small.

But even though ICT adoption rates are quite low, the idea that most OMs understood ICTs as an important management tool cannot be dismissed. In fact, most plans in terms of firm's development (major changes such as premises refurbishment, up-grade of scale of operation, extra organisational levels, recruitment of experts/technical staff)

include an ICT option. The adoption of ICT tools is linked to an ideal 'next growth phase' that will never come for most firms.

6.3.10 Regional development prospects and ICT adoption rationale

As suggested above in section 6.2, low adoption rates in the firm's 'inner circle' limit the viability of Internet-based models. Even click and mortar strategies are not viable. But as the younger generation may be branded as technophile, an increasing number of young people adopting wired styles of life should be expected. In fact, the younger generation may trigger the general replacement of old management styles and motivate some firms to adopt e-business models.

Although parameters for competitiveness seem quite stable, customers are demanding higher quality standards. Most OMs acknowledge that their customers benefit from extra information, capacity of analysis and choices in terms of products and suppliers. As customers are more prone to evaluate, compare prices and technical data, a click-and-mortar strategy may be required to sustain the current competitive advantages. As stated by Firm C:

"In fact, the buyers want better quality; well, in the last 10 years we sold some things [houses] well, ..., but now the buyers are much better informed and demanding"

Firm M is planning a major up-grade of its web page in order to offer better customer service:

"Our market segment is based on the middle/high class; thus we are developing a sophisticated web page project specifically oriented to target our customers".

In line with Buhalis and Deimezi (2006: pg. 312), it can be asserted that "customers have become more sophisticated and discerning, experiencing high levels of service and requesting high quality of products". In fact, recent socio-economic development have contributed to the rise of a relatively affluent 'middle class'. The influence of the quality factor in terms of adoption rate is rather subtle and indirect, as firms may only be interested in avoiding a 'null result' when their customers are browsing the Internet. ICT adoption is linked to the evolving customer expectations as far as it is really needed (Oliveira, 2000; Henschion, and McIntyre, 2005). In the end, and as stated by Malecki (2003: pg. 210) "even though consumers are far less constrained to local merchants,

they remain loyal to those businesses that provide a 'relationship' that matches (and anticipates) their needs.

It is time to show that OMs operating in remote areas face extra development handicaps, which limits the number of rational adopters. As seen before, growth oriented OMs must pursue an internationalisation and/or a portfolio approach if they want to progress to the next growth phase. But the next growth phase implies adoption costs beyond the scope of most OMs. There are 'psychological' and geographical barriers to be managed besides lack of resources and competences. Concerning OMs operating in RAM, the closest market area is located in Las Palmas (544 km) but cultural/linguistic differences must be taken into account. The next one is located in Lisbon (963 km) and the next one is located in the Azores (1151 km). From Newcastle, the same distances may be related to Amsterdam (486 km), Copenhagen (998 km) and Oslo (1104 km). But firms operating in the Newcastle area don't need to go so far because all the intervening market opportunities. It is quite obvious that any attempt to reach extra market areas incur such high levels of cost/discomfort and disruption of daily operational tasks that only 'larger firms' can pursue such a demanding approach. As a consequence, scenario B pictured in Figure 6.10 is the most interesting one for the typical OM.

In fact only one of the traditional firms was able to provide a piece of evidence regarding an attempt to reach external markets. But it was a stressful and unfruitful venture, given the lack of competitiveness of their products. As stated by Firm A:

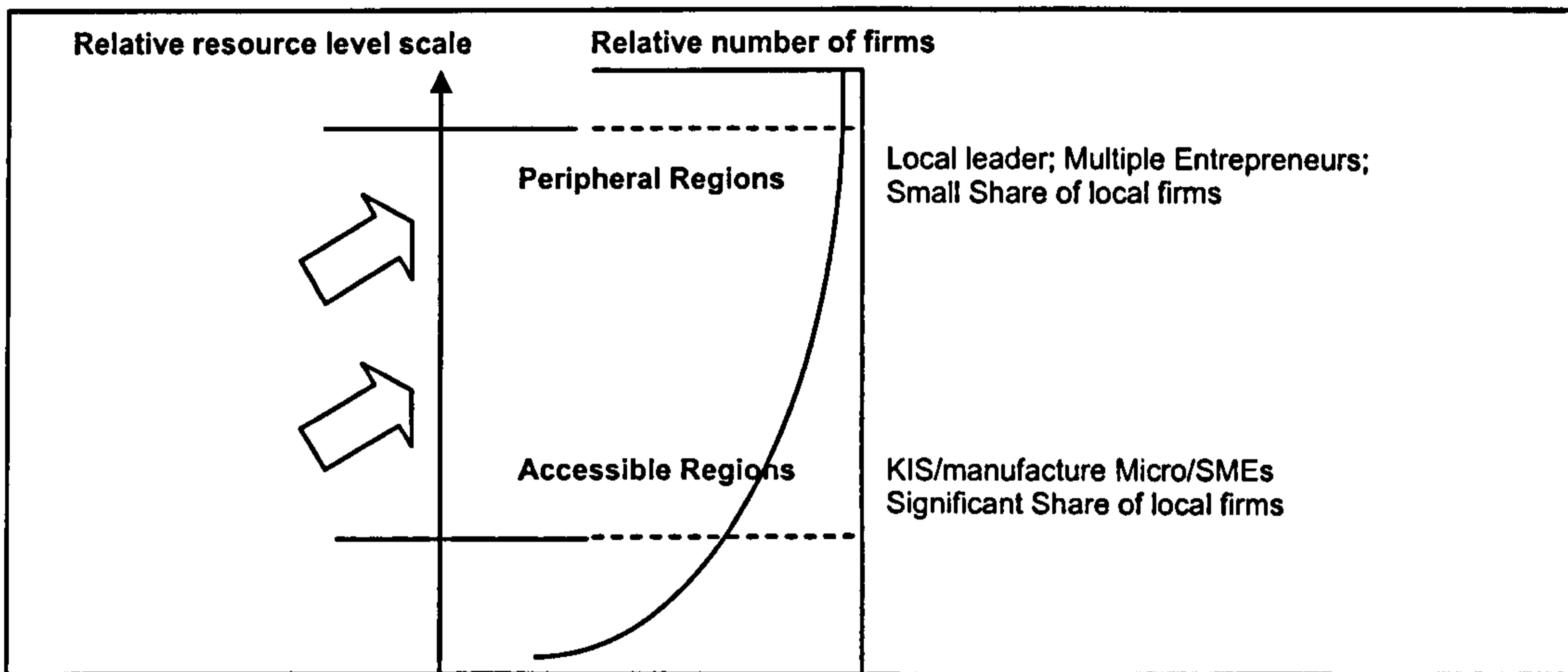
"We try everything to export our molasses, but there is no chance with the imitation products; look at the shamefulness of the local hypermarkets also adulterating the product; I tried everything; I went to Germany, but it didn't work".

No one else seemed interested in externally driven ventures. In fact, most OMs are quite convinced (resigned) about the impossibility of getting there. But one of the new OMs (Firm Q) was interested in further development of his business concepts (e.g. via development of a franchise network).

It is evident that local OMs must overcome a series of 'obstacles' namely regarding in-house resources before reaching the 'rational adoption area'. Contrary to what happens in core regions, local rational adopters should be local leaders with a portfolio of entrepreneurial ventures (see Figure 6.13). Firms operating core regions are not subject to such demanding requirements (i.e., they need lower levels of resources and lower

market shares). This is the key difference between a peripheral region and a more accessible one in terms of the typical adopter.

Figure 6.13: Core regions versus peripheral regions: the typical adopter



6.3.11 ICT adoption profile and regional development prospects

Most OMs' express discomfort and apprehension concerning the on-going crisis in Portugal. As OMs were raised in a protected social/economic environment, they were only able to remember one episode of economic downturn (1992) for the 1985-2003 period, however linked to the political instability in Venezuela and South Africa. The absence of previous crises constrained OMs' interest in aggressive entrepreneurial attitudes as innovation and learning were not required for success. Consequently, local small firms lack experience to meet the challenge of the changing environment, which limits both their firm's development prospects and their capacity to evaluate risk.

In fact, the favourable macro-economic environment in place for most of recent past has favoured the multiplication of 'entrepreneurial projects' deprived of any concerns with 'quality' standards, organisational structure and technological experience. As suggested in Chapter 2, an easy access to financial transfers and investment opportunities triggered the multiplication of entrepreneurial experiences. The rate of creation of in the retail/construction sector was quite impressive, but the market is now 'stuffed' with

low-tech firms and 'illiterate' OMs (Geoidea, 1997). This scheme of reasoning is based on evidence provided by Firm L and Firm B. As stated by Firm L:

"Many businessmen have all the (organisational) structure in the trunk of their car; notice that for those who had nothing, having a firm does not represent any risk; zero is better than minus 1 or 2"

However, at the moment, the crisis is rather a payment crisis than a fall in demand crisis. Most OMs seem to experience difficulties in proceeding with payments.

As stated by Firm B:

" there is still work and houses to build, the problem is the payment; people have no shame anymore; besides the difficulties in collecting the money on the part of the locals, a foreigner said that now he had no money; as if the locals were not enough of a problem..."

The absence of experience of managing crisis events has, for sure, consequences. In fact the absence of critical incidents together with the expectation that they are witnessing only a temporary crisis, still limits the interest of local OMs in major changes. Local OMs perceive their growth prospects as rather poor. However, the economic recession is not having a huge impact on them and most OMs expect better economic growth perspectives before long. It seems therefore, that local OMs don't conceptualise the current crisis as a trigger event (Dunford, 2006). As stated by Firm D (a larger firm operating in the construction sector):

"The crisis has been exaggerated; notice that the government's development plan is going to continue to have its infrastructures; the OM of Firm E agreed with this line of thinking".

As a consequence, as is evident from the OMs discourses, there is still a tendency to repeat successful old behaviours. Most OMs adopt a see and wait approach as they expect better days. As stated by Kourteli (2000), few OMs seem convinced of the fact that old organisational theories/practices 'must gradually be faded out'. It is also evident that past crisis events were not sufficient in number to trigger management/cognitive frame changes. Thus, there is no preparedness to cope with the on-going crisis given the lack of lessons learned from previous learning incidents. The lack of crisis events and economic downturns to be handled limited the scope for organisational reflexivity defined by Cornford et al (: pg. 36) as the "ability to reflect on current ways of doing

things within and between organisations underlying the learning regions experiences in the core regions". There are still high levels of confidence in the Government's ability to manage the crisis. In line with Kenyon and Gilbert (2005: pg. 375), it can be stated that there is not a "widespread anxiety, mistrust of government's ability" to protect their citizens (business). And it can be said that most OMs still seem confident in relation to their own capability to manage the crisis (if one severe crisis emerges).

And contrary to what was expected, the crisis event is demanding extra attention be given to traditional critical success factors. In fact, in a crisis scenario maintaining market share is the key concern. And most OMs are convinced that competitive advantages (and market shares) are still based on non-technological factors such as established reputation, product or service quality, specialised expertise and personal attention to client needs. And the current crisis is pushing OMs to adopt a more cautious approach concerning 'heavy investments' (Freel, 2005).

It is suggested that a benign evaluation of the external environment may lead to wrong assumptions about the current status in terms environmental uncertainty. In fact, most OMs believe that they are still in command and that extra competences are not in need. In line with Kwo (2004: pg. 298), it can be suggested that this benign evaluation can "reinforce prejudices, by keeping a narrow, simplistic and dichotomised view of what is needed and not needed, and taking routine actions that can block the vision of reality. It is quite evident that overwhelming control of operational decisions plus the benign evaluation concerning the on-going crisis may lead to a 'changeless trap'", as the current crisis is not awakening OMs 'inner circle' (Kwo, 2004: pg. 298). Figure 6.14 depicts a double challenge faced by local OMs. The impact of the on-going crisis event (in terms of fallen demand) is composed/paralleled by the obsolescence of the existing business concepts, especially in the retail and construction sectors. Most business concepts are outdated and as a consequence a sudden fall in demand levels may damage business prospects beyond recovery. However, the first reaction will be to intensify (traditional) managerial efforts to save an uncompetitive business model. In the end, it seems that most OMs are not convinced that they have to step outside their comfort zone, which would then implies a changing attitude towards innovation (at least in terms of access to new suppliers and cost advantages) (See Figure 6.15).

Figure 6.14 The 'business as usual trap'

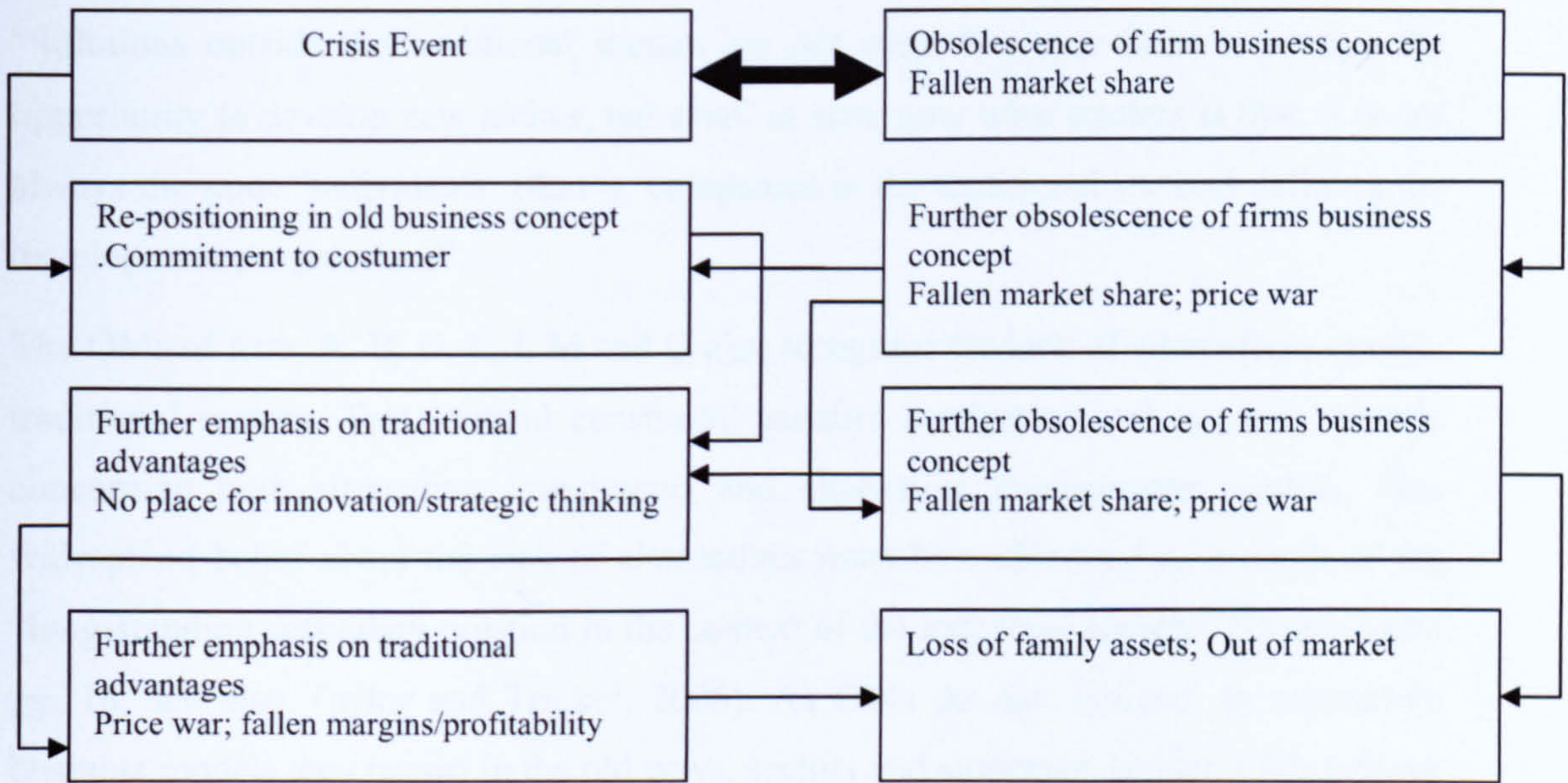
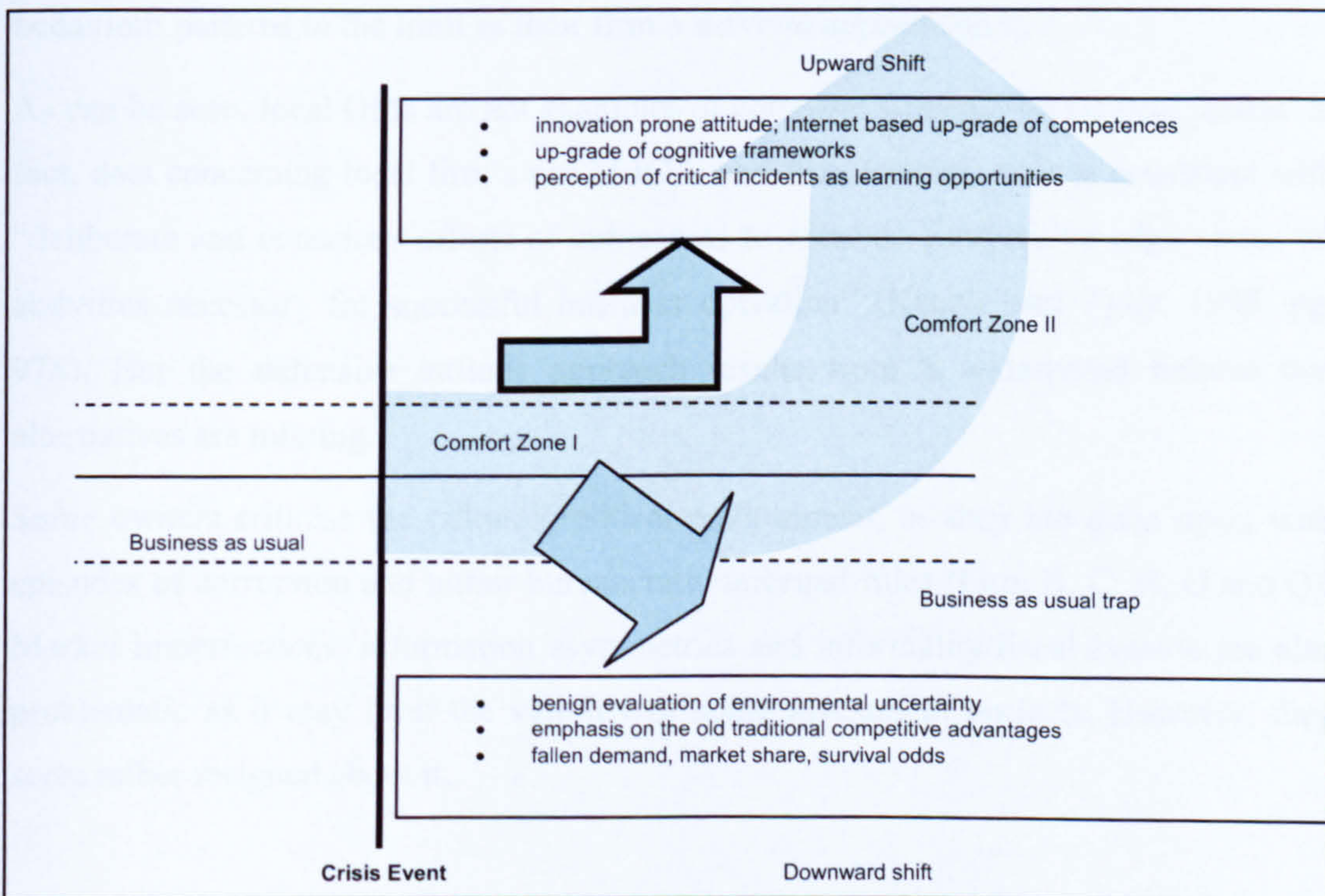


Figure 6.15 'Awakening' of the entrepreneurial spirit



But the incapacity to think strategically about alternative investments and business models is not only a result of the lack of crises (and critical incidents). In fact, the 'island penalty factor' is a major factor conditioning the investment strategy, as most OMs are quite sceptical about the success of entrepreneurial adventures outside traditional sectors and old rules of behaviour.

As stated by Firm R:

"Solutions outside the traditional sectors are not easy; however there is always the opportunity to develop new niches, but small in size; now what matters is that, it is not always the same 'individuals' (that is, companies in the traditional sectors) defining the development programmes".

The OMs of firm, A, B, D, E, I, M and Q also recognise the lack of alternatives outside traditional sectors. This 'critical constraint' justifies a negative and cautious attitude concerning both alternative investments and alternative management models. This widespread belief about the lack of alternatives must be understood as a result of the "long-standing secondary position in the context of the industrial society" (Dinis, 2006: pg. 18; see also Taylor and Tricker, 2006). As OMs do not 'believe' in alternative business models they persist in the old ways, sectors and strategies. In fact, OMs believe that they can do very little to change the impact of decades of economic marginalisation and lack of alternatives. And they are quite convinced that they must push the old behaviour patterns to the limit as their firm's survival depends on it.

As can be seen, local OMs are not examples of complete strategic/investment inertia. In fact, data concerning local firm's use of ICTs and firm creation rates is consistent with "deliberate and conscious efforts of companies to enhance competitive edge across all activities necessary for successful business operation" (Keeble and Tyler, 1995: pg. 978). But the defensive attitude approach results from a widespread believe that alternatives are missing.

Some owners criticise the cultural/political environment, as they are quite upset with episodes of corruption and unfair bureaucratic/informal rules (Firm B, C, H, O and Q). Market imperfections, information asymmetries and informality/fiscal evasion are also problematic as it may limit the viability of some investment projects. However, they seem rather resigned about it.

It is important to understand how local managers in Madeira are going to handle the tension between a very unique local culture (which promotes very paternalistic, informal relationships and close relationships with government departments) and what is now required in terms of international best practices and standard strategies. Cunha (2005; pg.190) is well aware that “one of the most distinct and peculiar traits of the Latin European nations is the paternalistic role granted to the State, which is expected to regulate, to educate and to protect people”. Cunha also concluded (2005, pg. 190) that Portuguese managers are rather “formal, individualistic and autocratic, obsessed with academic titles, lacking critical skills in such crucial areas as strategic planning and teamwork, and as being unable to manage time efficiently” (Cunha, 2005, pg. 191). However such problematic and non-professional setting was not an insurmountable obstacle to invest and prosper in Madeira. Most problems related to the informality topic are related to the fact that to “get ones hands on these funds to assist innovative e-business ideas that SMEs may wish to pursue, may be so complicated, confusing, and time unfriendly, that any entrepreneurial spirit soon becomes dampened” (Ramsey and Ibbotson (2006: pg. 327).

6.3.12 Regional growth prospects: past scenarios and future concerns

Most OMs believe that an important fraction of local micro/SMEs will not survive the on-going crisis. A dramatic increase in failure rates is expected by most micro firm OMs, namely regarding less innovative and under-resourced firms, that is, family run business and ‘informal’ businesses (Firm A, B, D, I, M, and O). Most OMs also believe, that if a solution is not provided (financial transfers; macro-economic stability), past scenarios of unemployment and emigration should be called to mind.

But there is also a ‘resource divide’ even about the negative attitude towards the future. Larger firms’ OMs are quite confident about their own firm’s survival odds. And the demand crisis is conceived as a learning/developmental opportunity and a push factor to progress further in the development ladder. Since the 90s, and in response to limited growth opportunities at the local level, local groups have been pursuing both a portfolio approach and internationalisation (Diário de Notícias, 2006).

From the above accounts, three different alternatives in terms of growth prospects may be defined. Scenario A is termed as ‘high failure rates’. Scenario B is termed the ‘high-

tech dream' and scenario C is termed 'business as usual'. The outline of the 3 scenarios is based both on the content analysis of the OMs comments and on the growth strategies presented in Chapter 3.

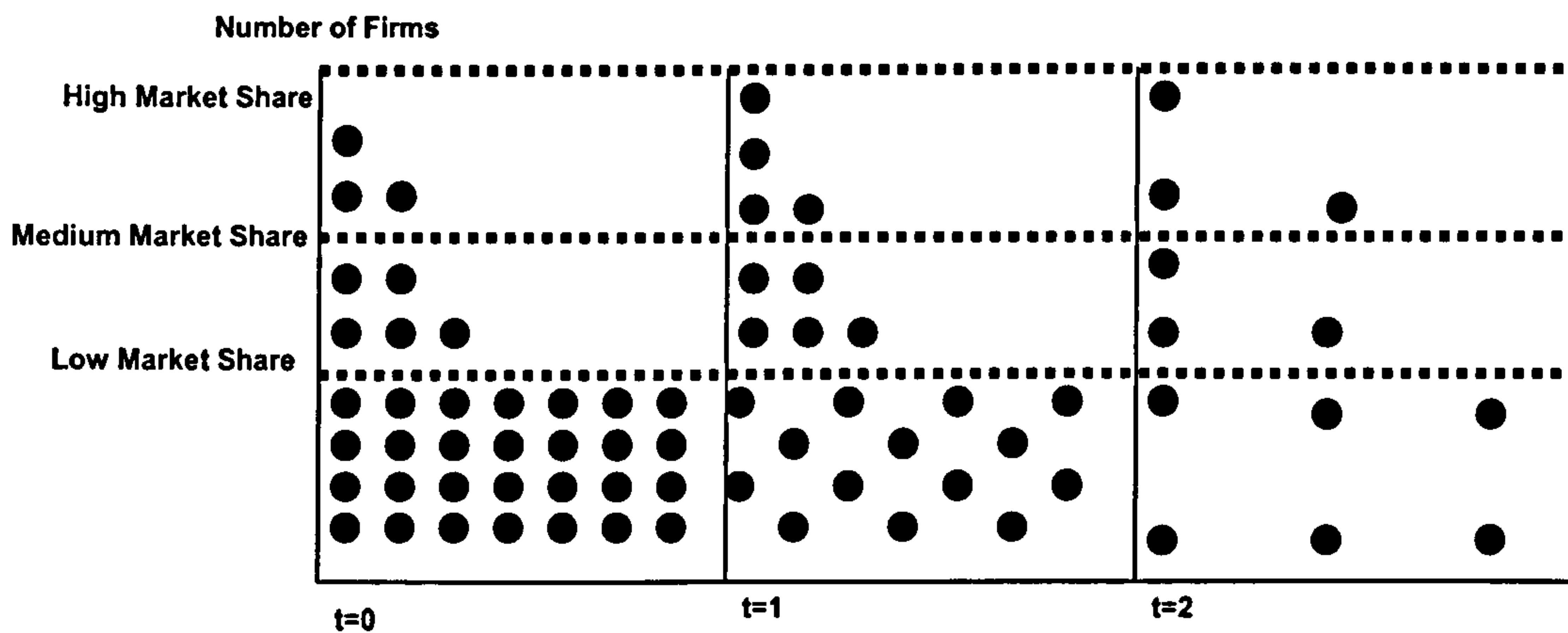
Scenario A has a high likelihood of occurrence. This scenario will be characterised by a decrease in the density number of firms and by the acceleration of the selection mechanism via replacement of the old business concepts, a process facilitated by the innovative use of the ICT tools available. This scenario will be a direct result of the adverse macro-economic context. The impact of the selection mechanism will be mediated by the damage control approach put in place by the local government. As suggested in Chapter 3, without financial transfers, a social crisis will follow and all marginalised groups within the society will suffer most. Unemployment rates will reach levels only seen on the islands in the 19th century. This scenario will witness the emergence of additional medium sized firms and the affirmation of monopolistic structures as shown in Figure 6.16. The role of Internet based technologies will be overall marginal, however, it will be decisive for some firms. In the end, a large scale adoption of ICT tools will impact only redistribution of the market shares, as access to external markets is unlikely. This scenario is in line with the 'ecological thinking'.

