

INTERNATIONAL DEVELOPMENT COOPERATION & INNOVATION PROMOTION

A Discussion Paper for the Ministry of Foreign Affairs, Republic of Finland

Mikko Koria, Pekka Berg, Liisa Välikangas, Tuomas Pollari, Tea Lempiälä,
Hanna Nordlund

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Table of Contents

ONE PAGE SUMMARY	III
YHDEN SIVUN TIIVISTELMÄ	IV
EXECUTIVE SUMMARY	V
JOHDON TIIVISTELMÄ	IX
1. INTRODUCTION	1
1.1 INNOVATION AND DEVELOPMENT	1
1.2 ISSUES TO STUDY	2
1.3 ASSUMPTIONS AND LIMITATIONS	2
1.4 INNOVATION ENVIRONMENTS, BUSINESS MODELLING AND OFFERING, AND PROCESSES	3
2. INNOVATION	6
2.1 EXAMINING A WIDE CONCEPT	6
2.1.1 <i>Defining innovation</i>	6
2.1.2 <i>Systems of innovation</i>	7
2.1.3 <i>Typologies of innovation ecosystems</i>	9
2.1.4 <i>Developing countries as innovation eco-systems</i>	11
2.1.5 <i>Sources of innovation</i>	12
2.1.6 <i>The diffusion of innovation</i>	12
2.1.7 <i>Knowledge and innovation</i>	13
2.1.8 <i>Towards continuous innovation</i>	14
2.2 OPEN INNOVATION	14
2.2.1 <i>From closed to open – the premises</i>	15
2.2.2 <i>Users as innovators</i>	15
2.2.3 <i>From customers to co-creators</i>	19
2.3 INNOVATION CAPABILITIES & INNOVATIVENESS	20
2.3.1 <i>Defining innovativeness</i>	20
2.3.2 <i>The triple helix and innovativeness</i>	22
2.3.3 <i>Balancing capabilities and constraints</i>	23
3. DEVELOPMENT COOPERATION	25
3.1 INTERNATIONAL DEVELOPMENT COOPERATION	25
3.1.1 <i>Background to development cooperation</i>	26
3.1.2 <i>A rights-based approach</i>	27
3.1.3 <i>Aid, institutions and development</i>	27
3.1.4 <i>Participation and ownership</i>	28
3.2 DEVELOPMENT INSTRUMENTS	29
3.2.1 <i>Programmes and projects</i>	29
3.2.2 <i>Direct budget and sector-specific support</i>	30
3.3 INSTRUMENTS IN THE INNOVATION ENVIRONMENT	31
3.3.1 <i>Aid for Trade (AfT)</i>	31
3.3.2 <i>Base-of-Pyramid</i>	32
3.3.3 <i>Microcredit</i>	32
3.3.4 <i>Public-Private-Partnerships (PPP)</i>	32
3.3.5 <i>Instrument for Institutional Cooperation (IKI)</i>	33
3.4 INSTRUMENTS AT THE ENTERPRISE LEVEL	33
3.4.1 <i>Finnpartnership – a programme for business partnerships</i>	33
3.4.2 <i>Allowance for Local Cooperation (PYM)</i>	34
3.4.3 <i>Finnfund – a development cooperation fund</i>	34
3.4.4 <i>Concessional Credit (CC)</i>	34
3.4.5 <i>Summing up</i>	35
4. BUSINESS DEVELOPMENT	36
4.1 DEFINING BUSINESS MODELS	36
4.1.1 <i>Components of business models</i>	36
4.1.2 <i>Developing an offering</i>	38
4.1.3 <i>Goods (Products)</i>	39

4.1.4 Services	40
4.1.5 Customer interaction.....	42
4.2 MANAGING THE INNOVATION PROCESS	44
4.2.1 Front-end of innovation process	46
4.2.2 Foresight and scenarios.....	48
4.3 THE FINNISH INNOVATION ECOSYSTEM: SOME ISSUES.....	50
4.3.1 Innovation strategies: case of Finland.....	50
4.3.2 Issues with business promotion in the Finnish innovation system	51
4.3.3 Challenges: Lack of know-how and knowledge	52
4.3.4 Challenges: Lacking connectedness	53
4.3.5 Challenges: Lack of financing	55
4.3.6 Financing R&D in the Finnish innovation systems.....	56
4.3.7 Innovation promotion in the Finnish innovation system	57
5. CONCLUSIONS AND RECOMMENDATIONS.....	60
5.1 GENERAL CONCLUSIONS AND RECOMMENDATIONS.....	60
5.1.1 Development practice	60
5.1.2 Development instruments.....	61
5.1.3 Emerging opportunities.....	63
5.1.4 Enhancing development instruments.....	64
5.1.5 Planning and evaluation for innovation.....	65
5.1.6 Learning from best practices in Finland.....	67
5.2 ENHANCING INNOVATION ECO-SYSTEMS	69
5.2.1 Key challenges within innovation ecosystems.....	69
5.2.2 Enhancing the innovation ecosystem	70
5.3 DEVELOPING INTEGRATING ROLES	73
5.3.1 Integrating	73
5.3.2 Translating.....	74
5.3.3 Developing integrating roles	75
5.4 STRENGTHENING INNOVATION ARENAS.....	78
5.4.1 Typologies of innovation arenas	78
5.4.2 Enhancing knowledge and skills.....	79
5.4.3 Creating connectedness	80
5.4.4 Supporting finance	80
5.4.5 Strengthening innovation arenas	80
5.5 PROMOTING INNOVATION CAPABILITY	82
5.5.1 Expanding.....	82
5.5.2 Creating capabilities.....	82
5.5.3 Removing constraints.....	84
5.5.4 Promoting innovation capability.....	85
6. OPERATIONALIZING INNOVATION IN DEVELOPMENT: CASE IPP.....	87
PART II	92
CASE STUDIES	92
CASE 1: TSINGHUA TONGFANG CHENGFANG (CHINA)	95
CASE 2: TIVISKI DAIRY (MAURITANIA).....	97
CASE 3: A TO Z TEXTILES (TANZANIA)	99
CASE 4: COCO TECHNOLOGIES (PHILIPPINES)	101
CASE 5: EDENOR SA (ARGENTINA).....	103
CASE 6: SMART COMMUNICATIONS (PHILIPPINES).....	105
CASE 7: SAFIPA (SOUTH AFRICA).....	108
CASE 8: INNOVATION DEMOCRACY (AFGANISTAN).....	110
REFERENCES	114

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Executive Summary

In commissioning this study on innovation and development cooperation, the Department of International Development Cooperation of the Ministry of Foreign Affairs of Finland has made an important contribution to the ongoing discussion of the role, nature and opportunities that innovation could have in enhancing the current practice and instruments of international development cooperation.

In line with the terms of references, this study attempts to respond to two questions. Firstly, whether the current practice of international development cooperation is relevant to the promotion of innovation and systems of innovation in developing countries? And in second place, whether the current MFA development instruments are suited to the promotion of innovation in development?

It is observed that the study touches on three wide and deep fields of knowledge and research. Innovation studies, over the last three decades, have evolved into a multifaceted and splintered field, where definitions abound and where there no longer exists a single stream of thinking. Similarly, development studies have evolved into a wide and deep set of domains that, while complementing each other, do not necessarily always speak the same language or make the same epistemological assumptions. The third field of study that touches this initiative is business studies; again, there is a significant body of research and knowledge in business management, processes and systems. With an expected audience coming from innovation studies and management, development work, or business contexts, the study, by choice, accommodates all three in terms of giving brief notes on the basics in all the fields in question. This evidently implies that the depth is partly compromised and the messages streamlined.

In order to frame this complexity, several decisions and assumptions have been made. The study has adopted a wide definition of innovation, which extends beyond the technological paradigm of innovation into social arrangements, business models, services, working ways, organising, and managing processes. Innovation is understood to involve novelty that is useful and successful: either through commercial success or through wide acceptance and diffusion. Innovation is also understood to be distinct from invention. Innovation capability is understood to be the realizable ability to see, understand and reconfigure knowledge, and capabilities which cannot be operationalized are seen to be redundant and of no consequence. In the context of innovation, development has been defined as the range of things that an individual is able to be or do; thus human development is concerned with the expansion of opportunities that lead to well-being.