To Scenario B (the 'high tech'dream) presented early in this section is attached a low probability of occurrence. The emergence of an alternative cluster, for example in the ICT producing sector should not be expected. However, a miracle may happen. An initial positive event can be used as an anchor to attract additional investment, signalling the existence of investment potential in the area (Suire, 2003). The subsequent replication/imitation of the entrepreneurial behaviours may provide the second generation of entrepreneurs a reason to pursue the entrepreneurial experience of their parents, however in another sector. In this scenario Internet based technologies are understood as strategic in character and linked to the access to external markets.

Scenario C (business as usual) is seen as having a low probability of occurrence. This scenario is based on the maintenance of the global amount of financial transfers. The pace of life would not be severely affected and the traditional sectors would absorb all new entries in the market labour. And all social and political instruments in place would continue to set the boundaries of the strategic thinking. However, for the reasons explained in Chapter 3 it would not be wise to count on it. But such a scenario would

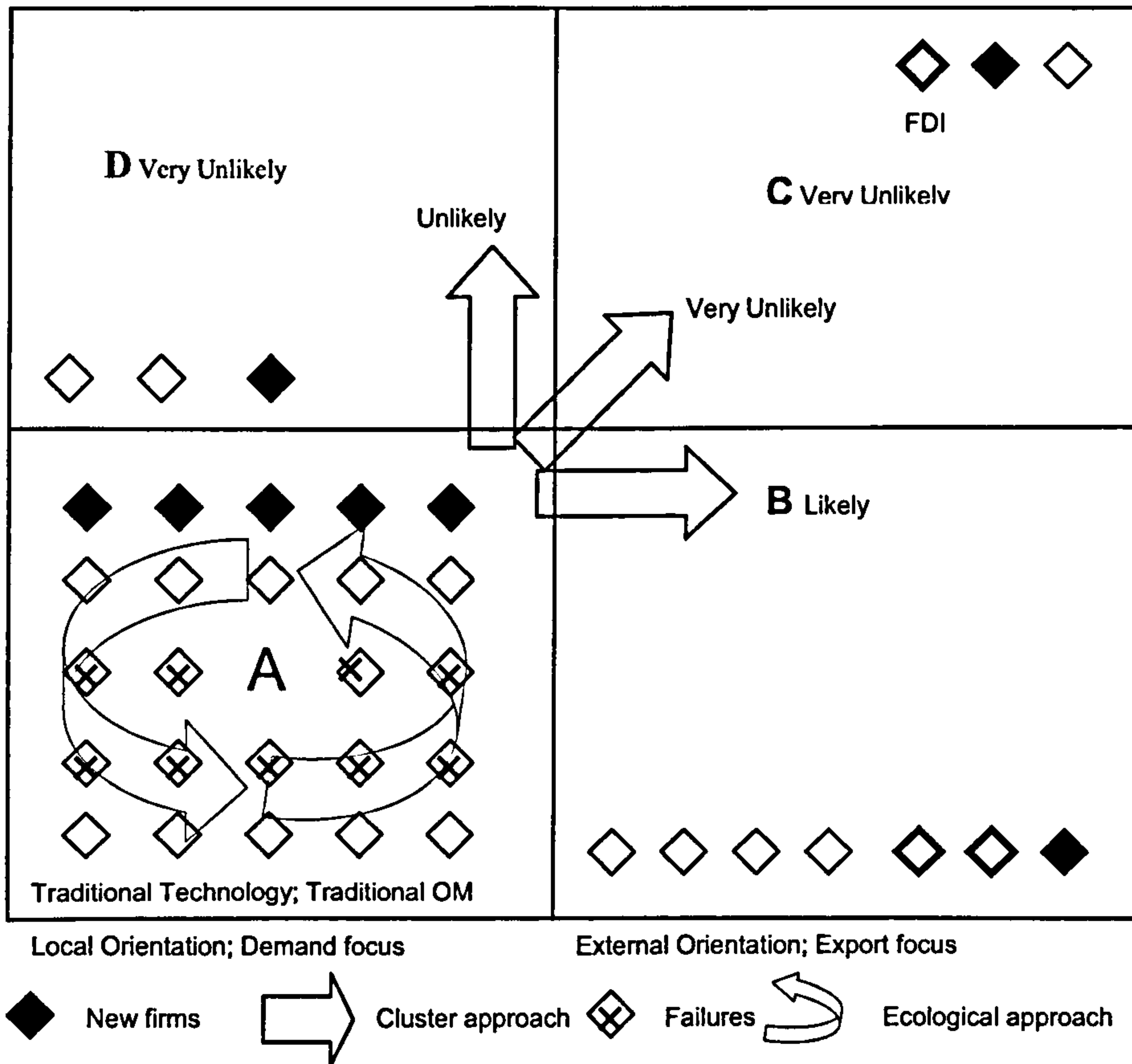
allow a proper transition for a new developmental phase (were one to occur). The impact of the Internet would be marginal.

Figure 6.16: Scenario A



It is quite evident from these case studies that local OMs do not understand any future outside traditional sectors and old rules of behaviour. At most, OMs expect a kind of miracle. This is quite a disturbing outcome as a decisive up-grading of parameters for competitiveness and industry-mix is strongly recommended by the EU. It is also evident that the focus in terms of 'creative thinking' is still based on the local market, which means that most OMs don't (genuinely) believe in miracles. Figure 6.17 tries to depict the dilemmas faced by peripheral regions. As suggested in Chapter 2 and Chapter 3, the EU expects an increasing numbers of externally oriented firms plus MNCs (quadrant C) and rising number of global born firms (quadrant D). However, it is evident that most firms are operating in quadrant A (characterised by low tech/locally oriented firms). Most OMs don't expect any future outside traditional sectors and will develop all efforts needed to survive the crisis period characterised by high rates of failure in order to reach the next growth phase (quadrant B).

Figure 6.17 Regional development paths: likely outcomes



6.3.13 Some preliminary conclusions from the qualitative analysis

The comments and remarks made in this section complement the analysis provided before in Section 6.2. It is evident that a large scale adoption of relatively complex ICT tools should not be expected as local firms lack the business case to do so. In fact, local firms face first order 'inhibitors' related to: a) geographical proximity on the customers part that lessen the rationality to adopt e-business models; b) the overwhelming focus on the local market; c) importance attached to personal relationships with suppliers located on the mainland, which also provides a strong rationality to avoid technology-mediated communication modes; d) widespread believe that alternative business models and parameters for competitiveness are not available, which lead most OMs to insist on old

behaviours and rules of thumb. Such factors are intrinsically related to the islands penalty factor and cannot be easily managed. Second order inhibitors concern: a) the overwhelming focus on daily operations, which limits attention and time to be given to alternative strategies; b) employees' resistance and low adoption rates in the inner circle; and c) and the lack of market opportunities to reach the next growth phase, where ICT tools are required to succeed. Only a tiny fraction of firms will reach the next growth phase characterised by higher requirements in terms of technological systems.

From the analysis of competitive strategies applied by local OMs, it is evident that most OMs know that creating value for customers builds on loyalty and personal relationships. OMs are convinced that their firm's survival and a long lasting business are a consequence of specific modes of value creation, which are based on personal relationships and other 'attributes' valued by customers. OMs are not convinced that the Internet "has shifted the basis of competition away from quality, features and service toward price or technology" (Porter, 2001: pg. 63). In fact, OMs are Internet experienced users but they do not believe that the "Internet changes everything, rendering all old rules about companies and competition obsolete" (Porter, 2001: pg. 63). In fact it seems that OMs believe that 'critical firm assets remains' intact and "they are strong enough to preserve existing competitive advantages" (Porter, 2001: pg. 72). As it is assumed that local OMs are fully rational individuals, the lack of e-commerce facilities suggests that online transactions are not perceived as creating net value for customers. This result is in line with expectations, as we are dealing with retail firms (small shops). However, even larger firms are not interested in the adoption of complex ICT tools. And, for the moment it seems that most OMs are trying to increase their levels of efficiency in the exploitation of the traditional critical success factors. Contrary to what would be expected, the on-going crisis cannot be conceived as a learning opportunity and an opportunity to reflect on past action and encourage search and exploration.

No one seems to believe that the old communication modes will be replaced by technological solutions, as OMs still acknowledge the importance of the traditional informal and personal based modes of communication over formal and technology based methods. As a consequence there are no reasons to suggest that the on-going crisis is about to trigger changes in terms of behaviours and attitudes. However, the myth of changelessness must be refuted as most OMs declare they pursue growth-

oriented agendas and in fact are trying to use the ICT tools for their own advantage (Kow, 2004). The problem is, that most OMs are quite convinced that they must push the old behaviour patterns to the limit as their firm survival is depends on it. Any changes are closely linked to the existing business models and strategies. Access to Internet is linked to 'an evolution in continuity', and not to a full replacement of the existing industry mix and business models.

However, local OMs have plenty of reasons to use the Internet, as innovative uses of it are translated into cost advantages. It can be said that a large scale adoption of complex ICT tools can not make a difference to the fate of this peripheral region. As most firms are still locally oriented any advantage in terms of e-sales will result in losses at others firms market shares, which means that we are dealing with a zero sum game

But the Internet can help individual firms to alter their growth prospects in the information society era. However, the growth prospects of given firm are dependent on competitors' growth prospects. As a consequence and for the time being, any advantage linked to the adoption/use of the Internet is a zero sum game.

As expected, most OMs perceived the Internet as far from essential. In fact, the OMs' ICT discourse is rather a history of 'vague ideas' and generic statements. Although most micro/small firms are not adopting complex ICT tools, that doesn't mean that OMs are not heavy users of more basic ICT tools. In fact, there is an invisible, complex and intense use of the Internet that may be branded as 'passive e-commerce'. In fact, despite the fact that the Internet use is 'invisible', important consequences may result from their use. The access to the Internet is translated into opportunity recognition and technological and market scanning and identification of innovative suppliers, business concepts and cost advantages. Thus, the firms' survival odds are affected by Internet use, as old business concepts (and traditional products) are easily replaced by fresh ideas.

Some OMs are benefiting from an intelligent use of the Internet. In fact, the Internet is helping some OMs to benefit from better prices and lower transaction costs. However such advantages are closely linked to their efforts to survive the on-going economic crisis and cannot be understood as a change of direction in terms of strategic thinking, cognitive frameworks and growth strategies. Contrary to what was expect by the EU,

most firms are still focused on traditional sectors and old concepts and rules of thumb concerning firm strategies and business models.

The main reason why OMs are not planning the adoption of complex ICT tools lies in the fact that they don't see any future outside the constrained boundaries of the island. Most OMs are fully committed to their current business model and intend to pursue, as far as is possible, based on old success stories and procedures that helped them to grow and succeed over the last 20 years.

Most adherents of the Information Society paradigm claim that we are entering a new era of 'output growth, low unemployment and low inflation' and large scale adoption of 'Internet based models'. However, evidence coming from the RAM case study does not conform to such a benign and optimistic approach. As mentioned above, "the Internet does not represent a break from the past", with regard to parameters for competitiveness and firm survival (Porter, 2001: pg. 74; see also Soete, 2001). Firm's survival odds depend on the last 20 years of firm's history (i.e., their current level of resources) and the macro-economic policies in place.

ICTs are not contributing to boost economic growth and employment and to transform the economic structure into a 'knowledge economy'. This is not linked to the lack of willingness to invest in ICT tools or to use sophisticated Internet functionalities. In fact, there is evidence to suggest that ICT tools are assisting local firms to enhance efficiency based on lower transaction costs. However, a large scale adoption of ICT tools is not a solution/panacea to solve the island's growth problems as most firms are still focused on the local market and dependent on a favourable macro-economic environment to prosper.

Cappelo and Nijkamp (1996: pg. 28) explained low adoptions rates of sophisticated ICT tools in Southern Italian regions as a result of the "presence of risk aversion and non-competitive markets". But even if RAM may suffer from non-competitive markets, OMs are 'not risk averse', but really heavy users of Internet functionalities. In fact, the low adoption rate of ICT tools is linked to the lack of a 'business case'. And the 'problem' also lies in the absence of internationally competitive products/services that would justify the adoption of such complex ICT tools.

In conclusion, regional economic performance will not result from 'the right conditions for growth and innovation', in terms of technological policy. A set of coordinated

actions (ICT programmes) is not a sufficient condition. In line with Morgan (1997: pg. 501) it can be stated that “decades of economic specialisation on traditional sectors and economic marginalisation cannot be reversed overnight”. In fact, unless a great number of internationally competitive firms come forward to increase the level of island’ exports, the fortune of most firms is still dependent on the local market dynamic.

However, as stated in Chapter 3, all measures that may help to disseminate ‘best practices’ throughout the regional economy should be promoted (Morgan, 1997: pg. 497). The analysis of the applicability of Internet based learning must be pursued, as well as the eradication of all market inefficiencies and institutional lock-ins that hamper economic growth and modernisation.

But in the end, it must be recognized that e-commerce as a business tool is not a solution for most SMEs. As a consequence, miraculous solutions for the island development problems are not going to be based on digital platforms. The Internet benefits are dependent on structural characteristics (in terms of demand potential, international competitiveness, geographical orientation of most firms, etc) not easily addressed by regional policy instruments.

My final comment concerns the fact that is not possible anymore to mask ‘structural weaknesses’ and management errors by persuading firms to pursue miraculous technological solutions. After a brief period of ‘illusion’, it is time to go back to the basics, that is, to built-up solid economic foundations and seize all opportunities available. In the end, local firms are doing their best given the circumstances but can be severely affected by a macro-economic shock.

The European Commission would like to see RUPs as laboratories to base experiences in the ICT field (See Chapter 1). But RUPs can only provide evidence to suggest that an isolated development episode (such as large scale adoption of ICT tools) can be a waste of resources, time and hope. It can also be concluded that most firms do not require further incentive or assistance to adopt and they understand very well, at least in theory, how to exploit the Internet to their own advantage. This research has important policy implications, since the EU policy is predicated upon the existence of an adoption ladder and on efforts to increase technology awareness (Levy and Powell, 2003). Such efforts are misguided as OMs exhibit a high level of adoption of basic ICT tools. It can be suggested – the use of persuasive interventions coupled with incentive programmes

which aim at enhancing the perception of the Internet's potential benefits are not a priority now as most OMs are well aware of all the Internet benefits; the qualitative approach shows an high level of use and experience with the Internet.

It can also be concluded that the adoption and use of Internet related technologies may be related to an increasing number of efficient firms, but operating in a low business density environment (due to the high rate of failure of traditional business).

Chapter 7:

Conclusions

7.1. Introduction

The objective of this last chapter is to highlight and integrate the main conclusions of each of the previous chapters, namely those conclusions able to enrich our understanding of the link between the regional development process and the adoption/diffusion of ICT tools. As stated in

Chapter 1, the geographical background was not an auspicious one as RUPs may be categorised as backward and innovation-adverse regions and populated by non- 'well behaved firms'; in fact, I tried to make sense of a phenomenon which is holistic in nature (the micro/small firm scale), subject to multiple influences and hard to grasp. In fact, a 'uncharted territory' in terms of economic research poses operational difficulties, especially in relation to survey response rates and willingness to cooperate with scientific research on the part of OMs. In fact, small islands are populated with 'problematic' cases, that is, micro/small firms in the retail sector. Therefore, not all research methods are readily applicable. This is the reason I believe that this piece of research fills a gap in the scientific research on the adoption/diffusion of ICT tools. However, due to the lack of (quantitative) studies concerning the adoption of ICT tools in this geographical area, this research must be conceived as 'exploratory' in nature and as a first contribution to understanding real behaviours. I believe that this is one of the main strengths of this research project. However, there is a lack of relevant other studies to compare my results with, as there is a general paucity of inquiry on the micro/small firms context in relation to ICTs. Contrary to the 'norm' I do not base my research design on firms in the manufacturing sector and/or export oriented firms. Consequently, this work should be seen as being exploratory in nature and an opportunity to study a field of research previously ignored in mainstream scientific research.

In order to highlight the contribution of this piece of research, a review of the thesis is provided in Section 7.2, followed by a presentation of the main conclusions. Answers to

the key questions suggested in Chapter 1 are provided in Section 7.3. Section 7.4 alerts the reader to the need for further research in the geographical area under analysis; some research topics unveiled in this thesis should receive careful attention in the near future, as it was impractical to extend the analysis to these promising fields of research.

This research project attempted to mix different theoretical insights. From the very beginning, my concern was to try to understand the viability of the prevalent 'one size fits all' development options available to explain LFR development prospects. And, also from the outset, instead of being 'strictly' constrained by the general research question, which would probably lead to another 'econometric analysis', I deliberately chose to answer the questions proposed in Chapter 1 using all of the relevant data and theoretical frameworks available, both to corroborate my line of reasoning and to suggest possible alternative approaches.

This peculiar approach, which demands a plurality of strands of theory, and attempts to relate the local scale to the national/EU level, is a very demanding one, and risks an excess of analysis and/or diversions to political economy problems. An in-depth treatment of sterile theoretical discussions or econometric details should be avoided. However, concerning the political perspective, it was argued that it is not possible to understand the economic development of a peripheral region without an in-depth analysis of all the 'political instruments' in place. From the very beginning, it was clear that some regions were able to delay the impact of the on-going process of globalisation. However, I have only introduced comments concerning political choices, to the extent that they are needed to understand the territorial dynamics in operation in the island.

As was clearly shown in Chapter 2, the EU strongly recommends the adoption of ICT tools as a means to overcoming the geographical constraints imposed on periphery located firms. However, it must be acknowledged that the Information Society construct may be understood as an 'obfuscating device' that presents ICT policy as if it were directly dictated by matter of fact (Selwyn, 2004). In order to compensate for such the standard discourse excess of voluntarism and paternalism, issues concerning political choices and the political/cultural inclusion of marginalised groups were at least recognised and included in the account. Based on Chapter 3, it is evident that a new cycle of development is needed as islands cannot rely any longer on substantial amounts

of financial transfers. Nevertheless, that does not mean that individuals, firms and policy makers are interested in ICT dreams and technological artefacts.

As my main goal was to assess the likely impact of the ICT Revolution on the development prospects of a small island, the decision making process about the adoption of ICT tools was chosen as the operational focus of this research project.

Section 7.2 Summary of main finding

The main objective of Chapter 2 was to analyse the current social and economic trends in operation in RAM. The local government, in line with the aims and aspirations of the local population, has succeeded in putting in place a political and administrative apparatus aimed to increase the levels of well being. But the local government was also able to shelter the local economy against the potentially damaging effect of the on-going global process, such as, the technological revolution and geo-strategic turbulence. And widespread agreement among firms, voters, policy makers and other institutions has been a matter of fact, as far as political choices are concerned.

In fact, the local economic dynamic was fuelled by large amounts of financial transfers and improvements are clearly visible in terms of the supply of infrastructure and the population's access to education and health services. As a consequence of the easy access to external funding, firms and political actors were not desperately searching for technological solutions in order to cope with negative events. Such negative events were understood elsewhere as linked to processes of downsizing of Welfare State rights, savage inter-territorial competition, increased competition for market share, organisational and technological up-grading, but not in RAM. However, it should be recognised that the development options were clearly conditioned by the starting point in 1976, as explained in Chapter 2. It is evident that the local economy performance was linked to the built-up of an economic/social structure sheltered "from the ups and downs of the market and from competition" (Helg et al, 2000: pg. 64). All but the tourism sector were directly or indirectly dependent on financial transfers.

In the end, it can be assumed that local and regional policy makers succeeded in seizing all opportunities available to increase levels of well being. And it must be recognised that after several decades of marginalisation and high levels of emigration/poverty, most economic/social actors believed that standards of social protection ought to converge

with the European standards. As stated by Guillém and Marsaganis (2000: pg. 153) “there appeared to be a consensus among all political parties and shades of opinion that high standards of social protection represented a legitimate aspiration”.

Given its specific political and social background, the RAM case study is not an attractive research topic according to the neo-liberal paradigm. However, this case study shares a limited set of development opportunities and a high degree of dependence on external transfers in common with many other peripheral regions. In the end, Chapter 2 enables us to understand the importance of recent economic and political events at the island’s level as a critical driver behind local actor’s enterprising behaviour. From Chapter 2, it is also apparent that RAM does not conform to the stereotype of a backward, powerless and anaemic region. On the contrary, the islands experienced very impressive growth records and a large number of individuals who would have had to resort to emigration if the growth dynamic had not been in operation, have been able to pursue successful entrepreneurial ventures. As shown in Chapter 2, local government was not “content to go along with the charade” (Walburn, 2005: pg. 305) as a significant push towards the Information Society was never pursued in RAM. Local government is still pursuing a traditional investment approach based on infrastructures.

Chapter 3 intended to provide an answer to the question of which development options are available to islands. Instead of assuming a ‘one size fits all’ approach, what options were available was established, based both on an in-depth analysis of some current theoretical frameworks available in the regional studies field and the chosen subject of analysis. I argue that the analysis should be focused within the physical limits of the island, as most firms (more than 90%) are locally oriented and not preoccupied with internationalisation strategies. It was shown that the survival of most islands is partially based on access to substantial financial transfers.

It was also shown that a development strategy based on efforts to increase island competitiveness was really not a necessity as most LFRs were able to secure large amounts of financial transfers (Golden, 2004). In fact, local governments succeeded in delaying the adverse impact of the globalisation process based on a ‘clientelist approach’. However, the “resentment and anger” of core region inhabitants that are “seeing their taxes siphoned off to the less productive, less efficient, and supposedly parasitic southern regions” cannot be avoided (Golden, 2004: pg. 1240). Painful decisions must be taken (or avoided if possible) as RUPs are now being expected to

attain international standards of productivity, growth and competitiveness, as suggested in section 3.4. In section 3.3 it was suggested that there is no reason to expect substantial changes in the old spatial hierarchy as the policies in place are only contributing to avoiding higher levels of divergence.

It was also asserted that direct application of the competitiveness discourse was not possible (or at least not viable) as it is not possible to develop from scratch a competitive sector outside the traditional sectors. Section 3.5 tried to understand the likely impact of a cluster based approach in a peripheral region notably islands. It is evident that most islands lack a set of critical characteristics, namely a network of independent SMEs based on interdependent specialisation of tasks; networks of formal/informal institutions/relationships/norms; a local technical and industrial culture and institutional thickness; and a web of external trade/commercial relationships. However it was asserted that it is impossible to gather all the pre-conditions needed to succeed in the cluster or learning region fields; as a consequence an approach that capitalizes on the existing economic structures and takes into account the local economic and institutional particularities was advocated, instead of projects based on non-feasible regional development models; in practice, this still implies a strong emphasis on the traditional sectors. It was also suggested that partial solution for island development problems may come from market niches such as eco-tourism. However, such possibilities should not be expected to change the fortune of peripheral regions in a dramatic way. Yet in section 3.5, it was asserted that local governments in LFRs must focus on short term damage control in order to avoid a crisis scenario, which may imply the destruction of valuable assets in terms of entrepreneurship and in-between catch up. It was admitted that some islands cannot survive without external assistance. However, they are required to erase all market inefficiencies in operation, in order to acquire political legitimacy to confront national governments and EU institutions in their quest for extra financial support. Chapter 3 also acknowledges that islands cannot do much better than developing a buoyant tourism sector, trying to attract an OFC sector, and maximizing the amount of financial transfers available.

An in-depth analysis of development paths available within the Information Society paradigm was provided in Chapter 4. The overtly-optimistic statements produced in the 80s/90s "seem now embarrassing if not downright ridiculous" (Walburn, 2005: pg. 305). As a consequence of a lack of results on the 'technological front', most policy makers

ended up disillusioned and strongly convinced of the viability of the traditional clientelist approach. A review of the literature on the nexus ICTs' regional development was enriched by an analysis of political support for the ICT agenda in peripheral regions. It is now well accepted that the deployment of ICT tools risks exacerbating inequalities in peripheral regions. In the end, ICTs tools are helping "socio-economically affluent groups (global elites) to selectively bypass the local scale" (Graham, 2002). The risks of segregation/exclusion of entire social groups sectors, territories and countries are very real (Odendaal, 2003) and the expectations about ICT tools contributing to reverse the older hierarchies and spatial inequalities have never materialised.

Great expectations were also attached to the ICT Revolution in the social arena. However, such expectations are definitely affected by the "vibrancy of local actors, their effort, commitment and opportunity to shape development" (Southern, 2002: pg. 697). In fact, when "aims, aspirations and choices made by those touched by problems of regeneration and development" do not exist, there is little room for successful development experiences even if supported by ICT systems (Southern, 2002: pg. 697). As stated by David (2003: pg. 249) "when unconcerned individuals are provided with computers and Internet access, not much changes". Other research projects developed show that the average citizen is really interested in the ICT Revolution, not for himself but for his children (Almeida et al, 2007). And it was suggested that ICT dreams are not supported by most voters, as the traditional investment strategy in infrastructures is more in line with their concerns about employment and 'meaning' for their lives.

Chapter 4 suggests that there are reasons to expect measurable and tangible impacts from ICT investments. However, this positive relationship between ICT investments and productivity gains took about 20 years to materialise in core regions. LFR prospects are much more modest in nature, as only a few regions can benefit FDI investment in the ICT sector. It was also suggested that LFRs should not expect substantial changes in the international economic regime as the Information Society should be understood as being linked to the "continuation, consolidation, and extension of the established market paradigm" (Webster, 2000: pg. 69). And contrary to some radical political economy approaches, Mycoo (2005: pg. 346) recognizes that "independent islands states can aspire only to the role of managers and mediators of the impact of global forces on their domestic, political, economic and cultural arenas". Finally, chapter 4 also suggests that

development opportunities available to LFRs are limited outside traditional sectors. However, it is suggested that a large scale adoption of ICT tools may result in an increasing number of firms trying to reach other geographical scales. Chapter 5 intended exactly to understand under which circumstances it would be possible.

In order to understand the decision making behind the firm's adoption rationale, Chapter 5 formulates a conceptual framework that allows an integration of multiple strands of theory. As was clearly shown in Chapter 5, multiple rationalities are at stake concerning the ICT adoption rationale at the micro/small firms level. The model developed in chapter 5 permits an understanding of the current low adoption rates, as it is admitted that facts must speak for themselves even if what we hear is not in line with our expectations.

The main finding that arises from Chapter 5 is that the adoption of complex ICT tools is not a better decision than a mere adoption of basic ICT tools. Contrary to what has been propagated by the EU, it is not advisable to suggest that large scale adoption of digital platforms would lead to a regeneration of the economic system. Chapter 5 also provides a conceptual link between the adoption of ICT tools and firms' history and suggests that the main contribution of the ICT Revolution may lie in the awakening of the entrepreneurial spirit. However, such a state of awakening risks favouring the most dynamic and capable firms.

Chapter 5 also provides a description of the typical firm, which may be categorised as very small in size, inward looking, not integrated in supply chains, and managed by OMs concerned with multiple objectives. Most entrepreneurial events are the result of easy access to investment opportunities after joining the EEC in 1986. As shown in Chapter 6, about 2/3 of firms arose after 1986.

Chapter 5 tries to understand the link between the adoption of ICT tools and the survival odds of local firms. From the RBV and dynamic capability approach it is possible to understand the adoption of ICT tools as competence developers concerning learning capabilities and a state of alertness to investment opportunities. Some dynamic capabilities may be experienced via e-learning. In the end, chapter 5 tries to integrate all strands of theory in a single adoption model informed by a simple cost/benefit analysis. Such a model is believed to suggest potential drivers of the current status of adoption of ICT tools.

Chapter 6 deals with some methodological issues and presents the results of this research project. It can be stated that the digital revolution is another technological artefact hitting the island but not helping to boost development prospects. A direct translation of the 'standard' e-business model (based on digital platforms to reach distant customers) is not deemed possible, as digital platforms are not going to be adopted for the time being. Local firms lack competitive product and business models to reach the external markets. As stated by Morgan (1997) "decades of economic decline and lack of competitive products cannot be reversed overnight". Despite the fact that most firms avoid adoption of complex ICT platforms, this does not mean that such technologies are largely ineffective.