The study is also specifically concerned with innovation promotion in the business context. The initial premise of the study has been that business enterprise underpins economic growth, which is a driver of human well-being. It is also understood that this is not the only driver of human well-being. It is understood that the promotion of innovation is essentially concerned with the support linked to transforming inventions to useful, successful situations, arrangements, or outcomes. In this study, utility and success are, by choice, seen from a perspective of commercial business enterprise. One of the key arguments for promoting innovation in development is linked to the idea that innovation enables new wealth creation; this means that development cooperation can potentially emerge from the paradigm of redistribution into new wealth creation.

Innovation, development, business enterprise

In approaching this issue, the study has adopted a two-part approach. In Part I, the study reviews the field through the triple elements of innovation, development cooperation and business development. An extensive set of literature and concepts are reviewed, with full references provided. The Finnish innovation system, business development arrangements and the recent innovation strategy are introduced as a benchmark. The study presents a series of conclusions and frames four key issues that are suggested to be of interest in innovation promotion. In Part II, the study presents a series of case studies that illustrate some of the issues that are linked with innovation in development.

After the introduction, the study proceeds to examine key concepts of innovation in Chapter 2. Through a brief history of the thinking behind innovation, starting from Schumpeter's original proposal of innovation as the commercialization of new elements or a combination of old elements in industrial organizations, the study takes the reader to rapidly examine systems of innovation, understood as dense networks made up of actors from the private sector, universities and the public sector. These systems of innovation have been seen to evolve into ecosystems of innovation, in which the somewhat top-down structures of systems of innovation have been joined by bottom-up (grass-roots) approaches, to form holistic and systemic ecologies of innovation activity. Through identifying some key innovation ecosystems in existence today globally (among them China, Brazil, Silicon Valley, and Finland), the study later on focuses on the particularities of the Finnish innovation ecosystem and its support mechanisms in terms of business development and innovation. Developing countries are briefly discussed as emerging innovation ecosystems that present challenges in terms of the regulatory environment, finance, physical infrastructure, knowledge and skills and market knowledge. These elements are used later on in the study to develop a four-pronged approach that is suggested to be useful in terms of a framework of thought for innovation promotion in development cooperation.

The study also looks at the sources of innovation, their diffusion, the role of knowledge and the basic ideas related to continuous innovation, argued to be the only way to sustain competitive advantage over time. A key concept that is introduced in the subsequent section is open innovation, understood as a new way of thinking about knowledge sharing, collaboration and co-creation of both knowledge and wealth. Open innovation rests of the idea that a business enterprise can trade knowledge that it does not need, while not needing to invent everything in-house, as has been the case in more closed innovation models. This opens up new opportunities of collaborating also for the developing countries, although the set-back might be the fact that knowledge can be expensive and difficult to configure to one's own purpose; it has been argued that the newer the knowledge, the more difficult its use. Very closely linked to the open innovation paradigm is the concept of users that act as innovators and co-creators of innovation. Innovation capabilities and innovativeness are touched upon in the next section, through a review of the key concepts. The study furthermore notes the balance between capabilities and constraints.

In Chapter 3, the basic concepts of development cooperation are reviewed, together with a brief summary of the history of the activity. Development is recognized as a right and not an option, which is often not considered in the day-to-day discourse. The enabling role of institutions in development is recognized, as is that of participation and ownership. That being said, participation in innovation promotion needs to be deep and steady, as only significant effort results in inventions developing into innovation. In summing up, it is noted that no effective mechanism supports systematic knowledge creation; thus failing to support a key area of innovation systems.

The following Chapter 4. reviews the current knowledge of business models, the offering in goods and services, customer interaction, noting the critical role the front-end management of innovation has, highlighting the need to develop competence in foresight. The Finnish innovation strategy is examined in the subsequent section, noting that the state of the art strategizing involves a global and systemic perspective, a user-led mindset, and attention to capabilities of individuals and their communities. The business promotion section calls attention to the challenges of lacking know-how, connectedness and financed, all issues that exist both in developed and developing countries in different mixes and contexts. The chapter closes through a series of observations made on the promotion of the Finnish innovation systems.

Conclusions of the study

In the conclusion of the study, it is noted that the current practice of international development cooperation does not fully support the promotion of innovation in its context. The main reasons are understood to be linked to: i) the fragmented and non-integrative support that the present practice offers; ii) the fact that capability development and the removal of constraints do not often go hand in hand; iii) the observation that initiatives tend to adopt risk-averse strategies supporting established

structures; iv) a weak consideration for the specific nature of innovation; v) a lack of agility and the incorporation of the idea of constant, even disruptive, change; and vi) the notion that current practice mostly supports knowledge sharing, not joint and open knowledge creation, favouring redistribution over new wealth creation. There is furthermore an observed lack of systemic thinking in the delivery of aid: the current practice demonstrates a divide between top-down efforts and bottom-up approaches, leading to competition instead of collaboration in many cases. This implies that planned approaches find it difficult to accommodate emerging phenomena, while bottom-up human inventiveness is difficult to turn into wealth creation due to existing constraints.

That being said, the current practice does partly support promoting innovation, through shared worldviews, enabling participatory approaches and encouraging developments with approaches such as the Base-of-Pyramid, through innovative business models, offering and processes. At the same time innovation systems thinking is able to integrate parties into collaborative efforts which lead to top-down innovations, especially in the innovation environment.

It is recognized that innovation promotion has a significant role in eradicating poverty. However, this does not automatically result in sustainable development. Innovation promotion overall can be linked to all of the Millenium Development Goals, as a cross-cutting theme, just as humans rights, gender and health issues are. It is directly related to Goal 1, as innovation promotion is an enabler of economic growth and thus well-being.

The current development policy of the Finnish government explicitly calls for coherence, complementarity and effectiveness in the practice development cooperation. The policy does not incorporate the idea of novelty into the equation, as an element to be planned for, implemented, and controlled for in any initiative; nor is transferability (diffusion) taken onboard. The deliberate use of state of the art knowledge management tools is also seen to be weak.

Current development instruments are in most cases very risk averse, and implicitly or explicitly promote unsustainable stability through engaging with structures that are change averse. Current instruments in business development tend to be skewed in favour of Finnish enterprises, and cater less for indigenous needs. Instruments in use today do not allow for, or thrive on, unexpected events as positive driving forces. In many cases, instruments do not necessarily support continuous improvement/innovation, as instruments tend to be one-shot only, albeit seriality exists in some of the instruments. Instruments such as the project management cycle practice are based on a problematic positivist worldview leading to potentially conflicting internal assumptions when used with constructivist development agendas.

Four dimensions for further development

In order to achieve coherence in the overall recommendations, four main dimension related to innovation promotion have been identified. Attention needs to be directed toward enhancing the innovation ecosystems, developing integrating roles, strengthening appropriate innovation arenas, and promoting innovation capability. The practice of development cooperation should approach innovation in a systemic way, matching needs with resources for best practice and high impact.

It is noted that there are significant constraints related to innovation ecosystems in terms of market information, knowledge and skills, the physical infrastructure, access to finance, and the regulatory environment. To address these constraints, one can leverage local capabilities, either through adaptation or by applying new investments, and thereafter through collaboration with communities, organisation and government.

In promoting innovation within the local ecosystem, there is a need to integrate between the top-down and bottom-up approaches, through developing local knowledge, fulfilling additional and emerging knowledge needs, and adopting roles of advocacy and coordination. There is also demand to translate between the various types of partners in terms of technology transfer, knowledge, asymmetry of skills and competence, and between incremental and radical innovations.

The third area of consideration in innovation promotion is related to a series of innovation arenas, or typologies of business enterprises. It is argued that various arenas of actors and enterprises exist concurrently in the same economic space, but they do not share the same characteristics, nor are they necessarily in the same business stage. They are linked to each within the innovation ecosystems, sometimes tightly and sometimes through extremely loose couplings. These enterprises meet three generic challenges: lack on knowledge and skills, lack of connectedness and lack of finance. The innovation arenas are useful in classifying the circumstances and forming a base for mediated action directed at groups of actors.