The intense and efficient use of ICT tools is not neutral, as it activates a selection mechanism at the expense of more traditional firms. The ICT Revolution is accelerating the on-going process of 'natural selection' of business concepts and family firms. The survival of efficient firms, still locally oriented, will result from the disorganisation/reorganisation of the market. But in the end, entrepreneurial capabilities will be lost beyond recovery. I suggest that the on-going process of adoption of ICT tools, delimited by the geographical constraints and island development path is a neutral tool from an industry mix point of view, as no process of diversification is visible. However, from a 'subject' point of view, the Internet may have negative consequences. Nevertheless, it must be acknowledged that the Internet is not the leading actor, as the fate of most firms is dictated by outside influences and internal weakness, namely the on-going reduction of financial transfers and the lack of resources to deal with 'intangible' factors. In fact, this research project contests the deterministic approaches that conceive the ICT tools "as reified agents of economic transformation in their own right", as their impact is marginal and reinforces what is going on (Graham and Marvin, 2002: pg. 386).

It was shown that a digital platform cannot replace old communication technologies; an increase in market share based on on-line shopping is not a credible assumption as the adoption rate of on-line shopping is low and most web pages only take a brochure-ware approach. However, the adoption of ICT tools may be linked to the development of dynamic capabilities such as learning, which may impact survival odds of the firm. Another of the main ideas of the thesis is that a total replacement of managerial systems is not possible. The managerial systems in place are highly informal, opportunistic and unplanned in character. It was also shown that most firms are ready to pursue growth.

However, all the evidence suggests that the development of niche markets in cyberspace seems unviable, and, as a consequence, most firms are still focused on the local market.

It was also suggested that one of the main effects of the use of the Internet tools is the reinforcement of discrimination factors at work at the firm level. An efficient use of all information available on the Internet improves the competence level of those OMs capable of profiting from the increased access to information. In the end, as stated by Lumpkin and Dess (2004: pg. 170), “what may be good for a few companies has been devastating for others”. An efficient user of the Internet is accelerating/activating the selection mechanism. The most innovative firms are gaining advantage in terms of supplier selection, prices and offerings. As a consequence, they are better equipped to survive the current demand crisis.

7.3 Main achievements of the thesis

It is time to suggest answers to the questions addressed in chapter 1, nevertheless influenced by the results provided above.

As seen in previous chapters, an answer to the general research question demands an in-depth analysis of a plurality of theoretical frameworks, as the Information Society project cannot be understood as a deterministic and isolated force hitting the island. The general research question can only be answered taking into consideration some critical results coming from chapter 3 and chapter 4.

The research question inquired to what extent ICT adoption/diffusion by SME can possibly contribute to the development and modernization of a unique region such as RAM (or “is there a digital solution for development problems in peripheral/remote islands?”). Given the importance attached to the information society concept, it is deemed important to ask if a large scale adoption of ICT tools could make a difference to the fate of peripheral regions.

It can be said that, yes, they can contribute to the development and modernisation of a unique region such as RAM, but not as expected by the overoptimistic accounts. Efficient use of the Internet increases survival odds of innovative OMs at the expense of more traditional business concepts. Efficient use of all Internet functionalities is helping

innovative OMs to replace family-run firms managed by older OMs. In the end, a reduced number of firms should be expected as the selection mechanism has also been activated by the on-going economic crisis. However, the importance attached to the Internet must be qualified as the Internet is only accelerating the on-going selection mechanism. As stated by Roberts and Thompson (2003: pg. 69) macroeconomic policies that affect aggregate demand patterns are highly influential in shaping the development path of a peripheral region rather than technological revolutions. Adapting from Våland and Heidi (2005: pg. 504) it can be stated that the Internet “can do very little to change the course of the incident (i.e., lack of competitive products)..., to use the analogy of physics, it is difficult to change the direction of a heavy object (economic and historical path) that is travelling with great speed”.

As stated above, this research project contradicts the most over-optimistic accounts concerning the alleged Internet advantages. I am not saying that a large scale adoption of ICT tools is irrelevant. What is evident from Chapter 6 is that the mitigation of geographical constraints and competitive problems should not be expected.

And what can local firms do to affect their prospects in the information society era?

As seen in Chapter 6, there is large scale adoption of basic ICT tools. The fact that most firms use all Internet functionalities available also emerged. In fact, it was shown in Chapter 6 that the Internet may help local firms to overcome the traditional dependence on mainland suppliers. It was also evident that the Internet is a ‘space shrinking’ technology, concerning the early knowledge of innovative concepts and products. Thanks to the Internet, some OMs are able to accelerate the pace of introduction of new business concepts and innovations (See Figure 6.3). However, contrary to what is expected, the ‘space-shrinking experience’ properties of the Internet are not related to access to external markets based on e-commerce platforms. Local firms remain ‘in-ward looking’ despite efforts to ‘look outside’ in terms of technological/marketing scanning. That is, the ‘Internet experience’ is reverted into competitive advantages at the local level. But it can be suggested that those firms able to capture such advantages in terms of early access to relevant information are increasing their prospects. But, the

'intelligent use' of the Internet favours a non-representative segment of firm's' population (that is, the younger, literate and skilled generation and multiple entrepreneurs) and as a consequence, it may represent another discriminatory factor working against the family run business.

Which factors condition ICT adoption at the SME level?

The adoption of basic ICT tools such as Internet access and e-mail is almost universal. But the adoption of complex ICT tools such as web sites is conditioned firstly by business case and secondly by resource availability and external orientation. Externally oriented firms adopt web pages and e-commerce facilities in order to comply with industry standards. Larger firms and local groups adopt complex ICT tools even if business case is missing.

And contrary to what was expected, small firms, as opposed to their larger counterparts, do not show a significant disadvantage in the adoption of basic ICTs tools such as access to the Internet and e-mail (Lucchetti and Sterlacchini, 2004: pg. 164). But there is a clear divide in terms of access to resources and external orientation in terms of the adoption of relatively complex ICT tools.

What are the similarities/differences between the ICT adoption process in the RUP context and in the core regions?

Firms operating in RAM adopt ICT tools according to the same adoption drivers e.g. business case, geographical orientation and resources availability. However, the adoption rate of complex ICT tools is below expectation, at least according to the EU normative framework. Preissl (1995) considers the low ICT adoption rates to be a 'paradox' due to the alleged ICT related advantages. Given the ICT adoption gap (in relation to the core regions) North and Smallbone (2006) argue that it would be an ironic result if the Internet (despite the alleged death of geographical properties and distance shrinking benefits) contributed to making rural areas even more peripheral and marginal. This research project provides another ironic result. But given the lack of

business case to adopt complex ICT tools, it is argued that adoption rates may in fact be above expectations. Most firms adopt based only on prestige and visibility considerations.

Concerning similarities and differences regarding the adoption rationale in RUPs and in core regions, it must be highlighted that the focus should be placed otherwise. While in core regions access to external markets are crucial to understanding the ICT adoption pattern, in RUPs the analysis should be focused on the intense but invisible use of the Internet. An innovative use of the Internet is not linked to e-commerce platforms but to an intelligent use of the information available in the Internet.

What kind of impact results from ICT adoption/use in terms of productivity, sales growth and learning and technology trajectories?

As expected, there are no significant differences concerning performance indicators (sales level, sales growth, employee's growth) between adopters and non adopters of web pages. As stated before, the adoption process 'started' in 1999/2000 and the level of adoption of e-commerce platforms is negligible. Thus, most firms have no access to an extra 'sales channel' and an increase in terms of productivity/performance indicators should not be expected, as such increases in productivity ratio is mediated by intermediate measures. In fact, an evaluation of ICT impact requires a large time horizon, and there are reasons to believe that productivity gains based on e-commerce sales will never occur in RAM.

The impact of the Internet in terms of sales growth is intrinsically linked to innovative use of the Internet measured in terms of access to the best suppliers and prices. Such advantages may rather be translated into consumer surplus than financial market performance. However, such advantages are always converted in terms of customer loyalty and long term performance. However, it is evident that local firms are attached to the first adoption philosophy, i.e., as ICT tools are employed to automate firm's administrative tasks and other procedures such as technological scanning and procurement.

Is there a digital solution for the geographical constraints faced by islands?

My final comment concerns the fact that it is no longer possible to mask 'structural weaknesses' by persuading firms to pursue miraculous technological solutions. After a brief period of 'illusion', it is time to go back to basics, that is, to build up solid economic foundations and seize all opportunities available. In the end, local firms are doing their best given the circumstances, but can be severely affected if demand prospects are damaged by a macro-economic shock.

As stated in Chapter 1, the European Commission would like to see RUPs as laboratories to base experiences in the ICT field (See Chapter 1). But the RUPs can only provide evidence to suggest how 'isolated development episodes' (such as a large scale adoption of ICT tools) can only waste resources and hope. As stated in chapter 6, the main conclusion reached from the research is that there is little sign that SMEs in RAM see the Internet as a critical agent of change. As stated by Levy and Powell (2003: pg. 180) "SMEs have considered the role of the Internet for their businesses, but their approach is generally cautious as most firms do not see the value of the Internet (that is, digital platforms) to their growth strategy". In fact, local OMs are well informed about local parameters for competitiveness and are interested in pursuing a growth agenda. However, they do not conceive of the Internet as 'growth enabler' as they do not pursue high tech dreams.

And despite the fact that the adoption of ICT tools may improve the competitive levels of some firms, in the end, the Internet may contribute to lessening the amount of opportunities available as a rarefaction of firm density should be expected. Contrary to what was expected by the European Commission, the use of the Internet does not open new markets abroad or market niches in the islands. Instead of enlarged market potential, a concentration of market share is more likely, and winners and losers will experience a different fate. In conclusion it can be asserted that EU policy is another example of policy transfers and technological determinism, and supply-side measures.

In the meanwhile, some micro/small firms are experiencing new managerial tools and developing new businesses concepts. But such experimentation will never replace the exuberance experienced in the 80s/90s when hundreds of firms emerged to explore market opportunities. And based on Graham (2002: pg. 26) it can be stated that the

RAM case study may be understood as an example of how the Internet “allows socio economically affluent groups selectively to bypass the local scale”.

It is also evident that the reduction of financial transfers limits the potential to mask structural weakness and poor performance “by both transparent and hidden assistance” (Copus and Crabtree, 1996: pg. 47). There are no ‘magic bullet’ events that may compensate for market inefficiencies or the lack of market potential. In the end, the weakness of the traditional island discourse focused on articulation of how difficult life is on the island and the standard neo-liberal discourse is visible. There is evidence to suggest that firms operating in RUPs may be efficient and growth oriented. Some firms experience increased complexity in terms of the portfolio of strategies and processes. However, the local OMs are still lobbying for similar development strategies as they don’t believe in alternatives. In fact, the final outcome of the progressive adoption of Internet based managerial practices is already foreseen; unless the amount of financial transfers is maintained and/or a miracle happens in the form of a new sector, intense use of ICT tools is linked to a selection mechanism that will end with large numbers of failures. It is evident that the final outcome of the on going process of adoption of ICT tools will be determined by macro-economic policies rather than enterprising behaviour or adoption innovations. The RAM case study does not conform to the stereotype of a backward, isolated, powerless and ‘anaemic’ region. On the contrary, the island experienced very impressive growth records and a large number of individual’s ‘condemned’ to emigration have been able to pursue successful corporate experiences. It should not be assumed that most regions can easily developed alternative sectors from scratch and pursue a competitive agenda based on FDI and the development of high-order location factors such as cultural amenities, high number of highly qualified individuals, etc. In fact, neither policy makers nor OMs believe that it is reasonable to expect results from such approaches.

ICT tools can have positive, ambiguous or detrimental impacts on a region’s long term development prospect (Gillespie and Richardson, 1996). Concerning RAM, there are reasons to believe that such impacts will be globally detrimental, but very positive for some firms.

7.4 Policy recommendations

Our main conclusions seem quite sceptical and pessimistic about alternative (ICT based) development models to the traditional development strategies pursued in islands such as a high level of investment in infrastructure fuelled by financial transfers. As a consequence further explanation is required about this research project's main conclusion. As noted in section 3.7 it was my concern to discuss alternative paths which are compatible with the initial conditions in peripheral regions and to identify feasible growth paths (Lovering, 1999: pg. 7). I was also interested in avoiding empty discussions based on a simple checklist of pre-requisites that cannot be developed for the time being. This research project acknowledges that some factors can be influenced by public policy and some that cannot to some extent (such as a positive attitude towards technology). Structural changes are partly beyond the control of local policymakers and entrepreneurs and some growth paths (such as industrial clusters and learning regions) are not attainable in small islands for the reasons explained in Chapter 3. The driving forces behind the on-going changes do not operate in a linear manner, but in a complex, interactive and quite often dependent (from outside forces) manner at different multiple scales.

I am not entirely pessimistic as it was shown that the most successful firms are using the Internet to tap into opportunities that transcend the island. However 'as they grow they leave the island' and further growth is not translated in an increasing number of local jobs. For example, one of the leading groups operating in the tourism sector is now based at Lisbon and dozens of jobs are now filled by residents at Lisbon. Another leading firm (operating in the construction sector) is now pursuing an internationalisation agenda in Africa. However, such move is a response to the lack of growth opportunities in Madeira and only a dozen of key employees are moving to such distant places. As suggested before "what may be good for a few companies" may be irrelevant for others (local unemployed individuals) (Lumpkin and Dess, 2004: pg. 170). As a consequence the local government must try to persuade such firms to continuously invest in alternative niche markets in Madeira. We must admit that setbacks, stagnation phases, political incertitude and resistance from individuals should be expected as most individuals and firms operating in Madeira are not (ICT) winners.

Further, this research project is based on a bottom-up approach. As a consequence the main conclusions are based on 'genuine', 'dissident' and 'sceptical' voices about the

alleged ICT advantages. We are not studying a well educated, cosmopolitan and sophisticated businessman class. It was quite evident that the ICT revolution is not understood as the critical ingredient to succeed in running a traditional, locally oriented and family based business. As expected local OMs do not believe in ICT related alternatives from a totalising point of view (ICTs as a solution for everything), as they are still operating based on traditional management/investment strategies. ICT tools are understood as a rather complementary and secondary management tool. However, there are reasons to believe that a new cycle of development (eventually related to the ICT Revolution) is expected and welcomed by larger entrepreneurs, yet is not welcomed by everyone (Tribuna da Madeira, edition of 3rd of November).

The convergence-divergence debate also suggests that short term solutions and a new economic landscape should not be expected in peripheral regions. There are reasons to believe that islands cannot really do anything really different to radically alter their geographical and economic context at least for the next couple of years. However, this research project should not be read as another dystopic analysis. The future stays ahead. As shown above, Madeira missed an extraordinary development opportunity in 2005 when Yahoo executives discussed plans to run their European e-commerce business from Madeira. Development miracles may happen. I am just writing this subject from an neutral point of view. As a consequence all efforts to help the future leaders, and the next generation of workers and entrepreneurs who will be entitled to reap the benefits from the on-going economic and technological development that Madeira is planting today, should be actively promoted.

The present

Most islands are caught in a historical and geographical trap that must be incorporated in the ideological construction of the island life. In order to manage the past, islands face today a scientific and political challenge. The traditional ideological construction of the islands economy concept faces a serious threat, i.e., a crisis of legitimacy. As stated by Copus (2001: pg. 545) “the economic potential of all regions (including those on the ‘periphery’ in spatial terms) will become less closely related to location, and increasingly influenced by a variety of ‘aspatial’ characteristics”, such as “links to, and information flows from, global markets and centres of economic activity”. As a consequence, more scientific research is needed to reassign a central role to the classic

geography concerning the discussion of islands economic prospects. As suggested by the European Commission (2004: pg. 18) more science based research is needed to “determining the real extent of the alleged additional costs”.

As asserted in Chapter 3, islands should also manage to get an extra amount of political legitimacy. I advocate a science based strategy geared to provide evidence about the real cost of living and running a business on an island. As shown in Chapter 3, there are reasons to believe that some islands cannot survive without substantial financial transfers. Further, islands such as Madeira cannot pursue a really competitive FDI strategy as they have not fiscal autonomy to built-up a ‘special’ free trade zone. Most (dependent) islands are at disadvantage in the manufacturing sector. In fact, RUPs are in a ‘no man’s land’ in terms of macro-economic management, as they cannot pursue an economic growth agenda based whether on traditional economic mechanisms (economies of scale, transport costs, economies of scope) or social (labour costs) dumping, in part due to their affiliation to the European Community.

The local government is required to provide a ‘smooth transition’ from an infra-structural approach to a new development model, which is not yet clearly seen. When new firms replace established firms, there are some gains in terms of economic efficiency, cost advantages and modernisation. However such cost savings should be balanced against the social cost of the increasing rate of failure of traditional business. The fate of traditional firms must be assessed in terms of job and entrepreneurial capacity losses. There is a large consensus that new economic sectors and activities should be promoted to replace the lost jobs. However, it seems that the fate of most traditional firms is forgotten. The on-going changes in the traditional sector need to be examined to provide the opportunity for a well-informed social choice. More knowledge is needed about impacts of a changing economic context at the traditional and locally oriented firm’s level in order to provide better guidance for policymakers.

The future

A new cycle of development is needed. RAM has succeeded in recovering from past failures and handicaps (the pre-1974 context) as large amounts of public investment were translated into top quality transport infra-structure and social infra-structure (eg. schools, hospital, community centres). Local inhabitants have access to a high level of basic social services similar to those levels provided in Europe (education, health).

The (past) regional development strategy was based on an infra-structural approach plus the development of an institutional infra-structure, which was the only politically and economically viable development strategy at the time (1976). In order to catch-up with Europe the local government 'lost' about 2 decades to recover from decades of marginality and marginalisation and large sums of money were invested in infrastructure and basic social infrastructure while other European regions were invested in training and R&D. And now, there are reasons to believe that, what Rodríguez-Rodríguez-Pose (2000, pg. 106) call "relatively easy and low risk strategy for regional politicians", is reaching its limits. Both the construction sector and the public administration cannot any longer guarantee sustained levels of economic and employment growth. Thus it is not possible to mask structural inefficiencies via investment in infra-structure fuelled by financial transfers. New sectors and niche markets must be developed from scratch in order to compensate for the inevitable loss of employment in the construction sector.

It seems also clear that Madeira Island has not yet succeeded in the ICT revolution in terms of call centres, software houses, data entry industry, as it should be expected. But a coherent and long term oriented strategy in terms of positive attitudes towards technological artefacts is underway. As a consequence, we must look forward, to the next generation and the next innovation cycle.

In order for Madeira to succeed both the local government and the civil society must encourage private investment but also consider other factors such as the demographic and attitudinal factors that will contribute to the islands success in the global market place. The local Government should help the teenager generation and yet-unborn generation via development of a pro-learning attitude; assist the development of the intellectual capital that will produce the information products that will fuel the next global cycle. Local leaders and government officials must set the tone for change and development based on a vision that is inclusive focused on the private sector and oriented to built-up a competitive, creative and entrepreneurial labour force. But the local government must take care of different generations with differentiated interests. That's why the local government must struggle for further funding. Adequate policies must help the new generation to thrive in the Information Society and help the elder generation to solve their problems. As seen above most OMs invested in assets with low mobility and most OMs combine both business strategies and way of life goals in complex ways; as a consequence they may be trapped in the current state of affairs and

very personalistic management models. It must be acknowledged that the firm's survival is dependent much on demographic and family dynamics as with strategic economic behaviour

A new vision for the XXI century based on the exploitation of smallness and islands's uniqueness is really needed. But it should also be acknowledged the international irrelevance of Madeira in the global market place. Most sectors operating in islands are "like a hummingbird trying to fly alongside eagles" (Nelson, 2002; pg. 211). Islands producers and business opportunities are too small to be of interest of larger investors and multinationals, except in the off-shore zone.

In the end, all economic actors operating in Madeira must recognised that islands must export or perish and as a consequence new areas in which exports are profitable and new development models viable should be envisaged.

In conclusion local governments in islands must manage a double game, based on past (redistribution issues, access to extra funding, political legitimacy, etc) and present/future (development of new sector, positive attitude towards technology, a cultural revolution, etc) issues.

Most studies offer an exhaustive 'ready to apply' list of policy measures. Based on all comments above I propose the following policy recommendations which are tailored to the particular circumstances and potential of Madeira:

- ensure extra funding for science research related to local business strategies, OMs strengths and weakness; a subject analysis should be provided in order to maintain an open dialogue SMes managers
- development of research programmes relevant to the Madeira Islands problems and futures whatever the results of such studies and analysis
- dissemination of best practices in order to raise the profile of the Information Society project regionally; most OMs disbelieve ICTs based solutions for the island, as they don't conceive real and lasting benefits for the local economy and communities; local government must inform potential OMs about the new development paradigm and provide all support (funding) available; and the local government must ensure that there is clarity about the island prospects in the Information Society
- stimulating of entrepreneurship and micro-business start-ups in the new economy; a very helpful project is on move, (the Road show for

entrepreneurship), as the high school context is target; detailed attention should be directed to OMs relatives in order to facilitate the migration of skills, social capital and funds to non-traditional sectors;

- improving the conditions, accessibility and training in terms of basic ICT skills; although most OMs exhibit an impressive amount of experience in terms of access and use of ICT tools, some difficulties in terms of evaluation/interpretation of relevant information are felt by most OMs
- harnessing the human capital of the local business community operating in the traditional sectors; the local government should actively seek to harness the energies, skills and financial resources of the traditional business class to help them to migrate to new sectors; local entrepreneurs and employees must be helped to look forward and continuously monitor and understand prospective markets and consumers; local entrepreneurs must be guided to accept that most traditional businesses are no longer viable and profitable
- facilitation of the growth of infant industries via facilitation of the migration of entrepreneurial skills from traditional sectors to new sectors;
- encouragement of the private investment that will contribute to the islands success in the global market place, that is, less bureaucracy and fiscal pressure on SMEs
- to ensure a cultural revolution in terms of willingness to change and improve production quality, efficiency and efficacy
- to promote a new attitude towards growth and modernisation - an aggressive campaign for help the local society focusing on the economic areas that offer most growth opportunities
- taking into consideration legal and fiscal concerns - the regional government should pay attention to the fiscal evasion problem as most SMEs managers believe that severe market distortions are hampering a smooth operation of the market mechanism
- to ensure a leadership with long term vision, a development cycle focused on multiple election cycle;
- improved intraregional transportation linkages to promote increased intraregional trade

- to ensure an expansion of local research and R&D capabilities in order to facilitate the market forecasting compatibilities and the generation of new products
- development of managerial and technical skills at the secondary and university level; education and training programmes focused on training the workforce to use up-to-date technology and think like an entrepreneur; training focused on the acquisition, evaluation and analysis of relevant information and increased abilities to learn, act, adapt quickly; training in information gathering and analysis; more important than fight the info-exclusion is to integrate the Internet in people daily lives, however it should be accepted that a significant fraction of the local population can not be included in the Information Society
- increased financial support and information to broadening the economic base and the pool of entrepreneurs
- increased levels of participatory management
- increased efforts in terms of market forecasting and tracking market trends and new product demands

7.5 Research extensions

The objective of this section is to put forward some issues that can be explored by other researchers. Research extensions should be pursued regarding an enriched profile of the innovative OMs. The diffusion of ICT tools is a progressive process and their effects are not yet evident for most actors. Thus there is scope to help local OMs to maximize the impact of Internet based technologies in their daily tasks. It would also be interesting to compare the RAM case study with another peripheral region, namely the Azores, in order to increase the 'statistical significance' of our results. As the political component has been so important in shaping the business culture, it would be most important to analyse an economic space free from such overwhelming influence.

It should be recognised that further improvements can be introduced in our research design. Firstly, it would be advisable to collect data from the real population of firms. Firms belonging to the ACIF may be categorised as pioneers. However, such an adventure is reportedly not an easy one.

Related investigations are also feasible. The most important one, linked to the fate of all marginalised firms, should be placed at the highest priority level. What will happen to all those family run businesses that are struggling to survive? Will it be possible to translate the entrepreneurial experience to other experiments? What about the second (next) generation of OMs?

Empirical applications are also possible. The learning process underlying the intense use of ICT tools should be subjected to an in-depth analysis in order to gauge the ongoing process of adaptation and interference in the managerial praxis. Are the nexus ICT use/managerial praxis of mutual influence?

To the extent that the RAM case study is unique, the transferability of the findings from the island to other peripheral rural areas is of course open to question. However, the island's characteristics, in particular its geographical isolation, business culture and political choices may lead to an understanding of the territorial dynamics and help other peripheral regions.