As the last main dimension in innovation promotion, there is a need to expand on the capabilities of the local actors to participate in wider contexts; this also allows for donors to end their involvement. This implies both a development of the capability to innovate and advocacy toward the removal of constraints. The key issue with the capabilities is their relationship with constraints. It is not enough to enhance capabilities of individuals (say, through training programmes, skills development, vocational schooling) unless constraints that inhibit the use of the enhanced capabilities are also addressed.

Finally, in the last chapter of the study, recommendations are made to develop the innovation promotion within the Innovation Partnership Programme of the Governments of Vietnam and Finland, in an attempt to incorporate innovation thinking into the initiative.

1. Introduction



A study with a Part I describing, explaining and exploring the issues, and a Part II examining a series of relative case studies.

Innovation in the context of international development: two separate paths that are coming together.

This study examines innovation in the context of international development cooperation. Through the commissioning of this study, the Department of International Development Cooperation of the Ministry of Foreign Affairs is making a timely and significant contribution to the ongoing discussion on the role of innovation in the global economy in the context of developing countries.

The study has been structured through two main parts. In Part I, an introduction describes the issues to be studied, the main premises, AND the adopted approach. The next three chapters are used to briefly outline the basic concepts of innovation, development cooperation and business development. The three chapters are extensively referenced to provide the reader with links to the wide bodies of knowledge in the three fields. Part I of the study ends with a series of conclusions and recommendations, linking the generic discussion with the chosen specific context of Vietnam and the Innovation Partnership Programme (IPP) of the Ministry of Foreign Affairs of Finland.

Part II of the study consists of a series of compact case studies, taken from the recent literature and from the experiences of parties operating in development, including the recent innovative programmes in ICT development supported by the Ministry of Foreign Affairs of Finland. The aim of the case studies is to illustrate the issues and the thinking that was developed in the first part.

The study has been written with three audiences in mind. In the first place it is meant for professionals operating in the field of development cooperation; secondly, the audience is expected to contain individuals that have backgrounds either in innovation studies and management; and thirdly, its also expected that individuals with business background may find the report useful. It is recognized that the reviews of each field are short and cover only partly the wide domains of knowledge; the authors have attempted to bring out the essential issues in the three contexts.

The annexes of study include a full reference list of the key literature and sources used in the preparation of the study.

1.1 Innovation and development

Evident challenges exist in reconciling the historically different paths of thinking in the fields of innovation and development studies; thus an approach has been chosen for the study to examine both concepts from a wide perspective, to allow for integrative thinking on an extensive front.

Innovation is here understood to possess dimensions that extend well beyond novel technologies and their applications into the realm of new social arrangements, business models, services, ways or working and of organizing, and managing the processes related to creating successful and useful diffusion of inventions. This understanding of innovation implies a concurrent presence of novelty, utility, and some form of success. Innovation is also taken to be distinct from invention and individual creativity. Innovation capability (or innovativeness) is understood as the balance between ability and possibility of action.

Development in this study is seen to be concerned with improving the lives of individuals through expanding the range of things that a person can do or be. Seen from this viewpoint, human development aims to improve lives through expanding the range of opportunities and possibilities that a person has access to. This includes being well nourished and healthy, being able to participate in the life of communities, being educated and knowledgeable, and being able to improve one's economic situation through decent work opportunities. This viewpoint involves the idea of that obstacles like illiteracy, ill health, lack of access to resources, and lack of civil and political freedoms need to be removed. International development cooperation is here defined as the cooperative process of promoting human development that is supported across national boundaries.

1.2 Issues to study

In the terms of references of this study, two wide generic questions were posed that are seen to have particular relevance to the current and future development support initiatives of the Ministry of Foreign Affairs of Finland:

A study with a focus of describing, explaining and exploring the promotion of innovation.

- i) Is the current practice of international development cooperation (and related projects/initiatives) relevant to the promotion of innovation and systems of innovation in developing countries?
- ii) On a conceptual and general level, are the current MFA development instruments suited to the promotion of innovation in development?

The promotion of innovation has thus been set as the focal issue to be described, explained and explored in this study. The context of the study is international development cooperation, understood not only to include official development assistance (ODA), but also to involve a series of initiatives, actors and forums that exist in third places, operate in the third and/or informal sectors, or are external to conventional and regulated aid structures.

1.3 Assumptions and limitations

The initial challenge in the study has been to translate innovation promotion to a concrete form of action and an approach that is seen to have explanatory power in the context. To this end, three central premises have been adopted to underpin this study.

Trade and business are seen to drive human well-being.

The initial premise of the study is that commercial activity, trade and business are key drivers underpinning, enabling and enhancing human well-being. It is evidently understood that it is not the only factor that has an impact on well-being and the quality of life, and that levels of wealth measured through financial means do not correlate necessarily with a sense of good life and happiness, especially between societies. At the same time it is observed that abject poverty paralyzes human initiative and creates self-propagating vicious circles of dependency that do allow individuals to develop their standing through dedicated effort. It is understood that a basic level of wealth, be it in kind, equity or finance, is needed for individuals to create further wealth through labour or trade. Furthermore, development is seen as a right and not as an option – thus access to opportunities is non-

The promotion of innovation is seen to be concerned with fostering the new and useful for widely diffusion.

Realizing new opportunities and potential needs enhanced capabilities.

A study focusing on innovation environment, business modeling & offering and innovation processes.

negotiable, and something which can be successfully enhanced through support by external parties, also international ones.

Secondly, it is understood that the promotion of innovation is essentially concerned with the support linked to transforming inventions to useful, successful situations, arrangements, or outcomes. Inventions, by definition, contain new elements, either to the world or to the context; utility of the invention is the acid test that determines whether it is suitable to become an innovation, while success implies that it is accepted by a significant number of individuals, or organizations. Thus innovations need to be new, useful and accepted by many.

Thirdly, in this study, utility and success are, by choice, seen from a perspective of commercial activity. Thus the focus is on promoting inventions that are seen to be so useful that some party will pay for the use, ownership or other benefit deriving from the invention. In this way, success is seen to be essentially commercial, in a way that sustains and enables business enterprise. As inventions are by definition new, then the focus of the study quite naturally is on new business opportunities and realising both hidden and visible potential. Furthermore, this study has a specific focus on examining issues related to development of the abilities of indigenous operators to act in the world economy in a more equitable fashion; it thus has a focus on capabilities and the environment, offering, models and processes related to new business development. In other words, this paper studies and develops business competence and innovation activity approaches in order to apply them in collaborative activities undertaken in developing countries.

1.4 Innovation environments, business modelling and offering, and processes

In thinking about innovation promotion, from the perspective of new business development, several focus areas emerge that need to be addressed. The three areas indicated below are based on recent exploratory research with corporate and university partners into innovation in corporate contexts, based on real problems experienced by companies. The ideas are linked with universities that complement the knowledge and competence of The Innovation Management Institute and bring in-depth contextual expertise about developing countries industries.

In the context of the focus areas, business competence refers to overall ability to create, develop and study companies in a way that promotes the ability of companies to bring ideas, research and outcomes of development work into the chain of innovation and competence chain to fulfil the needs of customers with products and services.

It is observed that business competence and innovation activity are strongly connected. While wishing to emphasize the innovation aspect of business competence, it is also recognized that innovation activity can be understood as a broader competence including aspects that go beyond business concerns. The study at hand takes a wide approach to business, without concentrating extensively on the technological aspects that traditionally dominate industry collaboration. A clear difference is made between invention and innovation. Furthermore, tools and practices that improve the

ability and readiness of the companies to recognize and capitalize the new business opportunities are central themes in this paper.

Thus the paper aims to maintain a close connection to the current processes and activities of companies, exploring concrete tools for improving innovation promotion from the perspective of the three areas. The subsequent chapters describe, explain and explore focus areas in detail.