References

- Adam, A., (2001), Computer ethics in a different voice, in *Information and Organization*, Vol. 11, pp. 235-261
- Águila, A., Padilla, A., Serarols, C., Veciana, J. (2003), Digital economy and management in Spain, in *Internet Research: Electronic Networking Applications and Policy*, Vol. 13, Number 1, pp. 6-16
- Ahuja, M., Thatcher, J., (2005), Moving beyond intentions and toward the theory of trying: effects of work environment and gender on post-adoption information technology use, in *Mis Quarterly*, Vol.29, No.3, pp.427-459/September 2005
- Akpan, P. (2000), Africa in the Age of a Global Network Society: the challenges ahead, in *African Studies Quarterly*, Vol. 4, Issue 2, pg. 1-12
- Alibhai-Brown, Y. (2000), 'Review Of Young & Byrne', in *The Political Quarterly*, Vol. 71: 2, pg. 249–50.
- Almeida, A, Freitas, J., Almeida C. (2007), Adopção da Internet por parte dos alunos do ensino secundário na RAM, paper presented at Conferencia Sociedade Portuguesa de Educacao
- Almeida, A. (2005), Sociedade da Informação e regiões insulares e periféricas: perspectivas de viabilidade económica e igualização de oportunidades sociais e culturais”, em *Sociedade da Informação, balanço e implicações*, Organizado por Luís Borges Gouveia e Sofia Gaio, Edições Universidade Fernando Pessoa, Porto 2004
- Almeida, A. Pereira, P. (2007a), Ligações aéreas no eixo Madeira-Canarias: lições para a politica comunitária, forthcoming in CEEAplA (Centro de Estudos de Economia Aplicada do Atlântico)
- Almeida, A. Pereira, P. (2007b), Açores-Madeira: uma rota para a integração regional?, forthcoming in CEEAplA (Centro de Estudos de Economia Aplicada do Atlântico)
- Almeida, A., Freitas, J (2007), Adopção da Internet e preferências em termos de ensino-aprendizagem, paper presented at Conferencia Sociedade Portuguesa de Educacao
- Alonso, I. (2002), Industrialization and trade in the Caribbean, in *Caribbean Economies in the Twenty-first century*, Edited by Irma T. Alonso, University Press of Florida, pp. 150-176
- Alonso, I., Hicks, D. (2002), Economic geography of the Caribbean, in *Caribbean Economies in the Twenty-first century*, Edited by Irma T. Alonso, University Press of Florida, pp. 13-27

- Amara, N., Landry, R. (2005), Sources of information as determinants of novelty of innovation in manufacturing firms: evidence from the 1999 statistics Canada innovation survey, in *Technovation*, Vol. 25, pp. 245-259
- Amaral, R., (2000), Equilíbrio financeiro e desenvolvimento económico - um caso concreto, in *Economia & Prospectiva*, Vol.13/14 Jul/Dez, 2000, pp.7-20
- Amdam, J. (2003), Structure and strategy for regional learning and innovation – challenges for regional planning, in *European Planning Studies*, Vol. 11, No. 4, pp. 439-459
- Amiel, T., Sargent, S. (2004), Individual differences in Internet motives, in *Computers in Human Behaviour*, Vol. 20, pp. 711-726
- Amin, A. (1999), An institutionalist perspective on regional economic development, in *European Urban and Regional Studies*, Vol. xx, pg. 365-376
- Amin, A., Robins, K., (1994), Regresso das Economias Regionais, in *As Regiões Ganhadoras*, Edited by Geoges Benko e Alain Lipietz, Published by Celta Editora, pp.77-102
- Antonelli, C. (2003), The digital divide: understanding the economics of new information and communication technology in the global economy, in *Information Economics and Policy*, Vol. 15, pp. 173-199
- Antonides, G., Amesz, H., Hulcher, I. (1999), Adoption of payment systems in ten countries a case study of diffusion of innovations, in *European Journal of Marketing*, Vol. 33, No. 11/12, pp. 1123-1135
- Aoyama, Y., (2003), E-Commerce and Urban Space in Japan: Accessing the Net via Convenience Stores, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.231-234
- Aragon-Sánchez, A., Sánchez-Marín, G. (2005) Strategic orientation, management characteristics, and performance: a study of Spanish SMEs, in *Journal of Small Business Management*, Vol. 43(3), pp. 287-308
- Ardichvili, A., Cardozo, R., Ray, S., (2003), A theory of entrepreneurial opportunity identification and development, in *Journal of Business Venturing*, Vol.18, pp.105-123
- Arenius, P., Clercq, D. (2005) A network-based approach on opportunity recognition, in *Small Business Economics*, Vol. 24, pp. 249-265
- Arenius, P., Sasi, V., Gabrielsson, M., (2006), Rapid internationalisation enable by the Internet: The case of a knowledge intensive company, in *J Int Entrepr*, Vol.3, pp.279-290

- Ark, B. V., O'Mahony, M.,(2005), Assessing the productivity of the UK retail trade sector: the role of ICT, in *Int. Rev. of Retail, Distribution and Consumer Research*, Vol.15, no. 3, pp. 297-303, July 2005
- Armstrong H., Read, R. (2004), Insularity, Remoteness, Mountains and Archipelagos: Combinations of Challenges facing small regions, in Paper for Europe at the Margins: EU Regional Policy, Peripherality Regional Studies Association Conference ,University of Angers, 15-16 April, 2004.
- Armstrong W. (2004), 'The implications of increasing globalisation and regionalism for the economic growth of small island states', in *World Development*, Vol. 24, No. February 2004, pg. 111-123
- Armstrong, H. (2001), Regional selective assistance: is the spending enough and it is targeting the right places, in *Regional Studies*, Vol. 35.3, pp. 247-257
- Armstrong, H. W., Read, R., (2002), The phantom of liberty?: economic growth and the vulnerability of small states, in *Journal of International Development*, vol.14, pp. 435-458
- Armstrong, H. W., Read, R., (2003), Microstates and sub-national regions: mutual industrial policy lessons, in *International Regional Science Review*, Vol.26.1, pp. 117-141
- Armstrong, H., Read, R., (1995), Western European micro-states and EU autonomous regions: the advantages of size and sovereignty, in *World Development*, Vol. 23, No. 7, pp. 1229-1245
- Arnold, M., Reynolds, K., Ponder, N., Lueg, J., (2005), Customer Delight In A Retail Context: Investigating Delightful And Terrible Shopping Experiences, *Journal Of Business Research*, Vol. 58, (2005), pg. 1132 – 1145
- Arora, A., Athreye, S., (2002), The software industry and India's economic development, in *Information Economics and Policy*, Vol.14, pp. 253-273
- Arthur, N., (2001), Using critical incidents to investigate cross-cultural transitions, in *International Journal of Intercultural Relations*, Vol. 25, pg. 41-53 00
- Arun, M., Yap, M. T., (2000), Singapore: The Development of an Intelligent Island and Social Dividends of Information Technology, in *Urban Studies*, Vol. 37, No. 10, pp. 1749-1756
- Asheim, B. (1999) Interactive learning and localised knowledge in globalising learning economies, in *Geojournal*, Vol. 49, pp. 345-352

- Atzeni ,G., Carboni, O., (2006), ICT Productivity And Firm Propensity To Innovative Investment: Evidence From Italian Microdata, in *Information Economics And Policy*, Vol. 18, pg. 139–156
- Audretsch, D., Keilbach, M. (2004), Entrepreneurship capital and economic performance, in *Regional Studies*, Vol. 38, No.8, pp. 949-959, November 2004
- Aurigi, A. (2005), making the digital city, the early shaping of urban Internet space, published by Ashgate Publishing Limited
- Austin, E., Willock, J., Deary, I., Gibson, G., Dent, J., Edward-Jones, G., Morgan, O., Grieve, R., Sutherland, A. (1998), Empirical models of farmer behaviour using psychological, social and economic variable. Part I: Linear modelling, in *Agricultural Systems*, Vol. 58, No.2, pp. 203-224
- Ayres, R. U., Williams, E., (2004), The digital economy: where do we stand?, in *Technological Forecasting & Social Change*, Vol. 71, pp. 315-39
- Azzi, G., (2000), Etapa por etapa, o caminho que conduziu ao estatuto das regiões ultraperiféricas, in *Economia & Prospectiva*, Vol.13/14 Jul/Dez, 2000, pp.7-20
- Baily, M. N., (2003), La “nouvelle économie” a-t-elle existé ?, in *Journal of Economic Perspectives*, No. 2797, pp. 14-21
- Baird, A. (2000), The Japan coastal ferry system, in *Maritime Policy Management*, Vol. 27, No. 1, pp. 3-16
- Baird, A. (2001), State subsidy system for remote island liner services in Japan, in *International Journal of Maritime Economics*, Vol. 3, pp. 102-120
- Baker, P. M. A., Ward, A. (2002), The role of information and communication technologies in defining communities, in *Information, Communication & Society*, Vol. 5, No. 2 pp. 207-224
- Ball, R.,(1996), Local sensitivities and the representation of peripherality, in *Journal of transport Geography*, Vol. 4, No. 1, pp. 27-36
- Ballot, G., Taymaz, E. (1997), The dynamics of firms in a micro-to-macro model: the role of training, learning and innovation, in *Journal of Evolutionary Economics*, Vol. 7, pp. 435-457
- Baloglu,S., Pekcan, Y., (2005), The website design and Internet site marketing practices of upscale and luxury hotels in Turkey, in *Tourism Management*, pp.1-6
- Baourakis, G., Kourgiantakis, M., Migdalas, A., (2002), The Impact of E-Commerce On Agro-Food Marketing, The Case Of Agricultural Cooperatives, Firms And Consumers In Crete, in *British Food Journal*, Vol.104, n°.8, pp.580-590

- Barbaro, S., Suedekum, J., (2006), Reforming a complicated income tax system: the political economy perspective, in *European Journal of Political Economy*, Vol.22, pp. 41-59
- Barbosa, N., Louri, H. (2005), Corporate performance: does ownership matter? A comparison of foreign and domestic owned firms in Greece and Portugal, in *Review of Industrial Organisation*, Vol. 27, pp. 73-102
- Barley, N., (2003), People, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.159-161
- Barnett, J. (2001) Adapting to climate change in Pacific Island Countries: the problem of uncertainty, in *World Development*, Vol. 29, No.6, pp 977-93
- Barney, J. B., (2001), Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view, in *Journal of Management*, Vol.27, pp. 643-650
- Barney, J., Wright, M., Ketchen,Jr. D. J., (2001), The resource-based view of the firm: Ten years after 1991, in *Journal of Management*, Vol. 27, pp. 625-641
- Barney, J.B., 1991. Firm resources and sustained competitive advantage, in *Journal of Management*, Vol. 17 (1), 99–120.
- Baron, S., Harris, K., Leaver, D., Oldfield, M. (2001), Beyond convenience: the future for independent food and grocery retailers in the UK, in *International Review of Retail, Distribution and Consumer Research*, October 2001, pp. 395-414
- Barry, M. (1998), 'Introduction', In M. Barry and C. Hallett (Eds.), *Social Exclusion And Social Work*, Dorchester: Russell House Publishing.
- Bateira, J., Ferreira, L. (2002), Questioning EU cohesion policy in Portugal: a complex systems approach, in *European Urban and Regional Studies*, Vol. 9, No. 4, pp. 297-314
- Bathelt, H. (2005), Geographies of production: growth regimes in spatial perspective (II) – knowledge creation and growth in clusters, in *Progress in Human Geography*, Vol. 29, No. 2, pp. 204-216
- Baum, T., (1997), Islands and Tourism: an overview, in *Island Tourism, Trends and Prospects*, Edited by Douglas G. Lockhart and David Drakakis-Smith, Published by Pinter, London and New York, pp.21-35
- Beamish, A., (2003), The City in Cyberspace, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.273-278

Beaudry and Pinsonneault, (2005), Understanding User Responses To Information Technology: A coping model of user adaptation, in *MIS Quaterly*, Vol.29, N°. 3, pp.493-524/September 2005

Becattini, G., (1994), O Distrito Marshalliano, in *As Regiões Ganhadoras*, Edited by Geoges Benko e Alain Lipietz, Published by Celta Editora., pp.19-32.

Becchetti, L., Bedoya, D., Paganetto, L. (2003) ICT investment, productivity and efficiency : evidence at firm level using a stochastic frontier approach, in *Journal of Productivity Analysis*, Vol. 20, pp. 143-167

Beck, R., Wigand, R., König, W. (2005), The diffusion and efficient use of electronic small commerce among small and medium-sized enterprises: an international three industry survey, in *Electronic Markets*, Vol. 15, No.1, pp. 38-52

Beck, U., (2002), The terrorist threat, in *Theory, Culture & Society*, Vol. 19, No. 4, pp. 39-55

Bellini, N. (2001) Planning the learning region: an Italian approach, in *Innovation and economic growth. The theory and practice of learning regions*, Edited by Frans Boekema, Kevin Morgan, Silvia Bakkers and Roel Rutten, Edward Elgar,

Belussi, F. (2005), Are industrial districts formed by networks without technologies? The diffusion of Internet applications in three Italian districts, in *European Urban and Regional Studies*, Vol. 12, No. 3, pp. 247-268

Benko, G., Lipietz, A., (1994), Das Redes de Distritos aos Distritos de Redes, in *As Regiões Ganhadoras*, Edited by Geoges Benko e Alain Lipietz, Published by Celta Editora., pp.247-253

Bennett, R., Smith, C. (2002), Competitive conditions, competitive advantage and the location of the SMEs, in *Journal of Small Business Enterprise*, Vol. 9, No. 1, pp. 73-86

Benton Foundation, (2003), Defining the Technology Gap, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.306-308

Berezin, P., Salehizadeh, A., Santana, E., (1996), The challenge of diversification in the Caribbean, *IMF Working Paper*, WP/02/196

Bergendahl, G. (2005), Models for investment in electronic commerce – financial perspectives with empirical evidence, in *Omega*, Vol. 33, pp. 363-376

Berkhout, F., Hertin, J. (2004), De-materialising and re-materialising: digital technologies and the environment, in *Futures*, Volume 36, Issue 8, October 2004, Pages 903-920

- Berranger, P., Tucker, D., Jones, L. (2001), Internet diffusion in creative micro-business: identifying change agent characteristics as critical success factors, in *Journal of Organisational Computing and Electronic Commerce*, Vol. 13, No. 3, pp, 197-214
- Bertrand, N., (2001), Information and Communication Technologies: Which Role in Territorial Dynamics and Development Processes?, in *Revue d'économie Régionale et Urbaine*, No.1, pp.135-152
- Bertscheck, I., Kaiser, U., (2004) Productivity effects of organisational change: microeconomic evidence, in *Management Science*, Vol. 50, No3, March 2004, pp. 394-404
- Blanchet, (1997), L'aide au développement dans le Pacifique insulaire. Une réflexion en forme de bilan, in *Revue du Tiers Monde*, Vol. XXXVIII, n° 149, janvier-mars, pp. 57-78
- Boden, D., Molotch, H., (2004), Cyberspace Meets the Compulsion of Proximity, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.101-105
- Boekema, F., Morgan, K., Bakkers, S., Rutten, R. (2000), Introduction to learning regions, a new issue for analysis, in *Knowledge, innovation and economic growth. The theory and practice of learning regions*, Edited by Frans Boekema, Kevin Morgan, Silvia Bakkers and Roel Rutten, Edward Elgar, pp.3-15
- Bond, C. (2004), Surfing or drowning? Student nurses' Internet skills, in *Nurse Education Today*, Vol. 24, pp. 169-173
- Bonnemaison, Waddel, E., (1997), L'Extrême-Occident dans l'œil du cyclone, in *Revue du Tiers Monde*, Vol. XXXVIII, n° 149, janvier-mars, pp. 13-34
- Boschma, R. (1999), Learning and regional development, in *Geojournal*, Vol. 49, pp. 339-343
- Boschma, R. (2004), Competitiveness of regions from an evolutionary perspective, in *Regional Studies*, Vol. 38. 9, pp. 1001-1014, December 2004
- Boschma, R. (2005), Proximity and innovation: a critical assessment, in *Regional Studies*, Vol. 39.1, pp. 61-74
- Boschma, R., Lambooy, J. (1999), The prospects of an adjustment policy based on collective learning in old industrial regions, in *Geojournal*, Vol. 49, pp. 391-399
- Bossogo, P. E., Mendis, C., (2002), Trade and integration in the Caribbean, in *International Monetary Found*, pp. 3-36
- Botelho, A., Pinto, L. (2004), The diffusion of cellular phones in Portugal, in *Telecommunications Policy*, Vol. 28, pp. 427-437

- Bowen, J. (2004), The geography of freight aircraft operations in the Pacific Basin, in *Journal of Transport Geography*, Vol. 12, pp. 1-11
- Boyer, R., (1994), As Alternativas ao Fordismo, in *As Regiões Ganhadoras*, Edited by Geoges Benko e Alain Lipietz, Published by Celta Editora., pp.121-144
- Boyle, G., (2002), Putting context into ICTs in international development: an institutional networking project in Vietnam, in *Journal of International Development*, Vol. 14, pp. 101-112
- Bramwell, B.,(2003), Maltese responses to tourism, in *Annals of Tourism Research*, Vol. 30, No. 3, pp. 581-605
- Bräten, I., Strømsø, H. (2006), Epistemological beliefs, interest, and gender as predictors of Internet-based learning activities, in *Computers in Human Behaviour*, Vol. 22, pg. 1027-1042
- Brau, R., Lanza, A., Pigliaru, F. (2003), How fast are the tourism countries growing? The cross-country evidence, in *Nota de Lavoro*, www.feem.i/web/attiv/_wp.html
- Breathnach, P. (2002), Information technology, gender segmentation and the relocation of back office employment, in *Information, Communication & Society*, Vol. 5, No. 3, pp. 320-335
- Bresnahan, T., Brynjolfsson, E., and Hitt, L. M. (2002), Information Technology, Work Organization and the Demand for Skilled Labor: Firm-Level Evidence, in *Quarterly Journal of Economics*, Vol. 117, No. 1, pp. 339-376.
- Briedenhann, J., Wickens, E. (2004), Tourism routes as a toll for the economic development of rural areas – vibrant hope or impossible dream?, in *Tourism Management*, Vol. 25, pp. 71-79
- Briguglio L. (1995), Small Island Developing States and Their Economic Vulnerabilities, in *World Development*, Vol.23, n°.9, pp.1615-1632
- Bristow, G. (2005), Everyone's a winner: problematising the discourse of regional competitiveness, in *Journal of Economic Geography*, Vol. 5, pp. 285-304
- Brown, S.A. and Venkatesh V., (2005), A comparison of Competing Models and an Extension of the Model of Adoption of Technology in the Household: An Investigation of Household Adoption of Personal Computers, in *MIS Quarterly*, Vol. 29, No. 3, September 2005, pp. 399-426
- Brueckner, J. (2003), Airline traffic and urban economic development, in *Urban Studies*, Vol. 40, No.8, pp. 1455-1469, July 2003

- Bruland K. (2005), Patterns of resistance to new technologies in Scandinavia: an historical perspective, in, *Resistance to new technology*. Bauer M, Editor, Cambridge: Cambridge University Press; 1995.
- Brynjolfsson, E. , Hitt, L. M . (1995), Information Technology As A Factor Of Production: The Role Of Differences Among Firms, in *In. Econ. Innov. New Techn.* Vol. 3, n°3, pg. 183–199.
- Brynjolfsson, E. And Hitt, L. M. (2000), Beyond Computation: Information Technology, Organization Transformation and Business Performance, in *J. Econ. Perspect.* Vol. 14, n° 4, pg. 23–48.
- Bugamelli, M., Pagano, P. (2004), barriers to investment in ICT, in *Applied Economics*, Vol. 36, pp. 2275-2286
- Buhalis, D., Deimezi, O., (2003), Information technology penetration and e-commerce developments in Greece, with a focus on small to medium-sized enterprises, in *Electronic Markets*, Vol. 13, No. 4, pp. 309-324
- Bunnell, T., (2003), Cyberjaya and Putrajaya: Malasia's "Intelligent Cities", in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp. 348-353
- Burnside, C., Dollar, D. (2000), Aid, policies and growth, in *The American Economic Review*, September 2000, pp.
- Burt, S., Sparks, L. (2003), E-commerce and the retail process: a review, in *Journal of Retailing and Consumer Services*, Vol. 10, pp. 275-286
- Burton, R., (2004), Reconceptualising the 'Behavioural Approach' in Agricultural Studies: A Socio-Psychological Perspective, in *Journal of Rural Studies*, Vol. 20 (2004) 359–371
- Butler, R., (1997), Tourism in the Northern Isles: Orkney and Shetland, in *Island Tourism, Trends and Prospects*, Edited by Douglas G. Lockhart and David Drakakis-Smith, Published by Pinter, London and New York, pp.59-80
- Caldeira, M., Ward, J. (2002), Understanding the successful adoption and use of IS/IT in SMEs: an explanation from Portuguese manufacturing industries, in *Info Systems Journal*, Vol. 12, pp. 121-152
- Camagni, R. (1992), Development scenarios and policy guidelines for the lagging regions in the 1990s, in *Regional Studies*, Vol. 26.4, pp. 361-374
- Camagni, R. (2002a), Development scenario and policy guidelines for the lagging regions in the 1990s, in *Regional Studies*, Vol. 26. No.4, pg. 361-374

- Camagni, R. (2002b), On the concept of territorial competitiveness: sound or misleading?, in *Urban Studies*, Vol. 39, No. 13, pp. 2395-2411
- Camagni, R., Cappelo, R. (2005), ICTs and territorial competitiveness in the era of the Internet, in *Annals of Regional Science*, Vol. 39, pp. 421-438
- Câmara Municipal da Calheta, Maio 2006, publicação semestral, Boletim informativo
- Câmara, B., (2002), A Economia da Madeira (1850-1914), *Imprensa de Ciências Sociais*
- Cammaerts, B., (2005), Review Essay: Critical European Perspectives on the Information Society, in *The Information Society*, Vol. 21, pp. 73-75
- Canaleta, C. G., Arzoz, P. P., Gárate, M. R., (2002), Structural change, infrastructure and convergence in the regions of the European Union, in *European Urban and Regional Studies*, Vol. 9.2, pp. 115-135
- Canepa, A., Stoneman, P. (2004), Comparative international diffusion: patterns, determinants and policies, in *Economics Innovation New Technology*, Vol. 13, No.3, pp. 279-298
- Cánoves, G., Villarino, M., Priestley, G., Blanco, A. (2004), Rural tourism in Spain, an análisis of recent evolution, in *Geoforum*, Vol. 35, pp. 755-769
- Capello, R., Nijkamp, P.,(1996), Telecommunications technologies and regional development: theoretical considerations and empirical evidence, in *Regional Science*, Vol. 30, pp. 7- 30
- Carayannis, E. G., Popescu, D., Sipp, C., Steward M., (2005), Technological learning for entrepreneurial development (TL4ED) in *Knowledge Economy (KE): Case studies and lessons learned*, Vol. XX, pp. 1-25
- Carbonara, N. (2004), Information and communication technology and geographical clusters, in *Technovation*, Vol. 24, pp. 17-28
- Carbonara, N. (2004), Innovation processes within geographical clusters: a cognitive approach, in *Technovation*, Vol. 24, pp. 17-28
- Carey, K. (1989), Tourism development in LDCs: hotel capacity expansion with reference to Barbados, in *World Development*, Vol. 17, No. 1, pp. 59-67
- Carlsen, J., (2003), A Systemic Approach to Tourism Development in Island States, Edited by R.N. Ghosh, M.A.B. Siddique and R. Gabbay Published by Ashgate, pp.94-103

- Carlsen, J., Jaufeerally, K., (2003), An Analysis of Tourism Trends, in *Mauritius*, Edited by R.N. Ghosh, M.A.B. Siddique and R. Gabbay Published by Ashgate, pp.128-139
- Castells, M., (2003), Space of Flows, Space of Places: Materials for a Theory of Urbanism in the Information Age, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.82-93
- Castles, F. (2001), On the political economy of recent public sector development, in *Journal of European Social Policy*, Vol. 11, No.3, pg. 195-211
- Castro, E., Jensen-Butler, C. (2003), Demand for information and communication technology-based services and regional economic development, *Papers Regional Science*, Vol.82, pp. 27-50
- Cauter, L., (2004), The Capsule and the Network: Notes Toward a General Theory, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.94-97
- Cave, J., Ryan, C., Panakera, C., (2003), Residents' perceptions, migrant groups and culture as an attraction-the case of a proposed Pacific Island cultural centre in New Zealand, in *Tourism Management*, Vol. 24, pp. 371-385
- Celuch, K., Goodwin, S., Taylor, S. (2005), Understanding small scale industrial user Internet purchase and information management intentions: a test of two attitude models, in *Industrial Marketing Management*, Vol, 12, pp. 1-12
- Cette, G., Mairesse, J., Kocoglu, Y., (2000), L'impact des TIC sur la croissance, in *Futuribles*, No. 259, Décembre 2000
- Charles, D., Bennworth, P. (2001), Are we realizing our potential? Joining up science and technology policy in the English regions, in *Regional Studies*, Vol. 35, n°1, pp. 73-79
- Chen, C., Watanabe, C. (2005), Diffusion, substitution and competition dynamism inside the ICT market, the case of Japan, in *Technological Forecasting & Social Change*, Vol. 73, n°6, pp. 731-759
- Chhetri, P., Arrowsmith, C., Jackson, M., (2004), Determining hiking experiences in nature-based tourist destinations, in *Tourism Management*, Vol. 25, pp. 31-43
- Chong, A., Micco, A., (2003), The Internet and ability to innovate in Latin America, in *Emerging Markets Review*, Vol. 4, pp.53-72
- Christopher, A. (2002), Decolonisation without independence, in *Geojournal*, Vol. 56, pp. 213-224

- Cieřlik, A., Kaniewska, M. (2004) Telecommunications infrastructure and regional economic development: the case of Poland, in *Regional Studies*, Vol. 38.6, pp. 713-725
- Coe, N., Yeung, H., (2004), Grounding Global Flows: Constructing an E-Commerce Hub in Singapore, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.354-359
- Cogburn, D. L., Adeya, C. N., (2001), Prospects for the digital economy in South Africa, in *United Nations University*
- Cohen, G., Salomon, I., Nijkamp, P (2002), Information-communications technologies (ICT) and transport: does knowledge underpin policy?, in *Telecommunications Policy*, Vol. 26, pp. 31-52
- Cohen, W., Levinthal, D., (1990), Absorptive Capacity: A New Perspective on Learning and Innovation, in *Administrative Science Quarterly*, Vol.35, 1990, pp.128-152
- Colecchia, A., Schreyer, P. (2001), ICT investment and economic growth in the 90's: is the United States a unique case? A comparative study of nine OECD Countries. OECD/STI Working paper, 2001/7
- Colletis-Whal, K., Pecqueur, B. (2001), Territories, development and specific resources: what analytical framework, Debates and Surveys, in *Regional Studies*, Vol. 35, No. 5, pp. 449-459
- Colley, A., Comber, C. (2003), Age and gender differences in computer use and attitudes among secondary school students. What has changed?, in *Education Research*, Vol. 45, No.2, Summer 2003, pp. 155-165
- Colombo, M., Delmastro, M., (2001), Technology-based entrepreneurs: does internet make a difference?, in *Small Business Economics*, Vol.16, pp.177-190
- Commission for Rural Communities (2006), Rural disadvantage, Quality of life and disadvantage amongst older people a pilot study, Edited by Commission for Rural Communities
- Cope J, Watts G. (2000), Learning by Doing: An Exploration Of Experience, Critical Incidents and Reflection In Entrepreneurial Learning, in *International Journal Of Entrepreneurial Behaviour And Research*, Vol. 6, No. 3, pg. 104-124.
- Copus, A. (2001), From Core-Periphery to Polycentric development: concepts of spatial and spatial periphery, in *European Planning Studies*, Vol. 9. N0. 4, pp. 539-552
- Copus, A. K., Crabtree, J. R., (1996), Indicators of socio-economic sustainability: an application to remote rural Scotland, in *Journal of Rural Studies*, Vol. 12, No. 1, pp. 41-54

- Copus, A., Shuras, D. (2006), Business networks and innovation in selected lagging areas of the European Union: a spatial perspective, in *European Planning Studies*, Vol. 14, No. 1, January 2006, pp. 70-93
- Cornford, J., Gillespie, A., Richardson, R. (2001), Regional development in the Information Society: a review and analysis, in *CURDS*, www.ncl.ac.uk/~ncurds/
- Corti, E., Torello, R., (2004), Promoting ICT entrepreneurship in the Campania region of Italy, a network of academic incubators, in *Industry & Higher Education*, February 2004, pp.33-37
- Cottino, A. (1999), Sicilian cultures of violence: the interconnections between organized crime and local society, in *Crime, Law & Social Change*, Vol. 32, pg. 103-133
- Courlet, C., Pecqueur, B., (1994), Os Sistemas Industriais Locais em França, in *As Regiões Ganadoras*, Edited by Geoges Benko e Alain Lipietz, Published by Celta Editora., pp.49-62
- Crang, M., (2002), Qualitative methods: the new orthodoxy?, in *Progress in Human Geography*, Vol.26, No. 5, pp. 647-655
- Crang, M., Urban Morphology and the Transmissible City, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.129-132
- Crevoisier, O. (1999), Two ways to look at learning regions in the context of globalisation: the homogenizing and particulatizing approaches, in *GeoJournal*, Vol. 49, pp. 353-361
- Croes, R., Tesone, D. (2004), Small firms embracing technology and tourism development: evidence from two nations in Central America, in *Hospitality Management*, Vol. 1, pp.1-8
- Cross, M., Nutley, S. (1999), Insularity and accessibility: the Small Island Communities of Western Ireland, in *Journal of Rural Studies*, Vol. 15, No.1, pp. 317-330
- Cuadrado-Roura, J., Mancha-Navarro, T., Garrido-Yserte, R. (2000), Regional productivity patterns in Europe: an alternative approach, in *Annals of Regional Science*, Vol. 34, pp. 365-384
- Cukrowski, J., Ficher, M. (2000), Theory of comparative advantage: do transportation cost matter?, in *Journal of Regional Science*, Vol. 40, No. 2, pp. 311-322
- Curran, J., Rutherford, R., Smith, S. (2002), Is there a local business community?, in *Local Economy*, Vol. 15, No. 2, pp. 128-143