1. (Industry) Environment

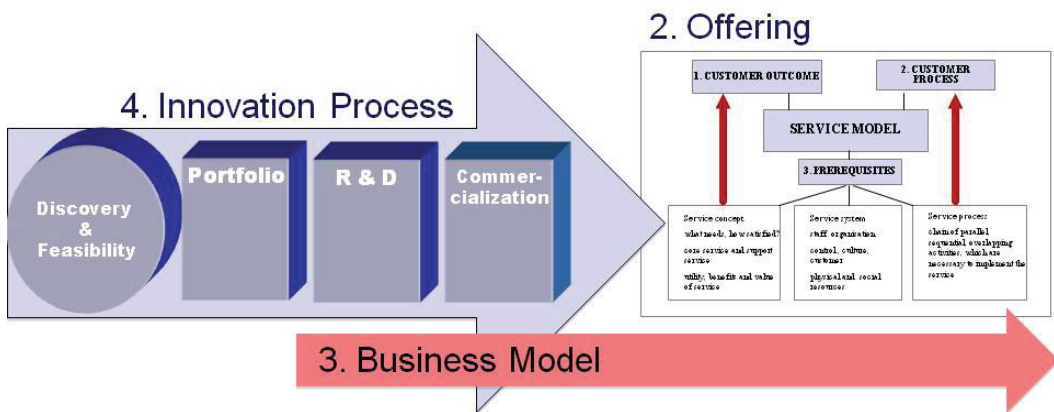


Fig. 1.1 Relationships & key elements

The innovation environment

In the promotion of innovation, it is recognized that the environment plays a significant role, and it is understood that the way in which innovation needs to be promoted will vary from context to context. In the chapter that deals with the innovation environment, elements that shape the innovation environment are examined, through systems of innovation, open innovation, and finally examining developing countries as an innovation context, comparing this to the recent strategic development on innovation in Finland. Finally, the chapter looks at some of the development instruments currently in use by the MFA from the perspective of how they could be useful in the promotion of innovation on the environmental level.

Business modelling & offering

As this study is explicitly concerned with innovation promotion there is a need to examine the creation of new opportunities through novel business models that fit into the changing business environments in developing countries. This implies attention to customer interaction and responding to

challenges of user-led innovation. Various innovation arenas are also present in this context, ranging from multinational corporations to SME's and various non-state and third sector actors that undertake economic activity. The stages (i.e. start-up companies are different from large multinationals) that the enterprises are in have a clear bearing on the promotion mechanisms, as do the environmental issues, as noted in the previous chapter. In examining how these concepts could be integrated into innovation promotion, the Base-of-Pyramid approach is looked at in conjunction with the Finnish innovation system and specifically the business promotion mechanisms that are currently in use.

Innovation processes

A systematic, effective and efficient management of innovation processes can contribute significantly to repeatable success in promoting innovation. In this study the front end of the innovation process is seen to be a critical stage in using new knowledge to create innovative business models and offerings. Abilities in foresight and scenario-making are important in terms of ensuring that developmental activities hit the right button in as many cases as possible. Innovativeness, on the other hand is a key ability that is mediated by the social arrangements at hand.

Conclusion and recommendations

The final section of PART 1 of the study provides the reader with a series of conclusions and recommendations in the area of innovation promotion in the international development cooperation context. This section is organized into four dimensions: enhancing the innovation ecosystems, developing integrating roles, strengthening appropriate innovation arenas, and promoting innovation capability.

It should be noted that the field of innovation studies is wide, complex and multi-faceted; this is also evident in the body of the text that contains an extensive number of concepts, ideas and theories. The approach in this study has been to expose the reader widely to the issues linked to innovation, often using the Finnish innovation systems, strategies and support mechanisms as a benchmark.

2. Innovation



2.1 Examining a wide concept

As noted in the introduction, innovation in this study is understood to possess dimensions not only involve novel technologies and their applications, but also extend to new social arrangements, business models and offering, products, services, ways or working and of organizing, and into managing the processes related to creating successful and useful diffusion of inventions. This implies a concurrent presence of novelty, utility, and some form of success; without the concurrent presence of the three, there is no innovation. Innovation is thus taken to be distinct from invention and individual creativity. Innovation capability (or innovativeness) is understood as the balance between ability and possibility of action.

2.1.1 Defining innovation

The widespread use of innovation as a popular term has led to a contextually wide but diluted understanding of innovation; it is often synonym for invention; it is also used to mean improvement, creativity and change (Davila *et al.*, 2006). Amabile *et al.* (1996) note that innovation is linked to acting on creative ideas, while e.g. Davila *et al.* (2006) view innovation as a disciplined management process.

Innovation was originally defined in the 1930's by Joseph Schumpeter, an economist from Austria. He examined industrial organisations and commercialisation processes that involved new elements or combinations of old elements. He defined innovation further to mean the commercialisation of new materials, new processes, new markets, and/or the introduction of new organisational forms (Schumpeter 1983).

While the very original definition of innovation was extremely wide, the later definitions have narrowed the scope, and innovation has often been mainly associated with transforming technological inventions into commercially successes (Cantwell 1999; Sundbo, 1998; Van de Ven *et al.* 1999). In recent years, the use of the concept has again widened into social, cultural, organisational and administrative contexts (Pettigrew & Fenton 2000; Clark 2003; Afuah 2003; Lam 2005; Jorna 2006).

Rosenberg (1982) developed the idea of innovation as a learning process, and Cohen & Levinthal (1990) paid attention to the processes of adsorbing the learning. Schumpeter's work was a basis for the 1980's writings on innovation by Christopher Freeman (1982) and Giovanni Dosi (1982), through which innovation systems were developed in the late 80's and early 90's (e.g. Edquist 1997; Nelson 1993, Lundvall 1995): Innovation systems were based on the idea of collaborative networks of private and public sector actors with knowledge producers, the basis of the idea of the triple helix. Dense networks of social, cultural and economic relationships on multiple levels underpin systems of innovation, and research indicates that systems of innovation contribute positively to competitiveness in the global marketplace (Freeman 1987; Lundvall 1992; Edquist 1997). Lundvall (1999) furthermore claims that economic performance is tied to social cohesion and trust in society.

Patel & Pavitt (1994) defined innovation as a process that involves exchanging both tacit and codified knowledge, and while growth through improved technology and production has traditionally been seen as the business incentive for innovation (e.g. Rogers 1983), knowledge has become the key driver of productivity in businesses and the public services. Lundvall (1999) sees that systems of innovation are fundamentally based upon systems of knowledge and learning.

“Invention is the first occurrence of an idea for a new product or process, while innovation is the first attempt to carry it out to practice” notes Fagerberg et al. (2005, p.4). The process views of innovation abound, and e.g. Dosi (1982) see it as a problem-solving process, while Kline and Rosenberg (1986) through of innovation as a process involving formal and informal relationships in networks of actors.

The OECD definition has been formulated as: *“Innovation is an iterative process initiated by the perception of a new market and/or new service opportunity for a technology-based invention which leads to development, production, and marketing tasks striving for the commercial success of the invention* (OECD 1991). This OECD definition covers two central issues of innovation. Firstly, innovation *includes the whole process* starting from invention through development, production, and market introduction, finally ending up with commercial success. Secondly, *iterative process* means also that innovation includes both first introduction of new offering and its later incremental improvements. (Garcia & Calantone 2002) Thus, the initial idea, *invention* turns to innovation after the process of development, production and successful market introduction.

In the administrative context, so vital to governance and the development of capabilities, innovation is linked efficiency, effectiveness, productivity, and quality of services; it is concerned with the organisational structure of management and administrative processes, and may or may not be linked to technical innovation (Afuah 2003). The very idea of innovation and the process itself causes discontinuities, which disrupt existing socio-economic structures and arrangements (Christensen 1997; Birkinshaw et al. 2007) also in the administrative innovation arena. In the context of developing country public sector management, there are formidable constraints to the adaptation of new ways of doing things.

2.1.2 Systems of innovation

The emergence of the National Innovation System (NIS) concepts, particularly in the industrialised countries in the northern hemisphere, can be traced back to the work of Lundvall in the mid-1980s. NIS is the interactive system of existing institutions, private and public firms (either large or small), universities and government agencies, aiming at the production of science and technology (S&T) within national borders. Interaction among these units may be technical, commercial, legal, social and financial as much as the goal of the interaction may be development, protection, financing or regulation of new S&T (Intarakumnerd et.al. 2002).