- Dabinet, G., (2001), EU Mainstreaming of the Information Society in Regional Development Policy, in *Policy Review Section*, pp.168-173
- Dabinett, G., (2001), EU Mainstreaming of the Information Society in Regional Development Policy, in *Regional Studies, Journal of The Regional Studies Association*, Voll.35, N°.2, April 2001, pp.168-173
- Daniel, A., Ramos, F. (2002), Modelling inbound international tourism demand to Portugal, in *International Journal of Tourism Research*, Vol. 4, pp. 193-209
- Darby, J., Li, C., Muscatelli, A., (2004), Political uncertainty, public expenditure and growth, in *European Journal of Political Economy*, Vol.20, 2004, pp.153-179
- Daveri, F. (2001), Information technology and growth in Europe, *University of Parma/IGIER*, Working Paper
- David, M. (2003), The politics of communication: information technology, local knowledge and social exclusion, in *Telematics and Informatics*, Vol. 20, pg. 235-253
- David, N. Smallbone, D. (2000), The Innovativeness and Growth of Rural SMEs During the 1990s, in *Regional Studies*, Vol. 34.2, pp. 145-157,
- Davidsson P. Honig, B. (2003), The role of social and human capital among nascent entrepreneur, in *Journal of Business Venturing*, Vol. 18, pp. 301-331
- Deakins, D., Mochrie, R., Galloway, L., (2004), Rural business use of information and Communications Technologies (ICTs): A study of the relative impact of Collective activity in rural Scotland, in *In Strat. Change*, Vol. 13: pg. 139–150
- Deas, I., Giordano, B. (2001), Conceptualising and measuring urban competitiveness in major English cities: an exploratory approach, in *Environment and Planning A*, Vol. 33: 1411–1429
- Dedrick, J., Gurbaxani, V., Kraemer, K. (2003) Information Technology and economic performance: a critical review of the empirical evidence, in *ACM Computing Surveys*, Vol. 35, N0 1, March 2003, pp. 1-28
- Deleuze, G., (2003), Postscript on Societies of Control, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.73-77
- Delhey, J. (2001), The prospects of catching up for new EU Members, Lessons for the Accession Countries to the European Union from Previous Enlargements, in *Social Indicators Research*, Vol. 56, pp. 205-231
- DeLorne, D. E., Zinkhan, G. M., French, W., (2001), Ethics and the Internet: issues associated with qualitative research, in *Journal of Business Ethics*, Vol. 33, pp. 271-286

- Deloughrey, E., (2004), Islands Ecologies and Caribbean Literatures, in *Tijdschrift voor Economische en Sociale Geografie*, Vol. 95, No. 3, pp. 289-310
- Demoussis, M., Giannakopoulos, N., (2006). The dynamics of home computer ownership in Greece, in *Information Economics and Policy*, Vol. 18, pp. 73-86
- Deng, J., King, B., Bauer, T., (2002), Evaluating Natural Attractions for Tourism, in *Annals of Tourism Research*, Vol. 29, No. 2, pp. 422-438
- Dentinho, T. (2003), Agricultura açoriana e custos de insularidade, in *Sociedade e Território, Revista de estudos urbanos e regionais*, Abril 2003
- Devarj, S., Kohli, R. (2003) Performance impacts of Information Technology: is actual use the missing link, in *Management Science*, Vol. 49, No3, March 2003, pp. 273-289
- Devezas, T., Linstone, H., Santos, H. (2005), The growth of dynamics of the Internet and the long wave theory, in *Technological Forecasting & Social Change*, Vol. 72, pp. 913, 935
- Dewailly, J., (2004), Sustainable Tourist Space: From Reality to Virtual Reality?, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.407-433.
- Dewan, S. And Kraemer, K. L. (2000), Information Technology And Productivity: Preliminary Evidence From Country-Level Data, in *Management Science*, Vol. 46, n° 4 (April), pg. 548–562.
- Dholakia, R., Kshetri, N. (2004), Factors impacting the adoption of the Internet among SMEs, in *Small Business Economics*, Vol. 23, pp. 311-322
- Dias-Sardinha, I., Reijnders, L. (2005), Evaluating environmental and social performance of large Portuguese companies: a balanced scorecard approach, in *Business Strategy and the Environment*, Vol. 14, pp. 73-91
- Dickinson, S., (2005), Urban regeneration in an era of well-being, in *Local Economy*, Vol.20, No. 2, pp. 224-229, May 2005
- Dimara, E., Skuras, D., (1998), Adoption of new tobacco varieties in Greece: impacts of empirical findings on policy design, in *Agricultural Economics*, vol.19, pp. 297-307
- Dimou, M., (2003), Economies insulaires et stratégies de développement, une comparaison de la croissance de long terme entre la Réunion et L'île Maurice, in *Concentration et ségrégation, dynamiques et inscriptions territoriales*
- Dinis, A. (2006), Marketing and Innovation: useful tools for competitiveness in Rural and Peripheral areas, in *European Planning Studies*, Vol. 14, No. 1, January 2006, pp. 9-22

- Dixon, T. J., (2005), The role of retailing in urban regeneration, in *Local Economy*, Vol.20, No. 2, pp. 168-182, May 2005
- Dodge, M. (2004), “geographies of e-commerce: the case of Amazon.com”, in *The Cybercities Reader*, Edited by Stephan Graham, Routledge Taylor & Francis Group, London and New York, pp. 221-225
- Doherty, N., Ellis-Chadwick F., Hart, C., (2003), An Analysis Of The Factors Affecting The Adoption Of The Internet In The UK Retail Sector, in *Journal Of Business Research*, Vol. 56, pp.887– 897
- Doms, M., Jarmin, R., Klimek, S. (2004), Information technology investment and firms performance in US Retail Trade, in *Economics of Innovations New Technology*, Vol. 13, No. 7, October, pp. 595-613
- Doolin, B., Burgess, L., Cooper, J. (2002), Evaluating the use of the Web for tourism marketing: a case study from New Zealand, in *Tourism Management*, Vol. 23, pp. 557-561
- Drew, S., (2003), Strategic Uses of E-Commerce by SMEs in the East of England, in *European Management Journal*, Vol. 21, No. 1, pp. 79-88, February 2003
- DTI (Department of Trade and Industry), (2001), Opportunity For All In A World Of Change. London: HMSO.
- DTI (Department of Trade and Industry), (2003), Regional Competitiveness And State Of The Regions. London: HMSO.
- DTI (Department of Trade and Industry), (2004), Regional Competitiveness And State Of The Regions. London: HMSO.2
- Dubelaar, C., Sohal, A., Savic, V. (2005), Benefits, impediments and critical success factors in B2C E-business adoption, in *Technovation*, Vol. 25, pp. 1251-1262
- Dunford, J., (2006), Under-served markets, in *Local Economy*, Vol.21, No. 1, pp. 73-77, February 2005
- Dunford, M., (1994), Trajectórias Industriais e Relações Sociais, in *As Regiões Ganhadoras*, Edited by Geoges Benko e Alain Lipietz, Published by Celta Editora., pp.145-170
- Dunford, M., Smith, A. (2000), Catching up of falling behind? Economic performance and regional trajectories in the new Europe, in *Economic Geography*, April 2000, Vol. 76, No2., pg. 169-195
- Durand, R. (2001), Firm Selection: an integrative perspective, in *Organisation Studies*, Vol. 22/3, pp. 393-417

Economides, g., Philippopoulos, A., Price, S., (2003), How elections affect policy and growth: revisiting the mechanism, in *European Journal of Political*

Eder, L., Igarria, M. (2001), Determinants of intranet diffusion and infusion, in *Omega*, Vol. 29, pp. 233-242

Edquist, H., (2004), The Swedish ICT miracle-myth or reality?, in *Information Economics and Policy*, Vol. 17; N° 3, pp. 275-301

Edwards, P.,(2003), Infrastructure and Modernity: Force, Time, and Social Organization in *History of Sociotechnical Systems, Modernity and Technology*, Edited by Misa, T., Brey, P., Feenberg, A., Published by The MIT Press, Cambridge, pp.185-226

Efstathiades, A., Tassou, S., Oxinos, G., Antoniou, A. (2000), Advanced manufacturing technology transfer and implementation in developing countries. The case of the Cypriot manufacturing industry, in *Technovation*, Vol. 20, pp. 93-102

Eisenhardt, K., Martin, J. (2000) Dynamic capabilities: what are they?, in *Strategic Management Journal*, Vol. 21, pp. 1105-1121

Ellinger, A. D. (2005). Contextual factors influencing informal learning in a workplace setting: The case of 'reinventing itself company., in *Human Resource Development Quarterly*, Vol. 16(3), pg. 389-415.

Enoch, M. (2003), Transport practice and policy in Mauritius, in *Journal Transport Geography*, Vol. 11, pp. 297-306

Entrena F., Gómez-Mateos, J., (2000) Globalisation and Socio-economic restructuring in Andalusia, Challenges and possible alternatives, in *European Sociological Review*, Vol. 16, No. 1, pp. 93-114

Ericson, R., Barry, D., Doyle, A., (2000), The moral hazards of neo-liberalism: lessons from the private insurance industry, in *Economy and Society*, Vol.29, n°.4, November 2000, pp.532-558

Eriksson, K., Chetty, S. (2003), The effect of experience and absorptive capacity on foreign market knowledge, in *International Business Review*, Vol. 12, pp. 673-695

Erumban, A., Jong, S., (2006), Cross-country differences in ICT adoption: A consequence of Culture?, in *Journal of World Business*, Vol.41, 2006, pp.302-314

European Commission (1994), Report on Europe and the global Information Society, Bulletin of the EU, Supplement 2/94. Office for Official Publications of the European Communities, Luxembourg

- European Commission (2002), Benchmarking National and Regional e-Business Policies, Stage 1 – Synthesis report, 7 February 2002, in Enterprise Directorate-General, in www.europa-com
- European Commission (2002), Report from the Commission on the implementation of the Article 299(2) of the EC Treaty: measures to assist the outermost regions, Brussels, in www.europe.org
- European Commission, (2002), Report from the commission on implementation of Article 299(2) of the EC Treaty: measures to assist the outermost regions, E.C. Brussels
- European Commission, (2004), A new partnership for cohesion: convergence, competitiveness and cooperation, E.C. Brussels
- European Commission, (2004), Annex to the communication from the Commission on a stronger partnership strengthened for the outermost regions: assessment and prospects, SEC(2004) 1030
- Evangelista, R., Iammarino, S., Mastrostefano, V., Silvani, A. (2002), Looking for regional systems of innovation: evidence from the Italian Innovation Survey, in *Regional Studies*, Vol. 36, No. 2, pp. 173-186
- Evans, R., (2002), E-Commerce, Competitiveness and Local and Regional Governance in Greater Manchester and Merseyside: A Preliminary Assessment, in *Urban Studies*, Vol.39, No.5-6, pp. 947-975
- Everdingen, Y., Aghina, W., Fok, D. (2005), Forecasting cross-population innovation diffusion: a Bayesian approach, in *International Journal of Research in Marketing*, Vol. 22, N°3. pp. 293-308
- Ezcurra, R. Gil, C., Pascual, P., Rapún, M. (2005), Regional inequality in the European Union : does industry mix matter, in *Regional Studies*, Vol. 39.6, pg. 679-697
- Fabiani, S., Schivardi, F., Trento, S., (2005), ICT adoption in Italian manufacturing: firm-level evidence, in *Industrial and Corporate Change*, Vol. 14, pp. 225-249, January 2005
- Fagerberg, J., Verspagen, B. (2002), Technology-gaps, innovation-diffusion and transformation: an evolutionary interpretation, in *Research Policy*, Vol. 31, pp. 1291-1304
- Fagerberg, J., Verspagen, B., Caniëls, M. (1997), Technology, growth and unemployment across European Regions, in *Regional Studies*, Vol., 31.5, pp. 457-466

- Faiña, J., López-Rodríguez, J. (2004) European regional policy and backward regions: implications towards EU enlargement, in *European Journal of Law and Economics*, Vol. 18, No.1, pp. 5-32
- Falcón-García, J., Medina-Munoz, D. (1999), Sustainable tourism development in islands: a case study of Gran Canaria, in *Business Strategy and the Environment*, Vol. 8, pp. 336-357
- Falk, M. (2004), ICT-linked firm reorganisation and productivity gains, in *Technovation*, Vol. 22, pp. 1-22
- Faria, A., Fenn, P., Bruce, A. (2002) Determinants of adoption of flexible production technologies: evidence from Portuguese manufacturing industry, in *Economics of Innovation and New Technology*, Vol. 11 (6), pp. 569-580
- Feindt, S., Jeffcoate, J., Chappell, C. (2002), Identifying success factors for rapid growth in SME E-commerce, in *Small Business Economics*, Vol. 19, pp. 51-62
- Felsenstein, D., Portnov, B. A., (2005), Understanding regional inequalities in small countries, in *Regional Studies*, Vol. 39, No. 5, pp. 647-658
- Feltham, T., Feltham, G., Barnett, J., (2005), The Dependence of Family Businesses on a Single Decision-Maker, in *Journal of Small Business Management*, Vol.43, N°.1, pp.1-15
- Fernández-Maldonado, A., (2003), Public Internet Cabins and the Digital Divide in Development World, Megacities: A Case Study of Lima, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.314-319
- Ferrão, J. & Lopes, R. (2004) Understanding peripheral rural areas as contexts for economic development, in *The Future of Europe's Rural Peripheries*, Edited by L. Labrianidis, Aldershot: Ashgate, pp. 31-61
- Ferreira, J., (2000), Conhecer melhor as regiões ultraperiféricas insulares, (2000), in *Economia & Prospectiva*, Vol.13/14 Jul/Dez, 2000. pp.7-20
- Ferreira, P., (2000), O turismo em zonas ultraperiféricas, in *Economia & Prospectiva*, Vol.13/14 Jul/Dez, 2000. pp.7-20
- Fillis, I., Wagner, B. (2005) in E-business development, An exploratory investigation of the small firm, in *International Small Business Journal*, Vol. 23, No. 6, pp. 604-632
- Financial Times (2006), Business: Special tax regime imperative for future, Financial Times 9 May 2006

- Fischer, M. (2000), Travel Demand, in *Analytical Transport Economics, An international perspective*, Edited by Jocok Polak, Arnold Heertje, Published by Edward Elgar Publishing Limited
- Flaten, O. (2002), Alternative rates of structural change in Norwegian dairy farming: impacts on costs of production and rural employment, in *Journal of Rural Studies*, Vol. 18, pp. 429-441
- Floyd, D., Mercado, S., (2003) Will there ever be a Free Market in Europe for Industries previously influenced by National Government, in *European Planning Studies*, Vol. 11, No. 5, July 2003, pp. 585-594
- Foley, A., Griffith, B. (1992), Indigenous manufacturing enterprises in a peripheral economy and the Single Market: the case of the Republic of Ireland, in *Regional Studies*, Vol. 26., No. 4, pp. 375-386
- Folta, T., Johnson, D., O'Brien, J. (2005) Uncertainty, irreversibility, and the like hood of entry: an empirical assessment of the option to defer, in *Journal of Economic Behaviour & Organisation*, Vol. 12, pp. 1-21
- Forestier, E., Grace, J., Kenny, C., (2002), Can information and communication technologies be pro-poor?, in *Telecommunications Policy*, Vol.26, 2002, pp.623-646
- Fornerino, M. (2003), Internet Adoption in France, in *The Service Industries Journal*, Vol. 23, No. 1, January 2003, pp. 119-135
- Fortuna (1997), Condicionantes da Integração Europeia na Definição da Política Económica na R.A.A.", in *Actas do Colóquio Sobre Integração Europeia - Uma Nova Realidade*. Ponta Delgada.
- Fothergill, S. (2005), A new regional policy for Britain, in *Regional Studies*, Vol. 39, N°5, pp. 659-667, July 2005
- Freel, M. (2005) Perceived environmental uncertainty and innovation in small firms, in *Small Business Economics*, Vol. 25, pp. 49-64
- Frenkel, A., (2001), Why high-technology firms choose to locate in near metropolitan areas, in *Urban Studies*, Vol. 38, No. 7, pp. 1083-1101
- Freyss, (1997), L'éternel recours: les impasses de l'économie assistée en Nouvelle-Calédonie, in *Revue du Tiers Monde*, Vol. XXXVIII, n° 149, janvier-mars, pp. 99-120
- Fritsch, M., Mueller, P. (2004), Effects of new business formation on Regional Development over time, in *Regional Studies*, Vol 38, No.8, pp. 961-975, November 2004

- Frochot, I., (2005), A benefit segmentation of tourists in rural areas: a Scottish perspective, in *Tourism Management*, Vol. 26, pp. 335-346
- Furceri, D., Karras, G. (2006), Are the new EU members ready for the EURO? A comparison of costs and benefits, in *Journal of Policy Modelling*, Vol. 28, pp. 25-38
- Furman, J., Porter, M., Stern, S. (2002), The determinants of national innovative capacity, in *Research Policy*, Vol. 31, pp. 899-933
- Gabbay, R., Ghosh, R., (2003), *Tourism in the Seychelles*, Edited by R.N. Ghosh, M.A.B. Siddique and R. Gabbay Published by Ashgate, pp.104-127
- Galbreath, J. (2005), "Which resources matter the most to firm success?. An exploratory study of resource-based theory", in *Technovation*, Vol. 25, pg. 979-987.
- Galende, J. (2006), Analysis of technological from business economics and management, in *Technovation*, Vol. 26, pp. 300-311
- Galliano, D., Roux, P. (2003), Espaces, organisations et TIC: les enseignements d'une comparaison intersectorielle, in *Géographie, Économie, Société*, Vol. 5, pp. 331-357
- Gambarotto, F., Maggioni, M. (1998), Regional development strategies in changing environments: an ecological approach, in *Regional Studies Association*, Vol. 32, No.1, pp. 49-61
- Ganne, B., (1994), Significado e Evolução dos Sistemas Industriais Locais em França, in *As Regiões Ganhadoras*, Edited by Geoges Benko e Alain Lipietz, Published by Celta Editora., pp.203-222
- Gatrell, J., (1999) Re-thinking economic development in peripheral regions, in *The social Science Journal*, Vol. 36, N0. 4, pp. 623-639
- Gelderen, M., Sluis, L., Jansen, P., (2005), Learning opportunities and learning behaviours of small business starters: relations with goal achievement, skill development and satisfaction, in *Small Business Economics*, Vol.25, pp.97-108
- Genhuisen and Nijikamp, (2000), *The Learning Capabilities of Regions: Conceptual Policies and Patterns*, pp.38-55
- Geoideia (1997), *Avaliacao ex-ante do Plano de Desenvolvimento da Regiao Autonoma da Madeira*,
- Geroski, P. (2000), Models of technology diffusion, in *Research Policy*, Vol. 29, pp. 603-625
- Getz, D., Petersen, T., (2005), Growth and profit-oriented entrepreneurship among family business owners in the tourism and hospitality industry, in *International Journal of Hospitality Management*, Vol.24, pp.219-242

- Getz, D., Carlson, J., (2005), Family business in tourism. State of the art, in *Annals of Tourism Research*, Vol. 32, No. 1, pp. 237-258
- Getz, D., Nielsson, P. A., (2004), Responses of family businesses to extreme seasonality in demand: the case of Bornholm, Denmark, in *Tourism Management*, Vol.25, pp. 17-30
- Ghosh, R., Siddique, M., Gabbay, R., (2003), International Tourism and Economic Development, *Tourism and Economic Development* Edited by R.N. Ghosh, M.A.B. Siddique and R. Gabbay Published by Ashgate, pp.19-29
- Giddens, A. (1998), *The Third Way: The Renewal Of Social Democracy*, Cambridge, Polity.
- Gil, S. (2003), Tourism development in Canary Island, in *Annals of Tourism Research*, Vol. 30, No. 3, pp. 744-747
- Gilbert, A. L., Han, H., (2005), Understanding mobile data services adoption: Demography, attitudes or needs?, in *Technological Forecasting & Social Change*, Vol. 72, pp. 327-337
- Gillespie A., Richardson R. (2000), Teleworking and the City: Myths of workplace transcendence and travel reduction, in *Cities in the Telecommunications Age: The Fracturing of Geographies*, Eds:Wheeler J O, Aoyama, Y and Warf, B Pub:Routledge, pg. 228-245
- Gillespie A., Richardson, R., Cornford, J., (2001), Regional development and the new economy, in *European Investment Bank papers*, Vol.6, N°1, pp.109-31
- Gillespie, A., (1991), Non-universal service? Political economy and communications Geography, in *Cities of the 21st century*, Edited by Hall, P. and Newton, P., London: Halsted, pp.159-70
- Gillespie, A., (1992), Communications technologies and the future of the city, in *Sustainable development and urban form*, Edited by Breheny, M., London: Pion, pp.67-77
- Gillespie, A., Richardson, R. (2004), Teleworking and the City : Myths of workplace transcendence and travel reduction, in *The Cybercities Reader*, Edited by Stephan Graham, Routledge Taylor & Francis Group, London and New York, pp. 212-217
- Gils, A., Voordeckers, W., Heuvel, J., (2004), Environmental uncertainty and strategic behaviour in Belgian family firms, in *European Management Journal*, Vol. 22, No. 5, pp. 588–595

- Gils, A., Zwart, P. (2004), Knowledge Acquisition and Learning in Dutch and Belgian SMEs : The role of strategic alliances, in *European Management Journal*, Vol. 22, No. 6, pp. 685-692
- Giordano, B, (2000), Italian regionalism or padanian nationalism the political project of the Lega Nord in Italian politics, in *Political Geography*, Vol. 19, pg. 445-471
- Giordano, B. (1999), A place called Padania, the Lega Nord and political representation of Northern Italy, in *European Urban and Regional Studies*, Vol. 6, No. 3, pg. 215-230
- Giuliani, E. (2005), Clusters absorptive capacity Why do some clusters forge ahead and other lagged behind, in *European Urban and Regional Studies*, Vol. 12, N°3, pp. 269-288
- Golden, M. (2004), International economic sources of regime change, How European integration undermined Italy's Post-war party system, in *Comparative Political Studies*, Vol. 37, No. 10, pg. 1238-1274
- Gonçalves, M. (2002), Implementation of EIA directives in Portugal, how changes in civic culture are challenging political and administrative practice, in *Environmental Impact Assessment Review*, Vol. 22, pg. 249-269
- Gonzalez, (2002), Globalisation and Adjustment in the Caribbean: An Assessment, in *Caribbean Survival and the Global Challenge*, pp298-335
- Gordon R. (2000), Does the "new economy" measure up to the great inventions of the past?, in *Journal of Economics Perspectives*, Vol. 14, No. 4, pp. 49-77
- Gorman, S., (2001), Where are the Web Factories: The Urban Bias of E-Business Location, in *Tijdschrift voor Economische en Sociale Geografie*, Vol.93, No.5, pp.522-536
- Gorman, S., Malecki, E., (2000), The networks of the Internet : an analysis of provider networks in the USA, in *Telecommunications Policy*, Vol.24, pp.113-134
- Gorton, M. (1999) Spatial variations in market served by UKbased small and medium enterprises (SMEs), in *Entrepreneurship & Regional Development*, Vol. 11, pp. 39-55
- Gottdeiner, M., (2003), Deterritorialisation and the Airport, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp185-188
- Götz, G. (1999), Monopolistic competition and the diffusion of new technology, in *RAND Journal of Economics*, Vol. 30, No.4, Winter 1999, pp. 679-693
- Gouveia, P., (2000), A política comunitária para as regiões ultraperiféricas, in *Economia & Prospectiva*, Vol.13/14 Jul/Dez, 2000. pp.7-20

- Gradstein, M. (2004), Governance and growth, in *Journal of Development Economics*, Vol. 73, pp. 505-518
- Graham, S. (1998), The end of geography or the explosion of place? Conceptualizing space, place and information technology, in *Progress in Human Geography*, Vol. 22, No. 2, pp. 165-185
- Graham, S. (2001), Information Technologies and reconfigurations of urban space, in *International Journal of Urban and Regional Research*, Vol. 25, No. 2, June 2001, pp. 405-410
- Graham, S., (2000), The end of geography or the explosion of place? Conceptualizing space, place and information technology, in *Information tectonics*, Edited Wilson, M.I., Corey, K.E., New York. Wiley, pp.9-28
- Graham, S., (2002), Bridging Urban Digital Divides? Urban Polarisation and Information and Communications Technologies (ICTs), in *Urban Studies*, Vol.39, No.1, pp.33-56
- Graham, S., (2003), Excavating the Material Geographies of Cybercities, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.138-142
- Graham, S., Marvin, S., (1996), Telecommunications and the City, in *Electronics spaces, urban places*, Published by Routledge.
- Graham, S., Marvin, S., (2004), Planning Cyber-Cities? Integrating Telecommunications into Urban Planning, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.341-347
- Graham, S.,(2004) The Software-Sorted City: Rethinking the “Digital Divide”, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.324-332
- Grandon, E., Pearson, J., (2004), Electronic Commerce Adoption: An Empirical Study Of Small and Medium US Businesses, In *Information & Management*, Vol. 42 (2004) 197–216
- Gren, J. (2002), New regionalism and west Sweden, change in the regionalism paradigm, in *Regional and Federal Studies*, Vol. 12, No. 3, pg. 79-101
- Gretzel, U., (2000) Capacity to change and its influence on effective IT use, SMTEs t the Crossroads, in *Information and Communication Technologies in Tourism 2000* Springer Computer Science, Edited by Fesenmaier, D., Klein , S., Buhalis, D., Published by Springer Wien New York, pp.509-518
- Grimes, S. (2000), Rural areas in the Information Society: diminishing distance or increasing learning capacity, in *Journal of Rural Studies*, Vol. 16, pp. 13-21

- Grimes, S., (2003), Ireland's Emerging Information Economy: Recent Trends and Future Prospects, in *Regional Studies*, Vol.37.1, pp.3-14
- Grimes, S. (2003a), The digital economy challenge facing peripheral rural areas, in *Progress in Human Geography*, Vol. 27. 2, pp. 174-193
- Grimes, S. (2005), How well are Europe's rural business connected to the Digital Economy?, in *European Planning Studies*, Vol. 13, No. 7, pp. 1063-1081
- Grimes, S., (2000), Rural areas in the information society: diminishing distance or increasing learning capacity?, in *Journal of Rural Studies*, Vol.16, pp.13-21
- Grimes, S., (2001), Extending the information society beyond urban locations: prospects and reality, in *Rural tourism and recreation principles to practice*, Edited by Roberts, L., Hall, D, Wallingford: CABI Publishing, pp.106-110
- Gruffudd, P., Herbert, D. T., Piccini, A., (2000), In search of Wales: tracing and narratives of difference, 1918-50, in *Journal of Historical Geography*, Vol. 26, No. 4, pp. 589-604
- Guerrieri, P., Iammarino, S. (2006), The rise of Many Mezzogiorni": an empirical assessment of the internal differentiation of Italian Southern Regions, in *European Planning Studies*, Vol. 13., N.2, pp. 167-178
- Guibernau, M., (2000), Spain: Catalonia and the Basque Country, in *Parliamentary Affairs*, Vol. 53, pg. 55-68
- Guillén, A., Matsaganis, M. (2000), Testing the 'social dumping' hypothesis in Southern Europe: welfare policies in Greece and Spain during the last 20 years, in *Journal of European Social Policy*, Vol 10 (2): 120-145
- Hadjimanolis, A. (1999) Barriers to innovation for SMEs in a small less developed country (Cyprus), in *Technovation*, Vol. 19, pp. 561-570
- Hajlager, A.-M. (2000), Organisational ecology in the Danish restaurant sector, in *Tourism Management*, Vol.21, pp. 271-280
- Haleblian, J., Finkelstein, S. (1999) The influence of organisational acquisition experience on acquisition performance: a behavioural learning perspective, in *Administrative Science Quarterly*, Vol. 44, pp. 29-56
- Hall, C., McVittie, A., Moran, D. (2004), What does the public want from agriculture and the countryside? A review of evidence and methods, in *Journal of Rural Studies*, Vol. 20, pp. 211-225
- Hampton, K., (2003), Netville: Community On and Offline in a Wired Suburb, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.256-262

- Hampton, M. Christensen J. (2002), Offshore Pariahs? Small Island Economies, Tax Havens, and the Re configuration of Global Finance, in *World Development*, Vol. 30, No. 9, pp. 1657–1673,
- Hansson, A., Stuart, C., (2003), Peaking of fiscal sizes of government, in *European Journal of Political Economy*, Vol.19, 2003, pp.669-684
- Harrington, S. Guimaraes, T. (2005), Corporate culture, absorptive capacity and IT success, in *Information and Organisation*, Vol. 15, pp. 39-63
- Hassink, R. (2005) How to unlock regional economies from path dependency? From learning region to learning clusters, in *European Planning Studies*, Vol. 13, No.4, June 2005
- Hassink, R., (1998), Geographic clustering in the German opto-electronics industry: its impact on R&D collaboration and innovation, in *Entrepreneurship & Regional Development*, Vol.10, pp.277-296
- Hatch, N., Dyer, J. (2004), Human capital and learning as a source of sustainable competitive advantage, in *Strategic Management Journal*, Vol. 25, pp. 1155-1178
- Haugh, H., Robson, P. (2005) Are Scottish firms meeting the ICT challenge? Results from a National Survey of Enterprise, in *Entrepreneurship & Regional development*, Vol. 17, May (2005), pp. 205-222
- Hausman, A. (2005), Innovativeness among small business: theory and propositions for future research, in *Industrial Marketing Management*, Vol.,11, pp. 1-11
- Haywood, T. (1998), 'Global Networks And The Myth Of Equality', *Cyberspace Divide: Equality, Agency And Policy In The Information Society*, Edited by B. D. Loader, London: Routledge.
- Heeks, R., (2002), i-Development Not e-Development: Special Issue on ICTs and Development, in *Journal of International Development*, Vol.14, pp.1-11
- Helg, R., Peri, G., Viesti, G. (2000), Abruzzo and Sicily: catching up and lagging behind, in *European Investment Bank Papers*, Volume 5, No. 1, pp. 61-86
- Hempell, T. (2005) Does experience matter? Innovations and the productivity of information and communication technologies in German Services, in *Economics of Innovation New Technologies*, Vol. 14 (4), pp. 277-303
- Henchion, M., McIntyre, B. (2005), Market access and competitiveness issues for food SMEs in Europe's lagging rural regions (LFRs), in *British Food Journal*, Vol. 107, No. 6, pp. 404-422

- Heshmati, A. (2001) On the growth of micro and small firms: evidence from Sweden, in *Small Business Economics*, Vol. 17, pp. 213-228
- Hicks, D. A., Nivin, S. R., (2000), Beyond Globalization: Localized Returns to IT Infrastructure Investments, in *Regional Studies*, Vol. 34.2, pp. 115-127
- Hill, M, Hill, A. (2002) Investigação por questionário, Edições Silabo, Lisboa, Abril 2002
- Hitt L. M. And Brynjolfsson, E. 1996. Productivity, Business Profitability, And Consumer Surplus: Three Different Measures Of Information Technology Value, in *MIS Quart*, Vol. 20, 2, 121–142.
- Hodge, I., Monk, S. (2004), The economic diversity of rural England: stylised fallacies and uncertain evidence, in *Journal of Rural Studies*, Vol. 20, pg. 263-272
- Hoggart, K., Paniagua, A. (2001), The restructuring of rural Spain?, in *Journal of Rural Studies*, Vol. 17, pg. 63-80
- Hollenstein, H. (2004), Determinants of the adoption of Information Communication Technologies (ICT); an empirical analysis based on firm-level data for the Swiss business sector, in *Structural Change and Economic Dynamics*, Vol. 15, pp. 315-342
- Hooff, B., (2005), A learning process in email use – a longitudinal case study of the interaction between organization and technology, in *Behaviour & Information Technology*, Vol.21, No.2, March-April 2005, pp.131-145
- Hope, C. A., (2004), The impact of national culture on the transfer of “best practice operation management “ in hotels in St. Lucia, in *Tourism Management*, Vol. 25, pp. 45-59
- Hoppe, H. C., (2002), The timing of new technology adoption: theoretical models and empirical evidence, in *The Manchester School*, Vol. 70, No. 1, pp. 1463-6786
- Hospers, G.J. (2003), Localisation in Europe’s periphery: tourism development in Sardinia, in *European Planning Studies*, Vol. 11, No. 6, September 2003
- Hough. J., White, M. (2004), Scanning actions and environmental dynamism, in *Management Decision*, Vol. 42, No. 6, pp. 781-793
- Houghton, K., Winklhofer, H. (2004), The effect of Website and E-Commerce adoption on the relationship between SMEs and their export intermediaries, in *International Small Business Journal*, Vol. 22, No. 4, pp. 369-388
- Hoyle, B., Biagini, E. (1999), Islands, insularity and development strategies, in *Insularity and Development International Perspectives on Islands*, pp. 358-370, Edited by Emilio Biagini and Brian Hoyle, Island Studies Series Printer London and New York

- Huang, H.-M., Liaw, S.S. (2005), Exploring users' attitudes and intentions toward the web as a survey tool, in *Computers in Human Behaviour*, Vol. 21, pg. 729-743
- Huggins, R. (2003) Creating a UK Competitiveness Index: regional and local benchmarking, in *Regional Studies*, Vol. 37.1, pp. 89-96
- Hunt, C., (2003), Economic globalisation impacts on Pacific marine resources, in *Marine Policy*, Vol. 27, pp. 79-85
- Hurst, C., Thisse, J.-F., Vanhoudt, P. (2000), What diagnosis for Europe's ailing regions? , in *European Investment Bank Papers*, Vol. 5, Bo.1, pg. 9-29
- Hyytinen, A., Pajarinen, M., (2004), Financing of technology-intensive small businesses: some evidence on the uniqueness of the ICT sector, in *Information Economics and Policy*, pp.1-18
- Iedema, R., Flabouris, A., Grant, S., Jorm, C., (2006), Narrativizing errors of care: Critical incident reporting in clinical practice, in *Social Science & Medicine*, Vol.62, pp.134-144
- Ilonen, J., Kamarainen, J. K., Puumalainen, K., Sundqvist, S., Kälviäinen, H., (2004), Toward automatic forecasts for diffusion of innovations, in *Technological Forecasting & Social Change*, Vol. 71 pp. 1-22
- Jalava, J., Pohjola, M., (2002), Economic growth in the new economy: evidence from advanced economies, in *Information Economics and Policy*, Vol.14, pp. 189-210
- James, J. (2005), The Internet and poverty in developing countries: Welfare economics versus a functioning's-based approach, in *Futures*, Vol. 36, pp. 1-13
- Jarvis, D., Dunham, P., Ilbery, B., (2006), Local rural labour markets: enterprising or constraining?, in *Local Economy*, Vol.21, No. 2, pp. 151-165, May 2006
- Jassen, J. (2000), The European construction industry and its competitiveness: a construct of the European Commission, in *Construction Management and Economics*, Vol. 18, pp. 711-720
- Johnston, D., Wright, L. (2004), The e-business capability of small and medium sized firms in international supply chains, in *Information Systems and e-Business Management*, Vol. 2, pp. 223-240
- Jones, G., Lanctot, A., Teege, H. (2000), Determinants and performance impacts of external technology acquisition, in *Journal of Business Venturing*, Vol. 16, pp. 225-283
- Jorgenson, D., Vu, K. (2005), Information technology and the World Economy, in *Scandinavian Journal of Economics*, Vol. 107 (4), pp. 631-650

- Josselin, J.M., (1998), Une approche micro-économique des régions périphériques, in *Revue d'Economie Régionale et Urbaine*, Vol.4, pp. 547-564
- Julien, P.-A., Raymond, L., Jacob, R., Ramangalahy, C., (1999), Types of technological scanning in manufacturing SMEs : an empirical analysis of patterns and determinants, in *Entrepreneurship & Regional Development*, Vol. 11, pp. 281-300
- Junquera, B., Ordiz, M. (2002) Influence of managerial characteristics on the environmental performance of Spanish companies, in *Environmental Quality Management*, Autumn 2002, pp. 35-51
- Kalantaridis, C. (2006), A study into the localisation of rural business in five European Countries, in *European Planning Studies*, Vol. 14, No. 1, January 2006, pp. 61- 78
- Kamat, S., Mir, A., Mathew, B., (2004), Producing hi-tech: globalization, the state and migrant subjects, globalisation, in *Societies and Education*, Vol.2, No.1, March 2004, pp.5-23
- Karahanna, E., Straub, D., Chervany, N., (1999), Information technology adoption across time: a cross-sectional comparison of pre-adoption and post-adoption beliefs, in *MIS Quarterly*, Vol.23, No.2, pp.183-213/June 1999
- Karp, L., Lee, I. (2001), Learning by doing and the choice of technology: the role of patience, in *Journal of Economic Theory*, Vol. 100, pp. 73-92
- Karshenas, M., Stoneman, P., 1993. Rank, stock, order and epidemic effects in the diffusion of new process technologies, in *Rand Journal of Economics*, Vol. 24, 503–528
- Karshenas, M., Stoneman, P., 1995. Technological diffusion, in *Handbook of the Economics of Innovation and Technical Change*, Edited by Stoneman, P, Published by Basil Blackwell, Oxford.
- Katz, J., Safranski, S., (2003), Standardization in the midst of innovation: structural implications of the Internet for SMSs, in *Futures*, Vol.35, pp323-340
- Kaufmann, A., Lehner, P., Tödling, F., (2003), Effects of the Internet on the spatial structure of innovation networks, in *Information Economics and Policy*, Vol.15, pp.402-424
- Kaufmann, A., Tödting, F. (2002), How effective is innovation support for SMEs? An analysis of the region of Upper Austria, in *Technovation*, Vol. 22, pp. 147-159
- Kearney, R. (2003), Patterns of Union decline and growth: an organisational ecology perspective, in *Journal of Labour Research*, Vol. XXIV, Number 4, Fall 2003, pp. 561-578

- Kearns, G. (2005), An electronic commerce strategic typology: insights from case studies, in *Information & Management*, Vol. 42, pp. 1023-1036
- Keeble, D., Tyler, P. (1995), Enterprising behaviour and the urban-rural shift, in *Urban Studies*, Vol. 32, No. 6, pg. 975-997
- Keeble, D., Wilkinson, F. (1999), Collective learning and knowledge development in the evolution of Regional clusters of high technology SMEs in Europe, in *Regional Studies*, Vol. 33, No. 4, pp. 295-303
- Keller, W. (2002), Trade and the transmission of technology, in *Journal of Economic Growth*, Vol. 7, pp. 5-24
- Kellerman, A., (2002), *The Internet on Earth, A Geography of Information*, Published by Wiley
- Kendall, k. E., Kendall, J. E., Kah, M. M. O., (2005), Formulating Information and Communication Technology (ICT) Policy Through Discourse: How Internet Discussions Shape Policies on ICTs for Developing Countries, in *Information Technology for Development*
- Kenny, C., (2003), The Internet and Economic Growth in Less-developed Countries: A Case of Managing Expectations?, in *Oxford Development Studies*, Vol.31, No.1, pp.99-113
- Kenyon, W., Gilbert, A., (2005), Business reactions to the 2001 foot and mouth disease outbreak in Scotland, in *Local Economy*, Vol.20, No. 4, pp. 372-388, November 2005
- Kiiski, S., Pohjola, M., (2002), Cross-country diffusion of the Internet, in *Information Economics and Policy*, Vol.14, 2002, pp.297-310
- Kim, P., (2003), In search of a private realm: a social perspective on internet diffusion, in *Technology in Society*, Vol. 25, pp. 417-429
- Kim, W. J., Lee, J. D., Kim, T. Y., (2005), Demand forecasting for multigenerational products combining discrete choice and dynamics of diffusion discrete under technological trajectories, in *Technological Forecasting & Social Change*, Vol. 72, pp.825-849
- King, A., Zeithmal, C. (2001),Competences and firms performance examining the causal ambiguity paradox, in *Strategic Management Journal*, Vol. 22, pg. 75-99
- Kinunda-Rutashobya, L. (2003), Exploring the potentialities of export processing free zones (EPZs) for economic development in Africa: lessons from Mauritius, in *Management Decision*, Vol. 41/3, pp. 226-232

- Kitson, M., Martin, R., Tyler, P., (2004), Regional competitiveness: an elusive yet key concept?, in *Regional Studies*, Vol. 38.9, pp. 991-999
- Knol, W., Stroeken, J. (2001), The diffusion and adoption of Information Technology in Small and Medium sized enterprises through IT scenarios, in *Technology Analysis & Strategic Management*, Vol. 13, No. 2, pp. 227-246
- Knudsen, H., Roman, P. (2004) Modelling the use of innovations in private treatment organisations: the role of absorptive capacity, in *Journal of Substance Abuse Treatment*, Vol. 26, pp. 51-59
- Kogut, B., Kulatilaka, N. (1994) Options thinking and platform investments: investing in opportunity, in *California Management Review*, Vol. 36, N0.2, pp. 52-71
- Kohn, S. Husig, H. (2005), Potencial benefits, currente suply, utilisation and barriers to adoption: an exploratory study on Germany SMEs and innovation software, in *Technovation*, Vol., pp1-11
- Kokkranikal, J., Mclellan, R., Baum, T., (2003), Island Tourism and Sustainability: A Case Study of the Lakshadweep Islands, in *Journal of Sustainable Tourism*, Vol. 11, No. 5
- Kolko, J., (2002), Silicon mountains, silicon molehills: geographic concentration and convergence of internet industries in the US, in *Information Economics and Policy*, Vol.14, 2002, pp.211-232
- Komninos, N., Sefertzi, E. (1998), Neo-industrialisation and peripherality – Evidence from regions of Northern Greece, in *Geoforum*, Vol. 29, N0.1, pp. 37-49
- Korukonda (2005) Personality, individual characteristics, and predisposition to technophobia: some answers, questions, and points to ponder about, in *Information Sciences*, Vol. 170, pp. 309-328
- Korupp, S., Szydlik, M. (2005), Causes and trends of the Digital Divide, in *European Sociological Review*, Vol. 21, No.4, September 2005, pp. 409-422
- Kourteli, L. (2000), Research note: Scanning the business environment: some conceptual issues, in *Benchmarking: An International Journal*, Vol. 7, No. 5, pp. 406-413
- Kow, O., (2004), Understanding the awakening spirit of a professional teaching force, in *International Journal of Educational Research*, Vol. 41, pp.292-306
- Koybe, M. (2004), Investigating the strategic utilisation of IT resources in the small and medium-sized firms in the eastern Free State Province, in *International Small Business Journal*, Vol. 22, No.2, pg. 131-158

- Kraemer, K. L. And Dedrick, J. (2001), Information Technology And Productivity: Results And Implications Of Cross-Country Studies, in *Information Technology And Economic Development*, Ed. M. Pohjola, Oxford University Press, Cambridge, U.K. 257–279.
- Kruger, D., (2003), Access Denied, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.320-323
- Krugman, P., (1997), *Development, Geography, and Economic Theory*, Edited by Massachusetts Institute of Technology
- Kuhnle, S. (2000), *Survival of the European Welfare State*, London: Routledge.
- Kummerow, M., Lun, J. C., (2005), Information and communication technology in the real estate industry: productivity, industry structure and market efficiency, in *Telecommunications Policy*, Vol.29, pp. 173-190
- Kwo, O., (2004), Understanding The Awakening Spirit Of A Professional Teaching Force, in *International Journal Of Educational Research*, Vol. 41, pg. 292–306
- Kylaheiko, K., (1998), Making sense of technology: towards a synthesis between neoclassical and evolutionary approaches, in *Int. J. Production Economics*, Vol. 56-57, pp. 319-332
- Kylaheiko, K., Sandstrom, J., Virkkunen, V. (2002), Dynamic capability in terms of real options, in *International Journal of Production Economics*, Vol. 80, pp. 65-83
- Kyobe, M., (2004), Investigating The Strategic Utilization Of IT Resources In The Small And Medium-Sized Firms Of The Eastern Free State Province, in *International Small Business Journal*, Vol. 22(2): 131–158
- Labrianidis, L. (2006), Guest Editorial: Fostering entrepreneurship as a means to overcome barriers to development of rural peripheral areas in Europe, in *European Planning Studies*, Vol. 14, No. 1, January 2006, pp. 3-8
- Labrianidis, L., Kalogeressis, T. (2006), The digital divide in Europe's Rural Enterprises, in *European Planning Studies*, Vol. 14, No. 1, January 2006, pp. 24-39
- Lagendijk, A. (2000), Learning in non-core regions: towards “intelligent clusters”; addressing business and regional needs, in *Knowledge, innovation and economic growth. The theory and practice of learning regions*, Edited by Frans Boekema, Kevin Morgan, Silvia Bakkers and Roel Rutten, Edward Elgar
- Lagendijk, A., Cornford, J., (2000), Regional institutions and knowledge – tracking new forms of regional development policy, in *Geoforum*, Vol31, pp. 209-218

- Lakshmanan, T. R., Nijkamp, P., Rietveld, P., Verhoef, E. T., (2001), Benefits and costs of transport, in *Papers Reg. Sci.*, Vol. 80, pp. 139-164
- Lal, K. (2005), Determinants of the adoption of e-business technologies, in *Telematics and Informatics*, Vol. 22, pp. 181-199
- Lall, S. (1999). India's manufactured exports: comparative structure and prospects. *World Development*, Vol. 27(10), pg. 1769-1786.
- Landabasso, M., (2000) Innovation and regional development policy, in *Knowledge, innovation and economic growth. The theory and practice of learning regions*, Edited by Frans Boekema, Kevin Morgan, Silvia Bakkers and Roel Rutten, Edward Elgar
- Lapierre, J., Denier, A., (2004), ICT adoption and moderating effects of institutional factors on salesperson's communication effectiveness: a contingency study in high-tech industries, in *Technovation*, Vol. 24, pp. 1-11
- Lee, J., Bose, U. (2002), Operational linkage between diverse dimensions of information technology investments and multifaceted aspects of a firm's economic performance, in *Journal of Information Technology*, Vol. 17, pg. 119-131
- Lee, S., Gholami, R., Tong, T. (2005) Time series analysis in the assessment of ICT impact at the aggregate level – lessons and implications for the new economy, in *Information & Management*, Vol. 42, pp. 1009-1022
- Lee. K., Lim, G., Tan, S. (2004), Dealing with resource disadvantage: generics strategies for SME's, in *Small Business Economics*, Vol. 12, pp. 299-311
- Lefebvre, L.-A., Lefebvre, É., Elia, E., Boeck, H. (2005), Exploring B-to-B e-commerce adoption in manufacturing SMEs, in *Technovation*, Vol. 25, pp. 1443-1456
- Legrís, P., INgham, J., Collerette, P. (2003), Why do people use information technology? A critical review of the technology acceptance model, in *Information & Management*, Vol. 40, pp. 191-204
- Lengrad, L., Sema Group Sac, IESCP, (2001), Estudo sobre: impacto das TIC nas regiões ultraperiféricas da Europa (Contracto nº 20745)
- Lethiais, V., Rallet, A., Vicente, J. (2003), TIC et réorganisation spatiale des activités économiques : introduction, in *Géographie, Économie, Société*, Vol. 5, pp. 275-285
- Lever, W. F., (2002), Correlating the knowledge-base of cities with economic growth, in *Urban Studies*, Vol.39, Nos. 5-6, pp. 859-870
- Levy, M., Powell, P., (2003), Exploring SME Internet adoption: towards a contingent model, in *Electronic Markets*, Vol. 13, No. 2, pp. 173-181

- Lewis, W., Agarwal, R., Smabamurth, V. (2003), Sources of influence on beliefs about information technology use: an empirical study of knowledge workers, in *MIS Quartely* 27 (4), pp. 191-205
- Lievrouw L. (1998) Our own devices: heterotopic communication, discourse, and culture in the information society, in *Inform. Soc.*, Vol. 14(2), pg. 83–96
- Limão, N., Venables, A. (2004), Infrastructure, geographical disadvantage and transport costs, in Working Papers, International Economics. Trade, capital flows, *World Bank*
- Litan, R., Rivlin, A. (2001), Projecting the economic impact of the Internet, in the *American Economic Review*, Vol. 91, No. 2, Papers and Proceedings of the Hundred Thirteenth Annual Meeting of the American Economic Association, May 2001, pp. 313, 317
- Loane, S., (2006), The role of the internet in the internationalisation of small and medium sized companies, in *J Int Entrepr*, Vol.3, pp.263-277
- Lockett, A., Thompson, S., (2001), The resource-based view and economics, in *Journal of Management*, Vol. 27, pp. 723-754
- Looney, R. (1989), Macroeconomic consequences of the size of Third World Nations. With special reference to the Caribbean, in *World Development*, Vol. 17, No. 1, pp. 69-83
- Lopes, E. (2000), O desenvolvimento das pequenas economias insulares, in *Economia & Prospectiva*, Vol. 13/14 Jul/Dez, 2000. pp.7-20
- Lorenzen, M. (2005), Why do clusters change ?, in *European Urban and Regional Studies*, Vol. 12, No. 3, pp. 203-208
- Love, P. Irani, Z., Li, H., Cheng, W., Tse, R. (2001), An empirical analysis of the barriers to implementing e-commerce in small-medium sized construction contractors in the state of Victoria, Australia, in *Construction Innovation*, Vol. 1, pp. 31-41
- Lovering, J., (1999), Theory Led By Policy? The Inadequacies Of ‘The New Regionalism’, in Economic Geography Illustrated From The Case Of Wales, Paper Presented At The Economic Geography Research Group Seminar ‘Institutions And Governance’, July 3 1998 Department Of Geography UCL, London, Cardiff University
- Lovering, J., (2001), The coming regional crisis (and how to avoid it), in *Regional Studies*, Vol.35, No. 4, pp. 349-354
- Lovink, G., (2004), The Rise and Fall of the Digital Metaphor and Community in 1990’s Amsterdam, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.371-377

- Lu, J., Yao, J., Yu, C.-S. (2005) Personal Innovativeness, social influences and adoption of Wireless Internet services via mobile technology, in *Journal of Strategic Information Systems*, Vol. xxx, pp.1-24
- Lu, J., Liu, C., Yao, J. (2003) Technology acceptance model for wireless Internet, in *Journal of Internet Research*, Vol. 13, No. 2, pp. 38-50
- Lucchetti, R., Sterlacchini, A. (2002), The adoption of ICT among SMEs: evidence from an Italian Survey, in *Small Business Economics*, Vol. 23, pp. 151-168
- Luehrman, T. (1998), Strategy as a Portfolio of real option, in *Harvard Business Review*, September-October, pp. 89-99
- Luis, J. (2004), The role of inter-island air transport in the Canary Islands, in *Journal of Transport Geography*, Vol. 12, pp. 235-244
- Luis, José (2002), Temporal accessibility in archipelagos: interisland shping in The Canary Islands, *Journal of Transport Geography*, 10, pp. 231-239
- Luke, R., (2003), Habit@Online: Web Portal as Purchasing Ideology, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.249-251
- Lumpkin, G. Dess, G. (2004), E-Business Strategies and Internet Business Models: How the Internet Adds Value, in *Organizational Dynamics*, Vol. 33, No. 2, pp. 161–173, 2004
- Lyon, D., (2003), Surveillance Technology and Surveillance Society, in *Modernity and Technology*, Edited by Misa, T., Brey, P., Feenberg, A., Published by The MIT Press, Cambridge, pp.161-184
- Lyons, G., (2002), Internet: investigating new technology's evolving role, nature and effects on transport, in *Transport Policy*, Vol. 9, pp. 335-346
- Madden, G., Coble-Neal, G. (2003), Internet use in rural and remote Western Australia, in *Telecommunications Policy*, Vol. 27, pp. 253-266
- Madon, S., (2004), Bangalore: Internal Disparities of a City Caught in the Information Age, in *Cybercities Reader*, Edited by Stephen , Published by Routledge, pp.309-313
- Maes, J., Sles, L., Roodhooft, F. (2005), Modelling the link between management practices and financial performance. evidence from small construction companies, in *Small Business Economiis*, Vol. 25, pg. 17-34
- Mahizhnan, A., (1999), Smart cities: The Singapore case, in *Cities*, Vol.16, No.1, pp.13-18

- Mahler, A., Rogers, E. (1999), in The diffusion of interactive communication innovations and the critical mass: the adoption of telecommunication services by German banks, in *Telecommunications Policy*, Vol. 23, pp. 719-740
- Malecki, E. (2002), The economic geography of the Internet's infrastructure, in *Economic Geography*, Vol. 78, No.4, October 2002, pp. 399-424
- Malecki, E. J., (2003), Digital development in rural areas: potentials and pitfalls, in *Journal of Rural Studies*, Vol. 19, pp. 201-214
- Malecki, E. Poehling, R. (1999), Extroverts and introverts: small manufacturers and their information sources, in *Entrepreneurship & Regional Development*, Vol. 11, pp. 247-268
- Malecki, J. (2003), Digital development in rural areas: potentials and pitfalls, in *Journal of Rural Studies*, Vol. 19 (2003), pg. 201-214
- Malina, A. (1999), 'Third Way Transitions: Building Benevolent Capitalism For The Information Society', in *Communications*, 24: 2, 167-87.
- Markusen, A. (1994) Studying regions by studying firms, in *Professional Geographer*, 46: 477-490.
- Markusen, A. 1996. Sticky places in slippery space: A typology of industrial districts, in *Economic Geography*, Vol. 72: 293-313.
- Marsick, V. J., & Watkins, K. E. (2001). Informal and incidental learning. In S. B. Merriam (Ed.), *The new update on adult learning* (pp. 25-34). *New Directions in Adult and Continuing Education*, no. 89. San Francisco: Jossey-Bass.
- Marsick, V., Watkins K. (2003). Demonstrating the value of an organization's learning culture: The dimensions of the learning organization questionnaire, in *Advances in Developing Human Resources*, Vol. 5; No. 2, pg. 132-151.
- Martin, L., Halstead, A. (2004). Attracting micro-enterprises to learning: Community initiatives or growth incentives?, in *Community, Work & Family* Vol. 7, No. 1, April 2004, pp. 29-42
- Martin, L., Halstead, A., Taylor, J. (2001), Learning in Rural Communities: fear of Information Communications Technology leading to lifelong learning?, in *Research in Post-Compulsory Education*, Volume 6, Number 3, 2001
- Martin, R., Sunley, P. (2002), Deconstructing clusters: chaotic concept or policy panacea?, in *Journal of Economic Geography*, Vol. 3, No. 1, pp. 5-35

- Martinelli, F., Schoenberger, E., (1994), Os Oligopólios estão de Boa Saúde, Obrigado!, in *As Regiões Ganhadoras*, Edited by Geoges Benko e Alain Lipietz, Published by Celta Editora., pp.103-120
- Martins, M., (2000), Regiões autónomas: ultraperiferia e desenvolvimento, riscos e oportunidades, in *Economia & Prospectiva*, Vol. 13/14 Jul/Dez, 2000. pp.7-20
- Maskell, P. (2001), Regional policies: promoting competitiveness in the Wake of Globalisation, pp. 295-310, in *Promoting Local Growth, Process, practice and policy*, Edited by Daniel Felstein and Michael Taylor, Ashgate
- Massey, C. (2006), A new conceptualisation of business development for SME: a focus on development potential, in *Environment and Planning C: Government and Policy*, Vol. 234, pp. 37-49
- Mastromarco, C., Woitek, U. (2006), Public infrastructure investment and efficiency in Italian regions, in *Journal Productivity Analysis*, Vol. 25, pp. 57-65
- Matias, J., (2000), Açores – Os custos de insularidade, in *Economia & Prospectiva*, Vol.13/14 Jul/Dez, 2000. pp.7-20
- Matsaganis, M. (2000), Social assistance in Southern Europe: the case of Greece revisited, in *Journal of European Social policy*, Vol. 10, No.1, pg. 68-80
- May, C., (2000), Information society, task mobility and the end of work, in *Futures*, Vol.32, pp. 399-416
- McAdam, R., McConvery, T., Armstrong, G. (2004), Barriers To Innovation Within Small Firms, A Peripheral Location, in *International Journal Of Entrepreneurial Behaviour & Research*, Vol. 10 No. 3, pp. 206-221
- McAdam, R., McConvery, T., (2004), Barriers to innovation within small firms in a peripheral location, in *International Journal of Entrepreneurial Behaviours & Research*, Vol.10, No.3, pp.206-221
- McAuley, A., Fillis, I. (2005), Careers and lifestyle of craft makers in the 21st Century, in *Cultural Trends*, Vol. 14(2), pg. 139-156
- McElroy, J., Sanborn, K. (2005), The propensity for dependence in Small Caribbean and Pacific Islands, in *Bank of Valletta Review*, No. 31, Spring 2005, pp.
- Meccheri, N. Pelloni, G. (2003). Rural Entrepreneurship in Mountainous Italy: the Importance of Human Capital and Instruments of Assistance: Evidence from a Case Study Implications, in 2nd Annual Meeting of the EEFS “EUROPEAN INTEGRATION: REAL AND FINANCIAL ASPECTS” Bologna, May 14/17 2003