While the study on NIS concept as a whole is still at the mature stage, the study on NIS in developing countries is still emergent. Most of research concentrates on how institutions and systems were built and shaped to produce ‘intensive learning’ which facilitated technological catching-up processes in newly industrialising economies in Asia, namely, Korea,

Taiwan and Singapore (Wong *et al.* 1999). One of the most important factors behind the successes of these countries is in the embedded autonomy of their governments. These governments can formulate and implement economic policies that do not simply reflect individual firms. They have sufficient and positive linkages with multiple actors, especially the private sector (Chang, 1997). Surprisingly, there appear to be only a few studies focusing on countries, which are less technologically successful in catching-up. Dahlman and Nelson (1995) use empirical data, such as S&T manpower, R&D expenditure and educational figures, to analyse the relationships among social absorptive capability, NIS and economic performance by measuring and comparing 14 developing countries' technological capability. They concluded that most critical element of any successful development strategy is the development of human resource. That being said, the social absorptive capability by itself, as measured by high technical human capital, is not sufficient to explain why some economies have performed much better than others (Dahlman and Nelson, 1995, p. 117). The macro and incentive environments, including the importance of a strong outward orientation of private sector on the innovation system, also affected the NIS in the latecomer economies. The effective utilisation of foreign technology is more important than doing a lot of R&D in some East Asian NIEs such as Hong Kong and Singapore. Sripaipan *et al.* (1999) analysed Thailand's NIS by following the Oslo manual basis. The result illustrated that the Thailand innovation system is not well organised, especially with respect to the macro-environment, innovation infrastructure, R&D and technology transfer and innovativeness and technology capability in the industrial sector.

Other more applicable and conceptualised studies on NIS are Arocena and Sutz (1999) and Gu (1999). They provide 'comprehensive' understanding and insights on NIS in developing countries. Both studies share the views that the NIS concept for developing countries is 'ex ante', which opposed to an 'ex post' concept suitable for developed countries whose institutions are working in a system-like manner. This is because micro-innovative strengths that exist in developing countries remain isolated and encapsulated and many of institutions relevant to the innovativeness do not exist. Arocena and Sutz (1999) point out further that industrial innovation in developing countries is highly informal, i.e. not products of formally articulated R&D activities. In addition, dominant cultural patterns of these countries undervalue scientific knowledge and technological innovation.

Gu (1999) argues that NISs in developing countries have the following distinctive characteristics:

(a) NIS in developing countries is less developed by order. Historically, the technological and institutional properties necessary for modern growth were not developed within their systems. NIS in developing countries should be studied in the context of economic development, i.e. it is important to ask how did innovation related activities start, and how they continued to improve once started in relation to their local conditions and changing internal and external environment.

(b) NIS in a developing country is specifically related to the country's development level. Therefore, it is important to connect level of NIS development with level of economic, structural and institutional development.

(c) Extraordinary ‘intensive learning’ in countries like Korea and Taiwan was the crucial factor for their successful catching-up, which required and was supported by the rapid development of their NIS. Studies on NIS in developing countries should pay high attention to purposeful strategic management for catching-up.

(d) As market mechanisms in developing countries are still under-developed, the role of the market in developing countries in terms of promoting learning needs to be perceived differently from that of developed countries.

(e) Unlike developed countries, capital accumulation, rather than intangible assets (such as knowledge and learning), is the main contribution to technical progress in developing countries.

2.1.3 Typologies of innovation ecosystems

There are different types on innovation ecosystems; they are linked to historical paths, national cultures, and potentially random chance. It could be argued that the thinking on innovation ecosystems is an evolution of the innovation systems thinking. Each innovation ecosystem has specific attributes and ways of working, which need to be recognized when dealing with the system. Innovation promotion must recognize the specificities of the innovation ecosystem, and be able to offer compatible thinking and tools. In this study we use John Kao’s (2009) taxonomy to exemplify four different innovation ecosystems with different models on how the national innovation models have evolved and what are the competitive advantages of the following systems.

The importance of these models lies not in the detail, but in the fact that the innovation environment can organise itself in many ways, also borrowing from various taxonomies to create hybrid models. For effective interventions in developing the innovation environment, it is necessary to understand the local context and the dimensions that shape it.

The **focused factory model** combines a strong strategic intent with a concentration of supporting infrastructure and high performing talent to address and tackle big challenges. In small countries, such as Singapore and Denmark, the resources are often scarce, thus it makes sense to deliberately focus on certain industries and research areas. Singapore attracts knowledge-intensive foreign companies and talent with its tax incentives and compensations. As an example, the government has established Biopolis, a research centre specialised on Life Sciences, where over 4000 top-talent researchers come together from across the world - talent can be imported from wherever possible. The similar concept will be applied in the future to Fusiopolis, concentrating on material sciences, clean technology and digital media. Besides the tax benefits and top-class infrastructure, these facilities offer good opportunities for networking and cooperation with other players in the same sector.

The **brute force model** counts on the law of numbers. The big developing countries, such as China, count on the increasing number of young talented people (with relatively low income levels) and low capital needs in investment to eventually produce valuable innovations. For instance, China has both increased the number of the institutes providing higher education as well as increasing funding to top ten universities; thus producing an

enormous number of top class graduates every year. The Chinese Automobile Industry is one of the examples of the result of such action, with 50 car companies yielding a great number of innovations and novel products. Not all of them will be successful, but some will make a significant impact on the world auto market. Many foreign companies such as Microsoft and Nokia have opened their R&D facilities in China, benefiting from the virtual abundance of talent who also provide insight to the local market in the innovation activities.

The **Hollyworld** counts on a “self-clustering effect”; once a place has a critical mass of world-class talent, it starts to attract other like-minded professionals across the world. The typical example of such a hub for globally creative people is Silicon Valley, a place that has attracted top innovators, entrepreneurs, researchers and equity financiers from different parts of the world. Countries like India intend to create such dynamics by facilitating commercial and knowledge ties between the top graduates from the domestic universities and successful Indian entrepreneurs overseas. Indian companies such as Tata have outsourced their development work to overseas units and are using their talent pool to boost the value of the domestically produced innovations. Singapore combines the Hollyworld and Focused Factory models, through financing the studies of the talented graduates requiring them to commit themselves to a multiple-year national service in return. Hollyworld model thus attracts the best talent from other countries with the promise of better opportunities, partly providing these opportunities as the self-enforcing effect takes place.

The **large-scale ecosystem** is a nationally coordinated mechanism where the innovation activities are supported in a holistic end-to-end continuum. The institutions, supporting instruments and steering mechanisms are coordinated and directed towards coherent support process of innovation. Finland is one of the examples of these countries where government institutes such as the National Funding Agency for Innovations and Technology (Tekes), TE-Centre, Foundation for Finnish Innovations and Finnvera finance innovations co-ordinately and flexibly. Tekes also manages national programmes and clusters that find synergies among the public and private players.

We can also see that several countries do not fit one category only. Singapore, for instance has elements from two systems, as the government applies both focused factory and Hollyworld approaches to creating an ecosystem where the government acts both as a facilitator and catalyst when taking the country forward. India, on the other hand, has a mixture of brute force and Hollyworld models, having a great number of high talent and nourishing the best ones in the manner of Hollyworld. Nations analyse their strengths and weaknesses and start to develop their systems based on models that are feasible. For instance, small countries with few people and high cost of labour cannot evidently opt for a brute force -approach, and large countries with a higher diversity find it very challenging to implement focused factory or well-coordinated large-scale ecosystem –models.

Issues with innovation ecosystems

Kao’s eco-system thinking does not really discuss the nature of the innovation in depth; it rather goes through the systems that support the research and development, and knowledge creation as well as mechanisms to facilitate their commercialisation. The focus is on government actions and

how global companies can benefit by allocating its research and development across the globe. Both seek to optimise the input-output ratio from research and development. However, it doesn't really discuss the disruptive and/or spontaneous nature of innovation - perhaps only to be observed that the Hollyworld model is the most resilient to disruptive change. Kao (2009) implicitly emphasises that innovation activities and systems benefit from the stewardship and control of the state level.