- Méheux, K., Parker, E. (2005) Tourism perceptions of natural hazards in Vanuatu and the implications for a small island developing state, in *Tourism Management*, Vol. 11, pp. 1-11
- Mehrtens, J., Cragg, P. B., Mills, A. M., (2001), A model of Internet adoption by SMEs, in *Information & Management*, Vol. 39, pp. 165-176
- Meijers, H., (2005), Diffusion of the Internet and low inflation in the information economy, in *Information Economics and Policy*, Vol. xxx, pp. xx-xx
- Meng, Q., Li, M., (2002), New Economy and ICT development in China, in *Information Economics and Policy*, Vol.14, pp.275-295
- Miles, I. (2001), The Information Society: competing perspectives on the Social and economic implications of Information and Communication Technologies, in
- Miller, M., (2000). Third world states and fluid sovereignty: development options and the politics of sustainable ocean management, in *Ocean & Coastal Management*, Vol. 43, pg. 235-253
- Miras, F. (1997), Le développement des petites economies insulaires relève-t-il encore de l'économie de marché?, in *Revue du Tiers Monde*, Vol. XXXVIII, n° 149, janvier-mars, pp. 79-98
- Mitchell, S., Clark, D. (1999), Business adoption of information and communication technologies in the two-tier rural economy: some evidence from the South Midlands, in *Journal of Rural Studies*, Vol. 15, pp. 447-455
- Mole, K., Ghobadian, A., O'Regan, N., Liu, J. (2004), The use and development of Soft Technologies with UK Manufacturing SMEs: an empirical assessment using logit models, in *Journal of Small Business Management*, Vol. 42, No. 3, pp. 303-324
- Montalvo, C., (2006), What triggers change and innovation?, in *Technovation*, Vol.26, pp. 312-323
- Morgan, K. (1997), The learning region: institutions, innovation and regional renewal, in *Regional Studies*, Vol. 35.1, pp. 491-503
- Morikawa, M. (2004), Information technology and the performance of Japanese SMEs, in *Small Business Economics*, Vol. 23, pp. 171-177,
- Mosco, V. (2004) "Webs of myth and Power: connectivity and the new Computer technopolis, in *The Cybercities Reader*, Edited by Stephan Graham, Routledge Taylor & Francis Group, London and New York, pp. 199-204
- Moshavi, D., Koch, M. (2005), The adoption of family-friendly practices in family-owned firms, in *Community, Work and Family*, Vol. 8, No. 3, August 2005, pp. 237-249

- Mostafa, R., Wheeler, C., Jones, M., (2006), Entrepreneurial orientation, commitment to the Internet and export performance in small and medium sized exporting firms, in *J Int Entrepr*, Vol.3, pp.291-302
- Moulaert, F., Sekia, F. (2003), Territorial Innovation Models: a critical survey, in Regional Benneworth, P., Danson, M., raines, P., Whittam, G. (2003), Confusing clusters? Making sense of the cluster approach in theory and practice, in *European Planning Studies*, Vol. 11, No5, July 2003, pp. 511-520
- Mullings, B. (2004), Globalisation and the territorialisation of the new Caribbean service economy, in *Journal of Economic Geography*, Vol. 4 (2004), No. 3, pp. 275-298
- Murphy, A. (2004), "The web, the grocer and the city", in *The Cybercities Reader*, Edited by Stephan Graham, Routledge Taylor & Francis Group, London and New York, pp. 226-230
- Murray, W. (2001), The second wave of globalisation and agrarian change in the Pacific Islands, in *Journal of Rural Studies*, Volume 17, Issue 2, April 2001, Pages 135-148
- Mycoo, M., (2005), Minimising foreign control of land in an era of globalisation prospects for St. Lucia, in *Land Use Policy*, Vol.22, pp. 345-357
- Nachmias, R., Mioduser, Shemla, A. (2001), Information and Communication Technologies usage by Students in an Israeli High School: equity, gender, and inside/outside school learning issues, in *Education and Information Technologies*, Vol.6, No. 1, pp. 43-53
- Naidu, S. & Oliver, M. (1996). Computer-supported collaborative problem-based learning (CSC-PBL): An instructional design architecture for virtual learning in nursing education, in *Journal of Distance Education*, Vol. XI , No. 2, pg. 1-22.
- Nakamura, H. (2000), The economic evaluation of transport infrastructure: needs for international comparisons, in *Transport Policy*, Vol. 7, pp. 3-6
- Nancy, G. (2003), La spécialisation touristique conduit-elle a un développement économique ?, in XXXIème Colloque de l'ASRDLF, Lyon, 1-3 Septembre
- Nash, R., Martin, A., (2003), Tourism in Peripheral Areas-The Challenges for Northeast Scotland, in *Int. J. Tourism Res.*, Vol. 5, pp. 161-181
- Nelson C. (2002), The Caribbean in the Twenty-first Century. Challenges and opportunities, in *Caribbean Economies in the Twenty-first century*, Edited by Irma T. Alonso, University Press of Florida, pp. 205-220
- Nelson, R. R. and Winter, S. (1982), *An Evolutionary Theory of Economic Change*. Belknap Press/Harvard University Press: Cambridge.

- Ng, S. Chen, S., McGeorge, D., Lam, K., Evans, S. (2001), Current stage of IT usage by Australian subcontractors, in *Construction Innovation*, Vol. 1, pp. 3-13
- Nicholas, K., (2003), Geo-Policy Barriers and Rural Internet Access: The Regulatory Role in Constructing the Digital Divide, in *The Information Society*, Vol.19, pp.287-295
- Nieto, M., Fernandez, Z., (2006), The Role Of Information Technology In Corporate Strategy Of Small And Medium Enterprises, *In J Int Entrepr* (2006) 3: 251–262
- North, D., Smallbone, D. (1996), Small Business Development in Remote Rural Areas: the Example of Mature Manufacturing Firms in Northern England, in *Journal of Rural Studies*, Vol. 12, No. 2, pp. 151-167, 1996
- North, D., Smallbone, D. (2006), Developing entrepreneurship and enterprise in Europe's peripheral rural areas: some issues facing policy-makers, in *European Planning Studies*, Vol. 14, No. 1, January 2006, pp. 41-60
- O'Gorman, C., Bourke, S., Murray, J. (2005), The nature of managerial work in Small Growth-Oriented Business, in *Small Business Economics*, Vol. 25, pp., 1-16
- Odendaal, N., (2003), Information and communication technology and local governance: understanding the difference between cities in developed and emerging economies, in *Computers, Environment and Urban Systems*, Vol. 27, pp. 585-607
- OECD (1998), harmful tax competition: an emerging global issue. Paris
- Ogawa, H., (2000), Spatial impact of information technology development, in *Ann Reg Sci*, 2000, Vol.34, pp.537-551
- Ogborn, M., (2002), Writing travels: power, knowledge and ritual on the English East India Company's early voyages, in *Trans. Inst. Br. Geogr.*, Vol. 27, pp. 155-171
- Oinas, P. (2000) Distance and learning: does proximity matter?, in *Knowledge, innovation and economic growth. The theory and practice of learning regions*, Edited by Frans Boekema, Kevin Morgan, Silvia Bakkers and Roel Rutten, Edward Elgar
- Oinas, P. and Gils, A. (2001), Identifying context of learning in firms and regions, in *Promoting local growth, process, practice and policy*, Ed. Daniel Felsenstein and Michael Taylor, Ed. Ashgate
- Okazaki, S. (2006), What do we know about mobile Internet adopters? A clusters analysis, in *Information & Management*, Vol. 43, pp. 127-141
- Oliner, S. D. and Sichel, D. E. 2000. The resurgence of growth in the late 1990s: Is information technology the story? *In, J. Econ. Perspect.* 14, 4, pg. 3–22.
- Oliner, S. D. and Sichel, D. E. 2002. Information technology and productivity: Where are we now and where are we going? *In, Econ. Rev.* 3, 3, pg. 15–41.

- Oliveira, P., Roth, A., Gilland, W. (2002), Achieving competitive capabilities in e-services, in *Technological Forecasting & Social Change*, Vol. 69, pp. 721-739
- Olson, J., Boyer, K. (2003), Factors influencing the utilisation of Internet purchasing in small organisations, in *Journal of Operations Management*, Vol. 21, pp. 225-245
- Orser, B., Hogarth-Scott, Riding, A. (2000), Performance, firms size and Management Problem Solving, in *Journal of Small Business Management*, Vol. 30, October 2000, pp. 42-58
- Oxfam (2000), Tax havens: releasing the hidden billions for poverty eradication. London: Oxfam
- Oyeyinka, B. O., Lal, K., (2004), Learning new technologies by small and medium enterprises in developing countries, in *Technovation*, Vol. 24, pp. 1-12
- Pagliari, R. (2003), The impact of airline franchising on air provision in the Highlands and Islands of Scotland, in *Journal of Transport Geography*, Vol. 11, pp. 117-129
- Palazuelos, M. (2005), Clusters : Myth or realistic ambition for Policy-makers?, in *Local Economy*, Vol. 20, No. 2, pp. 131-140, May 2005
- Papadopoulos, D.A., 1997. Side effects of bureaucratic formalism: some administrative aspects of CAP implementation in Greece, in *Sociologia Ruralis*, Vol. 37, 287-301.
- Paraskevopoulos, C. (2005), Developing infrastructure as a learning process in Greece, in *West European Politics*, Vol. 28, No., 2, March 2005, pp. 445-470
- Park, S. (2001), Regional Innovation strategies in the knowledge economy, in *GeoJournal*, Vol. 53, pp. 29-38
- Pasanen, M. (2003), Multiple entrepreneurship among successful SMEs in peripheral locations, in *Journal of Small Business and Enterprise Development*, Vol. 10, No. 4, pp. 418-425
- Pelling, M., Uitto, J. I., (2001), Small island developing states: natural disaster vulnerability and global change, in *Environmental Hazards*, Vol.3, pp. 49-62
- Pensupap, V., Walker, D. (2005), Factors affecting ICT diffusion, A case study of three large Australian construction contractors, in *Engineering, Construction and Architectural Management*, Vol. 12, No. 1, pp. 21-37
- Pérez, J., Bailén, M., Olivares, A., (2004), The new economy in Spain: a regional analysis, in 44th European Congress of the European Regional Science Association, Porto
- Pestana, M. H., Gageiro, J. N., (2003), Análise de dados para ciências sociais, a complementaridade do SPSS, 3º edição revista e aumentada, Edições Sílabo, Lisboa

- Phillipson, J., Bennett, K., Lowe, P., Raley, M. (2004), Adaptive responses and asset strategies: the experience of rural micro-firms and Foot and Mouth Disease, in *Journal of Rural Studies*, Vol. 20, pp. 227-243
- Pietroforte, R., Bon, R., Gregori, T. (2000), Regional development and construction in Italy: an input-output analysis, 1959-1992, in *Construction Management and Economics*, Vol. 18, pp. 151-159
- Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., Pahnla, S. (2004), Consumer acceptance of online banking: an extension of the technology acceptance model, in *Internet Research*, Vol. 14, No. 3, pp. 224-235
- Pires, A. (2005), Market potential and welfare: evidence from the Iberian Peninsula, in *Portuguese Economic Journal*, Vol. 4, pp. 107-127
- Plaut, P., (2004), Do Telecommunications Make Transportation Obsolete?, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.162-166
- PNUD, (2004), Relatório do Desenvolvimento Humano, Liberdade Cultural num Mundo Diversificado, Publicado para o Programa das Nações Unidas para o Desenvolvimento
- Pohjola, M., (2002), The new economy: facts, impacts and policies, in *Information Economics and Policy*, Vol. 14, pp. 133-144
- Polikanov, D., Abramova, I., (2003), Africa and ICT: A Chance for Breakthrough?, in *Information, Communication & Society*, Vol.6, No.1, pp.42-56
- Porter, M., (1998), Clusters and the new economics of competition, in *Harvard Business Review*, Nov/Dec98, Vol.76, Issue 6, pp77-90
- Porter, M., (2001), Innovation: Location matters, in *MIT Sloan Management Review*, Summer2001, Vol.42, Issue 4, pp.28-36
- Porter, M., (2001), Strategy and the Internet, in *Harvard Business Review*, March 2001,
- Porter, M.E., Millar, V.E., 1985. How information gives you competitive advantage. *Harvard Business Review*, Vol. 63, (4), 149–160.
- Pose, A. R., (2001), Is R&D investment in lagging areas of Europe worthwhile? Theory and empirical evidence, in *Reg. Sci.*, Vol. 80, pp. 275-295
- Preiss, B. (1995) Strategic use of information technology – diffusion processes in networks and environments, in *Information Economics and Policy*, pp. 75-99
- Premkumar, G., Roberts, M., (1999), Adoption of new information technologies in rural small business, in *Omega, Internal Journal of Management*, Vol. 27, pp. 467-484

- Pritchard, M., Havitz, M., (2006), Destination Appraisal, An Analysis of Critical Incidents, in *Annals of Tourism Research*, Vol.33, Nol.1, pp.25-46
- Psaltopoulos, D., Stathopoulos, S., Skuras, D. (2005), The location of markets, perceived entrepreneurial risk, and start-up capital of micro rural micros, in *Small Business Economics*, Vol. 25, pg. 147-158
- Quevit, M. (1992), The regional impact of the Internal Market: a comparative analysis of traditional industrial regions and lagging regions, in *Regional Studies*, Vol. 26, No.4, pp. 349-360
- Raagmaa, G., (2001), Public leaders in regional economic development, in *European Planning Studies*, Vol. 9, No. 8, pp. 1040-1053
- Rallet, A., Torrer, A. (1999) Is geographical proximity necessary in the innovation networks in the era of global economy?, in *Geojournal* Vol. 49, pp. 373-380
- Ramírez, R., (2001), A model for rural and remote information and communication technologies: a Canadian exploration, in *Telecommunications Policy*, Vol.25, pp. 315-330
- Ramsey, E. Ibbotson. P. (2006), 'E' entrepreneurial SMEs: An Irish study of micro and macro influences, in *Journal of International Entrepreneurship*, Vol. 3: pg. 317-332
- Randóy, T., Goel, (2003), Ownership structure, founder leadership, and performance in Norwegian SMEs: implications for financing entrepreneurial opportunities, in *Journal of Business Venturing*, Vol. 18, pp. 619-637
- Raoulx, B. (1999), From the Faroes to Falklands. A comparative analysis of Atlantic Islands Societies, in *Insularity and development, International perspectives on islands*, Edited by Emilio Biagini and Lino Briguglio, Published by Pinter
- Rauch, A., Frese, M., Utsch, A. (2005), Effects of Human Capital and Long-Term Human Resources Development and Utilisation on Employment Growth of Small-Scale Business: a causal analysis, in *Entrepreneurship Theory and Practice*, November 2005-11-07
- Ravasi, D. Turati, C. (2005) Exploring entrepreneurial learning: a comparative study of technology development projects, in *Journal of Business Venturing*, Vol. 20, pp. 137-164
- Ray, C., (1999), Endogenous Development in the Era of Reflexive Modernity, in *Journal of Rural Studies*, Vol.15, No. 3, pp. 257-267
- Razak, V. (1995), Culture under construction, The future of native Arubian identity, in *Futures*, Vol. 27, No4., pp. 447-459

- Read, R. (2004), The implications of increasing globalisation and regionalism for the economic growth of small states”, in *World Development*, Vol.32, No.2, pp. 365-378
- Richardson, R. and Belt, V. (2001), Saved by the bell? Call Centres and economic development in less favoured regions', in *Economic and Industrial Democracy*, Vol. 22 (1), pg. 67-98
- Richardson, R. and Gillespie, A. (2003), The call of the wild: call centres and economic development in rural areas', in *Growth and Change* 2003, Vol. 34(1), pg. 87-108
- Richardson, R. and Gillespie, A. (2000), Call centre periphery: Teleservices and economic development in rural Scotland, in *Revue de Géographie de Lyon Geocarrefour*, Vol. 75, 1 ,p 79-85 2000.
- Richardson, R., Gillespie, A. (1996), Advanced communications and employment creation in rural and peripheral areas: a case study of the Highlands and Islands of Scotland, in *Annals of Regional Science*, Vol. 30, pp. 91-110
- Riemenschneider, C., Harison, D., Mykytyn, P. (2003), Understanding it decision decisions in small: integrating current theories, in *Information & Management*, Vol. 40, pp. 269-285
- Rietveld, P., Shefer, D. (1999). Regional development in an age of structural economic change. Aldershot: Ashgate.
- Rietveld, P., Vickerman, R. (2004), Transport in regional science: the “death of distance” is premature, in *Papers in Regional Science*, Vol. 38, pp. 229-248
- Ritsila, J., Tervo, H. (2002) Effects of unemployment on *new firm formation: micro-level panel data evidence from Finland*, in *Small Business Economic*, Vol. 19, pp. 31-40
- Rivard, S. Raymond, L., Verreault, D. (2005), Resourced-based view and competitive strategy: an integrated model of the contribution of information technology to firm performance, in *Journal of Strategic Systems*. Vol. 15, pg. 29-50
- Roberts, D., Thompson K. (2003), Sources of Structural Change in Peripheral Rural Areas: the case of the Western Isles, 1988/89 to 1997, in *Regional Studies*, Vol. 37.1, pp. 61-70
- Robison, K. K., Crenshaw, E. (2002), Post-industrial transformations and cyber-space: a cross-national analysis of Internet development, in *Social Science Research*, Vol. 31, pp. 334-363
- Rodriguez. R., (2000), Convicção e Desenvolvimento: Canárias no Séc.XXI, in *Economia & Prospectiva*, Vol. 13/14 Jul/Dez, 2000. pp.7-20

- Rodríguez-Pose, A. (2000), Economic converge and regional development strategies in Spain: the case of Galicia and Navarre, in *European Investment Bank Papers*, Volume 5, No. 1, pp. 89-115
- Rodríguez-Pose, A., (1998), *The Dynamics of Regional Growth in Europe, Social and Political Factors*, Published by Clarendon Press, Oxford
- Rodríguez-Pose, A., (2001), Is R&D investment in lagging areas of European worthwhile? Theory and empirical evidence, *Papers in Reg. Sci.*, Vol.80, pp.275-295
- Rogers, E., (1995), *Diffusion of Innovations*, Published by The Free Press
- Roller, L., Waverman, L., (2001), Telecommunications infrastructure and economic development: a simultaneous approach, in *The American Economic Review*, pp.909-923
- Roper, S. (1999) Modelling Small Business Growth and Profitability, in *Small Business Economics*, Vol. 13, pp. 235-252
- Saadé, R., Kira, D., (2006), Mediating the impact of technology usage on perceived ease of use by anxiety, in *Computers & Education*, pp.1-16
- Saarenketo, S., Puumalainen, K., Kuivalainen, O., Kyläheikö, K., (2004), Dynamic Knowledge-Related Learning Processes In Internationalizing High-Tech SMEs, in *Int. J. Production Economic*, Vol 89, pg. 363–378
- Sadowski, B. M., Maitland C., van Dongen J., (2002), Strategic use of the Internet by small- and medium-sized companies: an exploratory study, in *Information Economics and Policy*, Vol. 14, pp.75-93
- Saemundson, R., Dahlstrand, A. (2005) How business opportunities constrain young technology based firms from growing into Medium-sized firms, in *Small Business Economics*, Vol. 24, pp. 113-129
- Salmeron, J., Hurtado, J. (2005) Modelling the reasons to establish B2C in the fashion industry, in *Technovation*, Vol. 25, pp. 1-8
- Salojävi, Furu, P., Sveiby, K.-E. (2005), Knowledge management and growth in Finnish firms, in *Journal of Knowledge Management*, Vol. 9, No. 2, pp. 103-112
- Salomon, I. (1996) Telecommunications, cities and technological opportunism, in *Annals of Regional Science*, Vol. 30, pp. 75-90
- Sambamurthy, V., Bharadwaj, A., Grover, V. (2003), Shaping agility through digital option: reconceptualizing the role of information technology in contemporary firms, in *MIS Quarterly*, Vol. 27, No.2, pp. 237-263
- Sánchez, J. I. L., Rata, B. M., Duarte, A. R., Sandulli, F. D., (2005), Is the Internet productive? A firm-level analysis, in *Technovation*, Vol. 26; N° 7, pp. 821-826

- Santarelli, E., D'Altri, S., (2003), The Diffusion Of E-Commerce Among SMEs: Theoretical Implications And Empirical Evidence, in *Small Business Economics* 21: 273–283, 2003.
- Santos, A., (1994), Sinopse da Economia Açoriana, Documentos do IESF, No. 8, Edições ASA
- Santos-Requejo, L., González-Benito, O. (2000), Economic success factors in Spanish retail business. An analysis based on sector-relative definitions, in *Small Business Economics*, Vol. 15, pp. 209-222
- Sarno, D. (2005), Liquidity constraint on the production of firms in Southern Italy, in *Small Business Economics*, Vol. 25, pg. 133-146
- Sassen S. (2004) Agglomeration in the Digital Era?, in *The Cybercities Reader*, Edited by Stephan Graham, Routledge Taylor & Francis Group, London and New York, pp. 195-198
- Sassen, S. (2002), Published in 2002 by Routledge, New York, *Global Networks Linked Cities*
- Sassen, S., (2001), Impacts of information technologies on urban economics and politics, in *International Journal of Urban and Regional Research*, Vol. 25, pp. 411-417
- Savage, S., Waldman, D. (2005) Broadband Internet access awareness and use: analysis of United States household data, in *Telecommunications Policy*, Vol. 29, pp. 615-633
- Savy, M.(1998), TIC et territoire : les paradoxes de localisation, in *Les Cahiers Scientifiques du Transport*, N°. 33/1998, pp. 129-146
- Schech, S. (2002), Wired for change: the links between ICTs and development discourses, in *Journal of International Development*, Vol. 14, pp. 13-23
- Schenk. N., Moll, N., Schoot, A. Uiterkamp (2006), Meso-level analysis, the missing link in energy strategies, in, *Energy Policy*, Vol. 35 (2007) 1505–1516
- Schulze, W., Lubatkin, M., Dino, R. (2002), Altruism, Agency, and the Competitiveness of Family Firms, in *Managerial and decisions economics*, Vol. 23: pg. 247–259
- Schulze, W., Michael H. Lubatkin, M., Dino, R., (2002), Altruism, Agency, And The Competitiveness Of Family Firms, In *Managerial And Decision Economics* Vol.23: 247–259 (2002)
- Schware, R., Hume, S., (1996), Prospects for information service exports from the English-speaking Caribbean, in *The World Bank*, March, pp.1-43

- Sclove, R., (2003), Cybernetic Wal-Mart: Will the Internet tax breaks kill main street in USA?, in *Cybercities Reader*, Edited by Stephan Graham, Routledge, pp. 360-362
- Scott, A., (1994), A Economia Metropolitana, in *As Regiões Ganhadoras*, Edited by Geoges Benko e Alain Lipietz, Published by Celta Editora, pp.63-72
- Scott, A., Storper, M. (2003), Regions, globalisation, development, in *Regional Studies*, Vol. 37, No. 6&7, pp. 579-593, August/October 2003
- Sealy, W. (2003), Empowering development through e-government: creating smart communities in small islands states, in *Intl. Inform. & Libr. Rev.* Vol. 35, pg. 335-358
- Selwin, N., (2004), Reconsidering political and popular understandings of the digital divide, in *New Media & Society*, Vol.6, N°.3, pp.341-362
- Selwyn, N. (2002), E-stabilishing an Inclusive Society? Technology, social exclusion and UK Government policy making, in *Journal of Social Politics*, Vol. 31, No.1, pp. 1-20
- Selwyn, N. (2003), Apart from technology: understanding people's non-use of information and communication technologies in everyday life, in *Technology in Society*, Vol. 25, pp. 99-116
- Selwyn, N. (2006), Digital division or digital decision? A study of non-users and low-users of computers, in *Poetics*, Vol. 34, pp. 273-292
- Selwyn, N., (1998), The effect of using a home computer on educational use of IT, in *Computers & Education*, Vol. 31, pp. 211-227
- Selwyn, N., Marriott, N., Marriot, P. (2000), Net gains or net pains? Business students use of Internet, in *Higher Education Quarterly*, Vol. 54, No.2, April 2000, pp. 166-186
- Serrano-Cinca, C., Fuertes-Callén, Mar-Molinero, C. (2005), Measuring DEA efficiency in Internet companies, in *Decision Support Systems*, Vol. 38, pp. 557-573
- Servon, L., Nelson, M. (2001), Community technology centres and the Urban Technology gap, in *International Journal of Urban and Regional Research*, Vol. 25, No. 2, pp. 419-426
- Shang, R.A., Chen, Y.-C., Shen, Lysander (2005), Extrinsic versus Intrinsic motivations for consumers to shop on-line, in *Information & Management*, Vol. 42, pp. 401-13
- Shao, B., Lin, W. (2001), Measuring the value of information technology in technical efficiency with stochastic production frontiers, in *Information and Software Technology*, Vol. 43, pp. 447-456
- Shareef, R., Hoti, S., (2005), Small island tourism economies and country risk rating, in *Mathematics and Computers in Simulation* , Vol. 68, pp. 557-570

- Sharman, J. (2005) South Pacific tax havens: From leaders in the race to the bottom to laggards in the race to the top?, in *Accounting Forum* 29, pg. 311–323
- Sharpley, R. (2003), Tourism, modernisation and development on the Island of Cyprus. Challenges and policy responses, in *Journal of Sustainable Tourism*, Vol. 11, No. 2&3, 2003, pp. 246-265
- Shaw, G., Marlow, N. (1999), The role of student learning styles, gender, attitudes and perceptions on information and communication technology assisted learning, in *Computers & Education*, Vol.33, pp. 223-234
- Shih, H.P. (2004), Extended technology acceptance model of Internet utilization behaviour, in *Information & Management*, Vol. 41, pg. 719–729
- Sidorenko, A., Findlay, C., (2001), The Digital Divide in East Asia, in *Asian Pacific Economic Literature*, Vol. 15, No 2, November 2001
- Sinai, T., Waldfoegel, J. (2004), Geography and the Internet: is the Internet a substitute or a complement for cities, in *Journal of Urban Economics*, Vol. 56, pp. 1-24
- Sinclair, T. (1998), Tourism and economic development: a survey, in *The Journal of Development Studies*, Vol. 34, June 1998, pp. 1.52
- Sincovics, R., E., Penz, (2006), Empowerment of SME websites – Development of a web-empowerment scale and preliminary evidence, in *J Int Entrepr*, Vol.3, pp.303-315
- Sinha, N., (1996), The political economy of India's telecommunication reforms, in *Telecommunication Policy*, Vol. 20, No. 1, pp. 23-38
- Sinkovics, Stottinger, Schlegelmilch, Ram (2002), Reluctance to use technology related products: development of a technophobia scale, in *Thunderbird International Business Review*, Vol. 44.4, pp. 477-494
- Skinner, E (2004), The Caribbean Data Processors: from Global Productions: labour in the making of the Information Society, in *The Cybercities Reader*, Edited by Stephan Graham, Routledge Taylor & Francis Group, London and New York, pp. 218-220
- Skinner, J., Pownall, I., Cross, P. (2003), Is HRD practised in micro-SMEs, in *Human Resource Development International*, Vol. 6, No. 4, pp. 475-489
- Skule, S. (2004). Learning conditions at work: A framework to understand and assess informal learning in the workplace, in *International Journal of Training and Development*, Vol. 8, No. 1, pg. 8-17.
- Skuras, D., Dimara, E., Stathopoulou, S. (2003), Capital subsidies and Job creation in rural areas: A greek case study, in *International Journal of Manpower*, Vol. 24, No. 8, pp. 947-963