All in all, these eco-system perspectives of innovation tend to consist of a top-down perception of what innovation is; a contrast to the view of other authors who advocate for a more holistic bottom-up approach. The Hollyworld model is perhaps closest to the "grass-roots" innovation system, inasmuch as it relies on individuals to drive innovation; the role of the institutions should not be forgotten, however, as they have a key role in enabling the individual eco-system to exist.

2.1.4 Developing countries as innovation eco-systems

The innovation ecosystem in developing countries is a particularly complex issue to define, as there is extensive variation between and within countries. That being said, some generic observations are made below that have bearing on the promotion of innovation.

As van Dijk & Sandee, (2002) note, inventiveness is quite commonplace in developing countries, but wider diffusion or success of new ideas is often not achieved. Chesbrough, *et al.* (2006) observes that changes require time and agility is hindered by poor logistics, in transportation and communication systems. This has an impact on the transaction costs of business. Distribution channels are often underdeveloped, consumer behaviour patterns are not uniform, recognized or charted, and a dedicated system of financing may be required so that potential customer can find a way to purchase the product being developed; this in addition to support, education and training that may be needed in order to sell the product being developed (Chesbrough *et al.* 2006). The authors suggest an important role for non-governmental organizations in building up the "innovation infrastructures" or the local ecosystem in developing country contexts due to their longer time-frame compared to private companies.

The innovation environment is also directly affected by poverty, low levels of education and religious fundamentalism (Classen *et al.* 2008). There is an observed lack of sound technology base, universities, as well as trained scientists, researchers and funds (Chandra & Neelankavil 2008). Local companies in developing countries often do not have the resources such as competence, qualified researchers, capital, technology or material to develop new products for their own markets. (Chandra & Neelankavil 2008)

It is recognized that developing sound business models is of primary importance for global companies financing, distribution channels, education and mentoring, infrastructure. In many cases, the benefits of products need to be demonstrated in the local context before people buy (Chesbrough *et al.*, 2006) While four billion poor people are often recognized as the largest (mainly un)tapped consumer market in the world, in many cases multinational companies only offer variations of their (developed country) successful product to developing countries. Study by Deloitte, Touche and Tomatsu (2006) showed, however, that long-term success of global

companies in emerging markets depends on innovative product offerings rather than on minor adjustments to existing products.

2.1.5 Sources of innovation

As von Hippel (1988) observes, innovations are derived from internal or external value chains, the links to external knowledge creating organisations, competing organisations, or other nations or regions. Von Hippel (1988) also identifies end-users as significant sources of innovation; e.g. service providers can have major roles in fostering innovation in projects, through cumulative experience and expertise. There are also circumstantial sources of innovation (Afuah 2003), and unexpected occurrences (or rather the responses to these occurrences) can initiate innovations.

As Drucker (1985) notes, opportunities may be found in the unexpected, the incongruity, process needs, changes in the industry & market, demographics, changes in perceptions, moods and meanings, and also new knowledge. The risk embedded in innovation is seen to increase when one progresses from an unexpected success to the conscious application of new knowledge. Another significant circumstantial source of innovation is change that is driven by globalisation - or rather the response to change (either proactive or reactive). In the area of administrative innovation, social networks can act as sources of innovation (Foray 2000; OECD 2000).

2.1.6 The diffusion of innovation

Innovation transfer is a critical issue, as there is no innovation unless it has been widely accepted (i.e. diffused); this presents challenges in terms of the absorptive and transmission capacities, the nature of the innovation, timing involved, and the differences in national and organisational cultures. The effectiveness of an innovation transfer is linked to the ability of the recipient to absorb the knowledge; this absorption capacity is history and path dependent, as the assimilation of external knowledge requires a minimum of pre-transfer related knowledge (Cohen & Levinthal 1990; Zahra & George 2002).

There appear to exist long-term history and path dependencies (e.g. Kondratiev's long waves) that economic systems follow (Kogut 1991). From this perspective, institutional frameworks enable organisational or administrative innovation. International labour is understood to be fairly immobile, and successful organisational innovations are perceived to be difficult to import across cultures (Whitley 1992; Hollingsworth & Boyer 1997). According to Hollingsworth & Boyer (1997) and Simon (1962), techno-economic innovations transfer more easily than institutional frameworks. Knowledge transfer is influenced to a great degree by other things, such as facilities or equipment (Afuah 2003).

Radical and incremental innovations also appear to transmit differently. In development, (natural or man-made) crises tend to enable the uptake of radical innovations, while incremental innovations are enabled through a long-term change. Notable also is that incremental innovation for one party may constitute radical innovation for the other. The national and organisational cultures are key enablers and inhibitors of the transfer of innovations, (Hofstede 2000; Trompenaars & Hampden-Turner 1997). The

national and local cultures impose social constraints as to what is possible and what is not. Thus transferring innovations in international development cooperation often involves a double challenge of cross-organisation and cross-national transfer. A knowledge gap also impacts on development cooperation, as the asymmetric background of the donors, technical assistants and the local host organisation may require operating on the level of the lowest common denominator.

2.1.7 Knowledge and innovation

As the World Bank notes (World Bank, 1998), knowledge has become a more important factor than resources in determining the standard of living, also in the developing countries. Knowledge has become increasingly a commodity, and information and communication technology has significantly reduced transaction costs and increased connectivity (CEC 2004b).

The knowledge perspective of innovation emerged in the early 60's (Machlup 1962), with the idea of knowledge being more important than ever, while the proliferating application of information and communication technology became the key driver of growth and economic development.

Early on, Hannan and Freeman (1977), and Romanelli and Tushman (1994) saw innovation as a capacity to respond to modification and upheavals in the operating environment., while e.g. Burns and Stalker (1966) and Mintzberg (1979) examined organizational forms and the way they induced innovations.

Another perspective (Argyris and Schon 1978; Nonaka 1994; Nonaka & Takeuchi 1995) argues the basis of innovation is learning and organizational knowledge creation. The ability of organizations to see, understand and exploit new knowledge underpins innovative practice (Cohen and Levinthal 1990). This is an ability that is history and path dependent, thus requiring continuous, managed effort. Nonaka & Takeuchi (1995) note that the processes of absorption, assimilation, and reconfiguration enable the dynamic creation of knowledge.

This knowledge perspective implies a need to consider cognitive and learning aspects. As Afuah notes, the newer the knowledge, more difficult it is to digest and assimilate; the amount of new knowledge is therefore critical. The degree to which the knowledge is tacit impacts on the learning and transfer of knowledge in the organisation (Afuah 2003).

Drucker (1985) observes that the closer one gets to innovation based on new knowledge, the more inherent risk there is in the development process. Risk is tied to the degree of uncertainty; the biggest risk evidently is on new-to-the-world knowledge.

The knowledge driven economy has implications to the management of innovation, which requires systemic effort. Success in innovation management is the successful management a cumulative outcome of a wide array of interlinked activities (Maskell 1999). Individual capabilities need to be given room to flourish, while organisations need to enable creativity and interaction through internal and external networks.

2.1.8 Towards continuous innovation

A key idea in innovation is linked to the incremental and continuous improvement as the alternative to radical and disruptive innovation. Continuous innovation could be said to have developed from the concept of continuous improvement (Boer & Gertsen 2003). As Bessant and Caffyn (1997) note, the concept deals with a continuous quest to improve on the existing, in terms of processes, service, or products. It is also linked with waste reduction and quality improvement, and increasing the participation of individuals in the innovation process within organisations.

Bessant & Caffyn (1997) and Janszen (2000), among others, make the case for continuous improvement and innovation as the only means of realizing sustainable competitive advantage, implying that innovation cannot be considered a “one-off” exercise, but instead a continuous process. In a parallel fashion, Boer et al. (2006, p. 2)) make the case for continuous innovation capability, which they define as the ability to enable the “effective, ongoing interaction between operations, incremental improvement and learning (exploitation process), and radical innovation and change (exploration process)”.

2.2 Open innovation

It has been said that the paradigm of innovation is shifting from closed innovation to open innovation. In the foreword of Chesbrough’s book *Open innovation* (2003) John Seely Brown calls us to innovate innovation. By that he means that we need to innovate in new ways; emphasizing specially the importance of integrating different expertise and people in innovation activity.

Open innovation paradigm (Chesbrough 2003) encourages organizations to appreciate external knowledge and ideas and invites them to look for alternative routes to commercialize inventions. The discussion of open innovation has been oriented towards the technological aspects. However, we can talk about “an openness turn” in innovation discussion because simultaneously the changing role of customers and users have been discussed. Customers and users are becoming co-creators and innovators to whom parts of innovation activities can be outsourced. (see e.g. Von Hippel 2005)

The discussion of open innovation is important because it encourages questioning the prevailing assumptions about innovation activity and to seek for new, more effective and efficient, ways of acting and innovating. It suggests that organizations need not to invent everything themselves but they can benefit from the knowledge and inventions of others. This is particularly important from the viewpoint of countries where resources in terms of competence, money, and infrastructure are scarce.

The streams of discussion that look particularly at the changing role of customers and users suggest that innovation is democratized (Von Hippel 2005). This means that innovation processes are accessible to more people and knowledge and expertise are not judged in advance based on formal status or organizational/ social position, rather appreciation comes out of contribution and content. (Saaristo 2000)

2.2.1 From closed to open – the premises

The closed innovation paradigm originated in the early days of the 20th century, characterized by closed, centralized and internal nature of innovation activity. Such thinking has its roots in the separation between basic research and applied research where the former was first and foremost the responsibility of universities and the latter that of companies. This led to building up of strong internal R&D functions and later large research centres in organizations. Strong internal R&D was considered a barrier of entry for new entrants that potentially threaten the position of existing actors. The lack of available expertise was another factor that contributed to strong internal R&D. Companies saw that valuable knowledge did not exist outside their walls. Thus, closed innovation involves strong vertical integration and emphasizes “doing everything by ourselves”. (Chesbrough 2003)

A central challenge in the closed innovation paradigm is forming of what Chesbrough (2003) calls a shelf between research and development. As a result, technologies get stuck on the shelf. They are not utilized or commercialized by the company but nor are they utilizable to others.

Chesbrough (2003) states that the closed innovation paradigm is being broken by three erosion factors. First of all, the amount and availability of skilled people and expertise has drastically increased. However, at the same time the needed knowledge and expertise have become widely dispersed among organizations and institutions around the world. Increasingly, individuals wish to decide what they want to do and where they want to do it. This makes the auctioning of expertise possible. Another important erosion factor is emergence of venture capital, making it possible to find funding for technologies and concepts that are stuck on the shelf through spin-offs. Stock markets make establishing start-ups a tempting option. Thus, the third erosion factor emerges as a result of the two already mentioned: external options for commercializing the ideas sitting on the shelf. The shortening of product life cycles and increasing competition make this optional route tempting.

The erosion of the closed innovation paradigm has led to emergence of a new, open, innovation paradigm. Expertise is available outside organizations and alternative options for commercializing new product concepts and technologies exist. The open innovation paradigm is based on the idea that valuable ideas can come from both inside and outside an organization. Also, they can find their way to market both inside and outside the company. Internal and external sources for ideas and paths to market are seen to be equally good and acceptable; ideas that cannot be used in the organization can be put out, and on need, re-integrated.

2.2.2 Users as innovators

Along with the changing innovation paradigm the role of customers and especially users becomes emphasized. Information and communication technologies among other things make information and knowledge available in a whole new way and make possible to communicate with people in different parts of the world. This makes customers and users more conscious and more demanding. They are able participate in and contribute to

innovation processes with a different depth and intensity. (Von Hippel 2005)

The changing role of customers has been discussed by several writers, such as Normann (2001) as well as Prahalad & Ramaswamy (2000), who discuss the change from a historical viewpoint, while other writers discuss the different roles without a temporal aspect (Kaulio 1998; Brockhoff 2003; Lagrosen 2005). Until the early 80's customers were "average statistics" and passive "targets of development". After that two-way communication channels were developed and customers were understood as central sources of ideas. From 90's customer relations begun to gain attention and much emphasis was put on loyalty and trust. Eventually, in the new millennium the focus shifted to the customers as active players and co-creators or co-producers of value in products and services (Normann 2001; Prahalad & Ramaswamy 2000). In such relations, where producers and customers as well as users work closely together and share knowledge openly genuine synergy can be achieved. (Brett *et al* 1998; Griffin & Hauser 1992) Collaborative innovation and co-creation enable manufacturers to get closer to their customers and reach the tacit, unexpressed and routine aspects of their knowledge, needs and desires. Often knowledge is buried in the everyday routines, their tacit archives and the practices they participate. (Leonard 2002)

Still, the manufacturer has information regarding the solution and its production process while users have information about needs and the setting of use (Von Hippel & Katz 2002). Knowledge is highly personal, tied to the experiences, background and history of the knower, thus always to some extent unreachable for others (Hislop 2003, 2005, Tsoukas 2006, Brown & Duguid 2001, , Boland & Tenkasi 1995). Thus, knowledge possessed by customers and users is often sticky, meaning that it is costly to acquire, transfer and use. (Von Hippel 1998; Prügl & Schreier 2006) Information stickiness can be due to attributes of the knowledge itself, attributes of information seekers and providers, and to specialized organizational structures. (Von Hippel & Katz 2002) To avoid "time-consuming and costly ping-ponging" between manufacturers and users that involve trial-and-error and iterative learning by learning-and-doing several authors suggest that parts of innovation work could be transferred to users (Prügl & Schreier 2006; Jeppesen & Molin 2003; Von Hippel 2005; Thomke & Von Hippel 2002). Thus, recently, it has been suggested that customers, especially users, are becoming "the developers" or "the innovators" who can dominate even whole innovation processes in search for products that fit their needs exactly. (Von Hippel 2005; Thomke & Von Hippel 2002; Prügl & Schreier 2006) Thus, the degree of user integration has increased from specification deliverer to virtual users that develop products they want for themselves. (Gassmann 2006) This may take place by creating virtual or physical (Füller & Matzler 2007) environments that allow customers to design and experience the products early on, providing customers with toolkits with which users can design their own products (Prügl, & Schreier. 2006, Thomke & Von Hippel 2002) and building or looking for communities where users come together (von Hippel, E. & von Krogh, G. 2003; Jeppesen & Molin 2003, Füller & Matzler 2007).

Users are capable and willing to innovate

The idea of users becoming the innovators is based on certain premises that will be briefly discussed here. Customers and users are becoming all the

more skilled and they are increasingly capable of innovating (Von Hippel 2005). Research demonstrates that some of the most important and novel products and processes have been developed by users (Baldwin et al. 2006).

Users are willing to innovate if they expect it to be rewarding (Füller 2006) and if the expected benefits exceed the expected costs of it (Von Hippel 2001). User needs are heterogeneous and sometimes it may be hard to find products that fulfill a certain need. However, since a product always becomes a part of a user's existing system adjusting the system according to the product is much more expensive than the opposite. This again increases users' willingness to innovate (Von Hippel 2005; Hienert 2006). Another cause that may encourage users to innovate is that sometimes manufacturing companies may be reluctant to customize products (Von Hippel 2005, Hienert 2006), if the product no longer fits with existing materials, competences and other infrastructure. Manufacturers may also be unwilling to compromise some aspects of the product that users would like to change, quality for example. This is specifically relevant in developing countries' context where the needs are very different.

Improving skills and learning may also be a motivator for innovating for users. Users may also find innovating intrinsically motivating, an aspect that is often forgotten. (Von Hippel 2005; Füller 2006; Hienert 2006) Thus, enthusiasm, fun and enjoyment are central motivators that are brought up in the extant literature. (Von Hippel 2005; Füller 2006; Hienert 2006, West & Gallagher 2006) Furthermore, users may be looking for psychological benefits such as recognition, visibility and reputation or increasing their sense of competence and self-efficacy. In some cases monetary benefits encourage users to innovate. (Von Hippel 2005; Franke & Shah 2003; Füller 2006)

The importance of user communities

Users are seldom innovating alone or in secret. Rather, they are often engaged in communities where other members possess similar and complementary knowledge and share similar interests. Hence, the second premise is that communities are important entities from the viewpoint of innovation. Communities can be of face-to-face or virtual form.