- Skuras, D., Dimara, E., Vakrou, A., (2000), The day after grant-aid: business development schemes for small rural firms in lagging areas of Greece, in *Small Business Economics*, Vol. 14, pp. 125-136
- Skuras, D., Meccheri, N., Moreira, M. B., Rosell, J., Stathopoulou, S., (2002) Entrepreneurial human capital accumulation and the growth of rural businesses: a four-country survey in mountainous and lagging areas of the European union, in *Journal of Rural Studies*, Vol. 21, pp. 67-79
- Slater, D., (2003) Modernity under Construction: Building the Internet in Trinidad, in *Modernity and Technology*, Edited by Misa, T., Brey, P., Feenberg, A., Published by The MIT Press, Cambridge, pp.139-160
- Smallbone, D., North, D., Christos Kalantaridis, C., (1999), Adapting To Peripherality: A Study Of Small Rural Manufacturing. RMs In Northern England, In *Entrepreneurship & Regional Development*, 11 (1999) , 109 – 127
- Smith, J., (1999), The Behaviour And Performance Of Young Micro Firms: Evidence From Businesses In Scotland, In *Small Business Economic*, Vol. 13: 185–200, 1999.
- Smith, M. (2004), A model of the linked adoption of complementary technologies, in *Economics of Innovation New Technology*, Vol. 13, No.1, January, pp. 91-99
- Soete. L. (2000), Towards the digital economy: scenarios for business, in *Telematics and Informatics*, Vol. 17, pp. 199-212
- Solnit, R., Shwartenberg, S. (2004), San Francisco: capital of the Twenty-First Century, in *The Cybercities Readers*, Edited by Stephan Graham, Routledge,
- Song, J., Zahedi, F. (2006), Internet market strategies: antecedents and implications, in *Information & Management*, Vol. 43, pp. 222-238
- Sorens, J. (2004), Globalization, secessionism and autonomy, in *Electoral Studies*, Vol. 23, pg. 727-752
- Sornn-Friese, H., Sorensen, J. (2005), Linkage and regional economic development: the case of the Orensund medi-tech plastics industry, in *Entrepreneurship & Regional Development*, Vol. 17, July (2005), pp. 267-291
- Sotiropoulos, D. (2004) The EU's Impact on the Greek Welfare State: Europeanization on Paper?, in *Journal of European Social Policy*, Vol. 14, No. 3, 267-284 (2004)
- Sotiropoulos, D. (2004), Southern European public bureaucracies in comparative studies, in *West European Politics*, Vol. 27, No. 3, pg. 405-422
- Southern, A. (2002), Can information and communication technologies support regeneration?, in *Regional Studies*, Vol. 12, No.1, pp. 697-702

- Spanos, Y. E., Lioukas, S., (2001), An examination into the casual logic of rent generation: contrasting Porter's competitive strategy framework and the resource-based perspective, in *Strat. Mgmt. J.*, Vol. 22, pp. 907-934
- Spanos, y., Prastacos, G., Papadakis, V., (2001), Greek firms and EMU: contrasting SMEs and large-sized enterprises, in *European Management Journal*, Vol.19, No. 6, pp. 638-648
- Spanos, Y.E., Prastacos, G. P., Poulymenakou, A., (2002), The relationship between information and communication Technologies adoption and management, in *Information & Management*, Vol. 39, pp. 659-675
- Spencer, J. W., Gómez, C., (2004),The relationship among national structures, economic factors, and domestic entrepreneurial activity: a multicountry study, in *Journal of Bussiness Research*, Vol. 57, pp. 1098-1107
- SQW (2002), Advantage through ICT: An ICT strategy for England's North West. Report for Northwest Development Agency and North West Regional Assembly (Cambridge, SQW Consultants).
- Stavrou, E., Klenthous, T., Anastasiou T. (2005), Leadership Personality and firm culture during hereditary transitions in family firms: model development and empirical investigation, in *Journal of Small Business Management*, Vol. 43, No. 2, pp. 187-206
- Sternberg, R., Arndt, O. (2001) The firm or the region: what determines the innovation behaviour of European firms? in *Economic Geography*, Vol. 77: pg. 364–382.
- Storper, M. (1997) *The Regional World*. New York: Guilford Press.
- Storper, M., Bennet, H., (1994), Flexibilidade , Hierarquia e Desenvolvimento Regional, in *As Regiões Ganhadoras*, Edited by Geoges Benko e Alain Lipietz, Published by Celta Editora., pp.171-188
- Streeter, T., (2003), The Cable Fable Revisited: Discourse, Policy and the Making of Cable Television, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.53-56
- Suire, R., (2003), Stratégies de localisation des firmes du secteur TIC: du cyber district au district lisière, in *Géographie, Économie, Société*, Vol. 5, pp. 379-397
- Sung, Y., Wang, H., (2005), Does internet access matter for rural industry? A case study of Jiangsu, China, in *Journal of Rural Studies*, Vol.21, pp. 247-258
- Suss, E., Williams, O., Mendis, C., (2002), Caribbean Offshore Financial Centers: Past, Present and Possibilities for the Future, in *International Monetary Fund*, May 2002

- Tanriverdi, H. (2005), Information technology relatedness, knowledge management capability, and performance of multibusiness firms, in *Management and Information System (MIS)*, Vol. 29, No. 2, pp. 311-334, June 2005
- Tavares, J., (2004), Institutions and economic growth in Portugal: a quantitative exploration, in *Port. Econ. J.*, Vol.3, pp. 49-79
- Taylor, I., Tricker, M., (2006), Local-authority led economic regeneration strategies in the aftermath of the foot-and-mouth disease crisis of 2001, in *Local Economy*, Vol.21, No. 3, pp. 279-291, August 2006
- Taylor, J., (2001), Tourism to the Cook Islands, Retrospective and Prospective, in *Cornell Hotel and Restaurant Administration Quarterly*, April 2001, pp.70-81
- Taylor, J., Wrent, C., (1997), UK regional policy: an evaluation, in *Regional Studies*, Vol. 31, No. 9, pp. 835-848
- Taylor, M., Mcwilliam, J., England, D., Akomode, J. (2004), Skills required in developing electronic commerce for small and medium enterprises: case based generalisation approach, in *Electronic Commerce Research and Applications*, Vol. 3, pp. 253-265
- Teece, D., Pisano, G., Shuen, A. (1997), Dynamic capabilities and strategic management, in *Strategic Management Journal*, Vol. 18:7, pg. 509-533
- Tej Vir Singh, (2003), *Tourism and Development: Not an Easy Alliance*, Edited by R.N. Ghosh, M.A.B. Siddique and R. Gabbay Published by Ashgate, pp.30-41
- Tellis, G., Stremersch, S., Yin, E. (2003), The international takeoff of new products: the role of economics, culture, and country innovativeness, in *Marketing Science*, Vol. 22, No. 2, Spring 2003, pp. 188-208
- Teo, T., Pian, Y. (2004) A model of Web adoption, in *Information & Science*, Vol. 41, pp. 457-468
- Teo, T., Ranganathan, C., (2004), Adopters And Non-Adopters Of Business-To-Business Electronic Commerce In Singapore, In *Information & Management*, Vol. 42 (2004) 89–102
- Terluin, I. (2003), Differences in economic development in rural regions of advanced countries: an overview and critical analysis of theories, in *Journal of Rural Studies*, Vol. 19, pp. 327-344
- Thompson, M. (2004), Discourse, “development” & Digital Divide: ICT & the World Bank, in *Review of African Political Economy*, No. 99, pp. 103-123

- Thorpe, Brosnan (2005), Does computer anxiety reach levels which conform to DSM IV criteria for specific phobia?, in *Computer in Human Behaviour*, Vol. xxx, pp. 1-15
- Thrift, N., (2003), Inhuman Geographies: Landscapes of Speed, Light and Power, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.39-43
- Tödttling, F., Tripl, M. (2005) One size fits all? Towards a differentiated regional innovation policy approach, in *Research Policy*, Vol. 34, pp. 1203-121
- Tregear, A., (2003), Market orientation and the craftsperson, in *European Journal of Marketing*, 2003, Vol. 37, pg. xx-xx
- Trifiletti, R. (1999) Southern European welfare regimes and the worsening position of women, *Journal of European Social Policy*, Vol 9 (1): 49–64
- Tzelepis, D., Skuras, D. (2004), The effects of regional capital subsidies on firm performance: an empirical study, in *Journal of Small Business and Enterprise Development*, in Vol. 11, No., 1, pp. 121-129
- UNDCCP (1998), (Financial havens, banking secrecy and money laundering)
- UNDP (2001), Human Development Report 2001, Making new technologies work for human development, Published by the United Nations Development Programme, www.Undp.org
- Uranga, M. G., Etxebarria, (2000), Panorama of the Basque Country and its Competence for Self –Government, in *European Planning Studies*, Vol. 8, No. 4, pp. 522-535
- Våland, T., Heide, M., (2005), Corporate Social Responsiveness: Exploring the Dynamics of “Bad Episodes”, in *European Management Journal*, Vol.23, No.5, pp.495-506
- Valentine, G. Holloway, S. (2001), A window on the wider world? Rural children’s use of information and communication technologies, in *Journal of Rural Studies*, Vol. 17, pg. 383–394
- van Ark, B., Piatkowski, M. (2004), Productivity, innovation and ICT in Old and New Europe, in Research Memorandum, University of Gronongen, Groningen Growth Development Centre
- van Geenhuizen, M., Nijkamp, P. (2000), The learning capabilities of regions: conceptual policies and patterns, in *Knowledge, innovation and economic growth. The theory and practice of learning regions*, Edited by Frans Boekema, Kevin Morgan, Silvia Bakkers and Roel Rutten, Edward Elgar

- van Gelderen, M, der Sluis, L., Cansen, P (2005), Learning opportunities and learning behaviours of small business starters: relations with goal achievement, skill development and satisfaction, in *Small Business Economics*, Vol. 25, pp. 97-108
- Vanegas, M., Croes, R. R., (2003), Growth, development and tourism in a small economy: evidence from Aruba, in *International Journal of Tourism Research*, Vol. 5, pp. 315-330
- Vásquez-Barquero, A., (1995), A Evolução Recente da Política Regional, A experiência europeia, in *Notas Económicas* Dezembro 1995, pp.24-39
- Vaz, M., Cesário, M., Fernandes, S. (2006), Interaction between innovation in small firms and their environments: an exploratory study, in *European Planning Studies*, Vol. 14, No. 1, January 2006, pp. 95-115
- Veenstra, A., Mulder, H., Sels, R. (2005), Analysing container flows in the Caribbean, in *Journal of Transport Geography*, Vol. 134, pp. 295-305
- Veltz, P., (1994), Hierarquias e Redes, in *As Regiões Ganhadoras*, Edited by Geoges Benko e Alain Lipietz, Published by Celta Editora., pp.189-202
- Veltz, P., (1999), Territoires Innovateurs : de quelle innovation parle-t-on ?, in *Revue d'Économie et Urbaine*, No. 3, pp. 607-616
- Venables, A. (2001), Geography and International inequalities: the impact of the new technologies, *Paper prepared for World Bank Annual Conference on Development Economics*, Washington 2001
- Venkatesh, V., Davis, F., (2000), A theoretical extension of the technology acceptance model: four longitudinal field studies, in *Management Science*, Vol. 46, No.2, February, pp. 186-204
- Venkatesh, V., Morris, M., Davis, G., Davis, F. (2003), User acceptance of information technology: toward a unified view, in *MIS Quarterly*, Vol. 27, No. 3, September/2003, pp. 425-478
- Venkatesh, V., Morris, M., Davis, G., Davis, F., (2003), User Acceptance of Information Technology: Toward a Unified View, in *MIS Quarterly*, Vol.2, No.3, pp425-478/September 2003
- Vias, A. (2004), Bigger stores, more stores, or no stores: paths of retail restructuring in rural America, in *Journal of Rural Studies*, Vol. 20, pp. 303-318
- Vickerman, R., Spiekermann, K., Wegener, M. (1999), Accessibility and economic development in Europe, in *Regional Studies*, Vol. 33, No.1, pp. 1-15

- Vijselaar, F., Albers, R. (2004), New technologies and productivity growth in the euro area, in *Empirical Economics*, Vol. 29, pp. 621-646
- Vodoz, L., Giaque, B., (2003), La Dimension Territoriale de la Fracture Numerique, *XXXIXème Colloque de l'Association de Science Régionale De Langue Française*, Lyon 3 Septembre 2003, pp.1-12
- Waesche, N., (2003), Venture Failure and the Timing of Telecommunications Reform, *Internet Entrepreneurship in Europe*, Edited by
- Walburn, D., (2005), The Lisbon agenda: regional performance in a two speed Europe. The important contribution of local programmes of SME support, in *Local Economy*, Vol.20, No. 3, pp. 305-308, August 2006
- Wall, K., Aboim, S., Cunha, V., Vasconcelos, P. (2001), Families and informal support networks in Portugal: the reproduction of inequality, in *Journal of European Social Policy*, VI. 11, No.3, pg. 213-233
- Wang, E. H., (1999), ICT and economic development in Taiwan: analysis of the evidence, in *Telecommunications Policy*, Vol. 23, pp. 235-243
- Ward, N., (2002), The Role of Telecommunications in Caribbean Development in the Twenty-first Century, in *Caribbean survival and the global challenge*, pp.122-135
- Ward, S., Lusoli, W., (2003), Dinosaurs in Cyberspace? British trade unions and the Internet, in *European Journal of Communication*, Vol. 18, No. 2, pp. 147-179
- Warren, L. (2004), Research Paper: A systemic approach to entrepreneurial learning: an exploration using storytelling, in *Systems Research and Behavioural Science*, Vol. 21, pp. 3-16
- Watkins, K., Marsick, V. (2003), Demonstrating the value on an organization's learning culture: The dimensions of the learning organization questionnaire. In K.E. Watkins, V. J. Marsick, & S.D. Johnson (Eds.), *Making learning count! Diagnosing the learning culture in organizations* (pp.132-151). Newbury Park, CA: Sage.
- Webber, M., The Urban Place and the Non-Place Urban Realm, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.50-52
- Webster, F. (2000), Information, Capitalism and Uncertainty, in *Information, Communication & Society*, Vol. 3, No. 1, pp. 69-90
- Weisser, D., (2004), On the economics of electricity consumption in small island developing states: a role for renewable energy technologies?, in *Energy Policy*, Vol. 32, pp. 127-140

- Westhead, P., Wrigth, M., Ucbasaran, (2001), The internalisation of new and small firms, a resource based view, in *Journal of Business Venturing*, Vol. 16, pg. 333–358
- Wheeler, D. (2003), Egypt, building an Information Society for International development, in *Review of African Political Economy*, No.98, pg. 627-642
- Wiklund, J., Shephard, D. (2005), Entrepreneurial orientation and small business performance: a configurational approach, in *Journal of Business Venturing*, Vol. 20, pp. 71-91
- Wilson-Jeanselme, M., Reynolds, J., (2005), Growth Without Profit: Explaining The Internet Transaction profitability Paradox, in *Journal Of Retailing And Consumer Services*, Vol. 12 (2005) 165–177
- Winner, L. (1997). Cyberlibertarian myths and the prospect for community, in *ACM Computers and Society*, 27 (3), pg. 14–19.
- Winters, L., Martins, P. (2004), When comparative advantage doesn't matter: business costs in small economies, in *CEPR Working Papers*
- Wolff, E. N., (2002), The impact of IT investment on income and wealth inequality in the post-war US economy, in *Information Economics and Policy*, Vol. 14, pp. 233-251
- Wolf-Powers, L., (2001), Information Technology and Urban Labor Markets in the United States, in *International Journal of Regional Research*, Vol.25, N°.2, June 2001, pp.427-433
- Wong, K., Aspinwall, E. (2004), Characterizing knowledge management in the small business environment, in *Journal of Knowledge Management*, Vol. 8, No. 3, pp. 44-61
- Wong, P. K., (2003), Global and national factors affecting E-commerce diffusion in Singapore, in *The Information Society*, Vol. 19, pp. 19-32
- Wong, P., (2002), ICT production and diffusion in Asia Digital dividends or digital divide?, in *Information Economics and Policy*, Vol. 14, pp. 167-187
- Wood, E., (2001), Marketing information systems in tourism and hospitality small-and medium-sized enterprises: a study of internet use for market intelligence, in *International Journal of Tourism Research*, Vol. 3, pp. 283-299
- Wood, R. E., (2000), Caribbean cruise tourism, in *Annals of Tourism Research*, Vol. 27, No. 2, pp. 345-370
- Wu, I-l., Wu, K.-U., (2005), A hybrid technology acceptance approach for exploring e-CRM adoption in organisations, in *Behaviour and Information Technology*, Vol. 24, No.4, July 2005, pp. 303-316
- Yin, R. (1994) *Case Study Research: Design and Methods*, California: Sage.

- Yli-Renko, H., Autio, E., Sapienza, H. (2001), Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms, in *Strategic Management Journal*, Vol. 22, pp. 587-613
- Yo, E., Damhorst, M., Sapp, S., Laczniak, R. (2003) Consumer adoption Internet: the case of apparel shopping, in *Psychology & Marketing*, Vol. 20 (12), pp. 1095-1118
- Yoo, S.H., Moon, H.-S. (2005) An estimation of future demand for portable Internet service in Korea, in *Technological Forecasting & Social Change*, Vol. xxx, pp. 1-13
- Yu, J., Ha, I., Choi, M., Rho, J. (2005), Extending the TAM for t-commerce, in *Information & Management*, Vol. 42, pp. 965-976
- Zhuang, Y., Lederer, A. (2005) A resource-based view of electronic commerce, in *Information & Management*, Vol. xxx, pp. 1-11
- Zook, M. (2004) "Cyberspace and local places: the urban dominance of .com geography in the late 1990's, in *The Cybercities Reader*, Edited by Stephan Graham, Routledge Taylor & Francis Group, London and New York, pp. 205-211
- Zook, M. A., (2002), Hubs, nodes and by-passed places: a typology of e-commerce regions in the United States, in *Tijdschrift voor Economische en Sociale Geografie*, Vol. 93, No. 5, pp. 509-521
- Zook, M., (2000), Current statistics, Internet metrics: using host and domain counts to map the internet, in *Telecommunications Policy*, Vol.24, pp.613-620
- Zook, M., (2003), Cyberspace and Local Places: The Urban Dominance of .Com Geography in the Late 1990's, in *Cybercities Reader*, Edited by Stephen Graham, Published by Routledge, pp.205-211

Annexe

1. In relation to the situation of the adoption of the IT in your firm, please indicate:

	yes	no		yes	no
Access to the Internet and/or to email in the firm			6 Web page developed by an external firm		
2 Existence of electronic address of the firm			7 At least one up-grade after initial development of the web page		
3 Existence of web page of the firm			8 Existence of a section/worker linked to the update of the web page		
4 Existence of e-commerce functionalities in the firm (eg. on-line order)			9 Year of e-mail/Internet adoption in the firm		
5 Web page developed internally in the firm			10 Year of web page adoption in the firm		
11 Number of computers in the firm			13 Number of computer with Internet access		
12 Number of employees who use the Internet			14 Number of employees who frequently accede the Internet		

1.1. Other software in use in the firm

	Yes	No		Yes	No
Accountancy software			ERP and/or CRM		
Integrated management software			Others (eg. Internet) _____		

2. Access to Internet at home:

	Yes	No
1. Please indicate whether you access the Internet at home		

2. Please indicate whether you access the Internet at home because of subjects related to your firm		
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3. Please indicate whether you have ordered and paid goods/services via Internet

3. In case you still don't have access to Internet or web page of the firm, please mention short term projects

	Yes	No		Yes	No
1. Plans to install access to Internet and firm e-mail adoption	_____	_____	2. Plans to adopt firm's own web page	_____	_____
			3. Plans to adopt e-commerce functionalities in the firm's web page (eg. on-line order)	_____	_____

3.1 In case you answered the previous questions, please indicate :

(1) very unlikely and (5) very likely

	(1)	(2)	(3)	(4)	(5)
1. Internal development of a web page					
2. Subcontract of the development of the firm's web page					
3. Wait until one is sure about the local tendency in terms of web page adoption					
4. Wait for the actions of more direct competitors					

3.2 In case you answered yes (e-commerce adoption) to the second question, indicate:

(1) very unlikely and (5) very likely

	(1)	(2)	(3)	(4)	(5)
1. use the web page for promotion/advertising					
2. Offer new products/services via web page					
3. Add extra-functionalities to the existing web page (eg. on-line payment)					

4. Internet adoption barriers:

from (1) not important to (5) very important

	(1)	(2)	(3)	(4)	(5)
1 Lack of knowledge about the ICTs and the Internet					
2 Lack of competence in the ICT area on the employees' part					
3 Lack of funds to invest on IT					
4 E-commerce as a non profitable investment					
5 Lack of financial support on the governmental institutions part					
6 Adoption cost above benefits					
7 Lack of interest on the customers' part in the Internet					
8 Very high costs of maintenance of the web page					
9. Lack of time and resources to invest in training					
10 Lack of time and attention to learn about the IT					
11 Employees resistance to the ICT adoption					
12 Technology not important in the sector					
13 Non adoption on the direct competitors' part					
14 Compatibility of the Internet in our daily practice very difficult					
15 Without enough knowledge about how to adopt the Internet					

5. In case you have already adopted the Internet, please indicate the reasons for that:

from (1) not important to (5) very important

	(1)	(2)	(3)	(4)	(5)
1 Pressure on the suppliers' part to use the Internet					
2 Pressure on the costumers' part to use the Internet					
3 Need to keep up with the evolution of the more direct competitors					
4 Opportunity for expansion and sales/market growth					
5 Pressure to reach operational efficiency/costs reduction					
6 Possibility to offer better quality service to the customers					
7 Internet as a standard technology in the industry					
8 Suggestion made by a friend/family/other businessmen					
9 Potential threat of reduction of the customers base given the adoption of a web page on the direct competitors part					
10 Web page as a prestige factor					
11 Competence and previous knowledge in the information technology area					
12 Experience resulting from the use of Internet at home					
13 Existence of firm's employees with an high level of expertise in the field					
14 Interest in the development of a new sales channel					
15 Promotions/support on the part of the web page firms					

6. In case you have access to the Internet in the firm (or at home), please indicate the degree of use of the different functionalities provided by Internet: from (1) never to (5) very frequently

	(1)	(2)	(3)	(4)	(5)
1 Sendind/reception of e-mails from suppliers					
2 Sending/reception of e-mails from customers					
3 Internal communication at the level of the firm					
4 Scanning of the local market					
5 Scanning of the national and/or international markets					
6 Scanning of the most direct competitors					
7 Access to legal/governmental information					
8 Access to on-line banking services					
9 Reception of digital products (eg. software)					
10 Search of information about suppliers					
11 Purchase of goods/services via suppliers' web pages					
12 E-procurement					
13 Access to after sales service					
14 Promotion and advertisement of the products of the firm					

7-Evaluate the importance given by you to the following business aims: from (1) not important to (5) very important

	(1)	(2)	(3)	(4)	(5)
Continuous growth in terms of sales, assets, etc					
Achieve a reasonable standard of living					
High rate of profit of the firm					
Continuous improvement of the quality of the products/services offered by the firm					
Being innovative in the sector					
Continuity of the business in the family					
Detection of new markets					
Creating job opportunities for the family					
Self-employment					
Belong to the sector top-5					

8-Please indicate how much do you agree with the following statements: from (1) totally disagree to (5) totally agree

	(1)	(2)	(3)	(4)	(5)
1. Family and personal aims are more important than business aims, so I desire a growth path that conciliates familiar and business aims					
2. I intended to develop all efforts needed to booster firms growth prospects					
3. I am satisfied with the current firm market share					

9. In relation to the business strategy, please indicate which option best characterises your firm:

from (1) not important to (5) very important

	(1)	(2)	(3)	(4)	(5)
Strategy based on cost advantages/low price					
Strategy of differentiation of products/services					
Strategy of (technological, organisational) innovation					
Emphasis on the wealthier market segments					

9.1. Concerning firm advantages in relation to the competitors, please indicate:

from (1) totally disagree to (5) totally agree

(1) (2) (3) (4) (5)

10. Please indicate whether you agree or not with the following statements:

from (1) totally disagree to (5) totally agree

	(1)	(2)	(3)	(4)	(5)
The support provided by ICT qualified family/friends was very important to adopt the Internet					
My family members have a lot of practice using the Internet					
Without the family/friends support I would not have adopted the Internet					
The majority of other businesses is about to develop their own web page					
The majority of other businesses is about to adopt e-commerce					
I enjoy working with the Internet/computers					
I use the Internet for leisure motives					
I think that the Internet is more important for my children than to use when managing the firm					
My technical competences concerning the Internet are very high					
I can easily learn how to work with new computer programmes					
The e-commerce (eg. sales on-line) does not fit my business					
The level of competition is increasing in my sector of activity					
The prospects for the local economy are encouraging					
The prospects in terms of demand growth are not brilliant					
The Internet will cause only minor changes in our modus operandi					
The Internet is an opportunity to implement important organisational and strategic changes					
Our costumers are using the Internet to accede information about products and services					
We believe that we will lose our market share to our competitors if we don't adopt a web page					
We feel that the adoption/use if the Internet to compete in the local market as a strategic necessity					
In the near future the Internet will be a standard technology in our sector					
The on-going economic evolution implies a new competitive strategy for our firm					
The use of the Internet implies an excessive waste of time					
Though the Internet is not very important at the moment, it may be a fundamental tool in the future					
We prefer to contact personally our suppliers/costumers					
The economic prospects favour a cautious approach in terms of investment					
My experience using the Internet is rather low					
The current market/society trends strongly advises the development of new dynamic capabilities (eg. ICT systems, etc)					
I do believe that firms with a web page have competitive advantages in the local market					
Preference for the traditional communication methods (telephone, fax, personal contacts)					

11. General data about the firm and the businessman

Year of the foundation of the firm		
Number of years as a businessman		
Age of the businessman		
Number of employees of the firm at the beginning of 2006		
Number of employees of the firm in 2003		
Number of employees with a university degree		
Number of business/professional associations that you take part		
Number of direct competitors		
Number of suppliers of the firm		
Number of fairs trade in which you participate		
	yes	no
Existence of annual business plan (with definition of growth aims, sales goals, etc)		
Sales to the exterior (mainland, Azores)		
OM with an engineering formation		
Formal cooperation with official institutions		
Formal cooperation with other firms		
Access to subsidies (from any regional/national/EU)		
Availability of training to the employees of the firm		
Realisation of advertisement campaigns in daily newspapers and/or radio and /or television in a recent past		
Introduction of process innovations (quality certificate, introduction of computer systems, etc)		
Introduction of organisational innovations (reduction of hierarchical levels, wage incentives)		
Introduction of early innovations in RAM in terms of products		
Affiliation to a group		
Creation of new firms in the last 3 years		

11.1 Sales growth in the last 3 years (2005/2002): please select the correct answer

-10%-0%	0%-5%	5%-10%	10%-15%	15%-20%	20%-25%	25%-30%	30%or more
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11.2 Step of sales volume (euros); please correct the correct answer

0-50.000	Till 100.000	Till 250.000	Till 500.000	Till 1.000.000	Till 2.500.000	Till 5.000.000	5000000
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