Belonging to a community is important. Membership to a community brings about a sense of belonging and gives meaning to what users do. An identity as a community member is an important aspect of membership for users as well. Membership in a community offers other benefits as well. Users receive important support and assistance from other users. Users may develop an idea but they often need support and advice other to develop it further. Especially in the case of tangible products making a prototype or manufacturing the product require skills and expertise of others. (Franke & Shah 2003) Existing studies reveal that helping others and giving advice strongly belongs to the practice of many user communities. Thus, helping and sharing ideas with others is a social norm of many user communities. [Franke & Shah 2003; Von Hippel 2006; West & Gallagher 2006]

Users are willing to reveal their ideas

The third premise states that users are ready for free-revealing which means that they are willing to give up the property rights of innovation to public use. Von Hippel (2005) states, however, that users recognize that there is more to win than to lose by free-revealing, for several reasons. Furthermore, more than innovation-related information is required to induce imitation. (Von Hippel 2006)

First of all, others often already know something that is close to the “secret” and they are usually interested only in the general outline or general operating principles of the product rather than the details of it. Information about the development decisions as well as the nature and operation of the product will be in the use of competitors in 1,5 years, often sooner. (Von Hippel 2005) Patenting as a way of protecting the secret is expensive and it takes time to acquire the patent. (Von Hippel 2005, 2006)

Secondly, as already mentioned participation in general and free-revealing also generates positive effects that may exceed the opportunity costs of it. It may increase interest in the person or the company thus increasing its value by generating reputational benefits. [Von Hippel 2005; Franke & Shah 2003] Also, expectations of reciprocity may encourage free-revealing.

By revealing one’s own ideas to others it is possible to gain additional knowledge and development resources from other interested people who give new ideas and insights thus developing the product further or improving it. (Von Hippel 2005; Franke & Shah 2003; West & Gallagher 2006)

In developing countries users can become innovators. International companies’ lack of success in developing country markets have been stated to be due to their reluctance to really understand the needs and context of use of people in developing countries (Chandra & Neelankavil 2008). Those people themselves however possess significant knowledge and information. The knowledge is sticky, personal and tacit for the most part. (Hislop 2003, 2005; Tsoukas 2006; Brown & Duguid 2001; Tsoukas & Mylonopoulos 2004; Boland & Tenkasi 1995) By mobilizing and enabling them to use that information and knowledge they hold a significant potential for innovation. Many useful ways can be found from open innovation and democratic innovation literature. Improving access and developing skills related to ICT offers tools and possibilities for enabling users.

By becoming innovators people in developing countries contribute to development of products and services that correspond to their needs. This is particularly important in the developing country context where poverty preconditions cutting off all the unnecessary and including only the necessary features and elements.

It was already mentioned that new knowledge and learning are key motivators for users to innovate (Von Hippel 2005; Füller 2006; Hienerth 2006). Hence, by becoming involved in innovation activity people in developing countries get a chance to learn and develop their capabilities and competencies. Furthermore, that way people become to adopt practices and way of thinking related to innovation. Classen *et al* (2008) *et al* emphasize the importance of creating possibilities for participation for the most

marginal ones in local communities which does not take place without external facilitation.

In developing countries changes are slower to happen and benefits of products need to be demonstrated in the local context before people buy. (Chesbrough *et al* 2006) By becoming involved users become familiar with products and services that are being developed and adoption may take place faster. That way also the necessary support, education and training of users can take place already during the development. (Chesbrough *et al* 2006)

In many developing countries the local culture is very communal. Earlier the significance of communities from the viewpoint of innovation activity was brought up (Von Hippel 2005) In communities innovation practices emerge as shared norms and ways of working emerge. In communities common knowledge base also develops and community members support each others' learning and knowledge creation. That is why communities have a potential to become viable forces of innovation.

2.2.3 From customers to co-creators

The notion of co-creation is based on idea of working closely with customers. It is assumed that when a customer is involved as a co-producer, the interaction between the parties should generate more value in terms of new knowledge and ideas gained than a traditional transaction process (e.g. Prahalad & Ramaswamy 2000; Wikström 1995). Co-creation is also expected to lead to better identification of customer needs (Abramovici & Bansel-Charensol 2004). In a deeper customer relationship a quicker and more efficient process can be achieved since it does not have to move in a sequential order. The increased creativity of both sides has also been included in the benefit of co-creation: new ideas are more likely to be generated (Wikström 1995). Similar issues are discussed under the concept of collaboration. Collaborative product development literature (Neale & Corkindale 1998; Littler *et al.* 1995) manifests that customers and users should be intensively involved in new product development from the early stages. Working closely together, open knowledge sharing and genuine synergy-creation are raised as central factors in collaborative activity and communication (Brett *et al* 1998; Griffin & Hauser 1992)

Collaborative innovation and co-creation enable manufacturers to get closer to their customers and reach the tacit, unexpressed and routine aspects of their knowledge, needs and desires. Still, the manufacturer has information regarding the solution and its production process while users have information about needs and the setting of use (Von Hippel & Katz 2002). Knowledge possessed by customers is often sticky, meaning that it is costly to acquire, transfer and use. (Von Hippel 1998; Prügl & Schreier 2006) Information stickiness can be due to attributes of the knowledge itself, attributes of information seekers and providers, and to specialized organizational structures. (Von Hippel & Katz 2002) To avoid "time-consuming and costly ping-ponging" between manufacturers and users that involve trial-and-error and iterative learning by learning-and-doing several authors suggest that parts of innovation work could be transferred to users (Prügl & Schreier 2006; Jeppesen & Molin 2003; Von Hippel 2005; Thomke & Von Hippel 2002). Thus, users become "the innovators".

2.3 Innovation capabilities & innovativeness

Innovativeness as a concept includes *creativity* as the generation of novel ideas (e.g. Amabile *et al.* 1996), linked to the *ability to implement*, taken to mean the development and utilization, commercialization and implementation of ideas (e.g. Tuominen 2006). Though creativity is an important building block for innovation, it is not sufficient in itself; innovation is created no sooner than the novel idea is taken into use or the idea is developed into a commercialized product.

2.3.1 Defining innovativeness

Innovativeness as a concept has been understood and defined in many different ways in innovation management literature. Often the concept is addressed in organizational level examining e.g. the antecedents for innovativeness (see e.g. West & Farr, 1989; Scott & Bruce 1994) but the concept can be applied to a more macro level examination as well (see e.g. Plowiec 2008). Outside the organizational level a much discussed concept is “consumer innovativeness” (e.g. Tellis *et al.* 2009) which refers to the consumer’s ability to adopt innovations. Though this approach has its benefits, especially in relation to marketing research, innovativeness is here examined from the perspective of innovation creation and thus exclude the “consumer innovativeness” approach.

Innovativeness may also be understood as an overall capability of introducing new products, services and business models through combining strategic orientation with innovative behaviour and process (Wang and Ahmed 2004) While Wang and Ahmed in the original definition concentrate on organization’s ability to introduce innovative products, this definition can be applied to the development concept as well. The combination of strategic orientation, innovative behaviour and process is a useful frame when aiming to increase the capability to introduce innovations in a societal level. The strategic orientation can be seen to refer to the innovation strategy of the nation and it’s linkages to the other strategic goals. The process can be perceived as the functioning triple helix system creating structure and direction around the innovative activity in the society. The innovative behaviour can then be perceived as the dynamic activities of the individuals and groups in the society.

A useful perspective for examining innovativeness in the context of developing countries is to examine the way creativity and the ability to implement are present in the national innovation systems and the way they are supported by the different elements of the system (e.g. parts of the triple helix). This would bring an additional perspective to the current discussion of innovativeness in developing countries since much of the current discussion is concentrated on the “consumer innovativeness” perspective. As an example, the recent discussion on base-of-the-pyramid (e.g. Prahalad and Hart 2002) innovation has been focused on the production of new types of (inexpensive) products to the markets of developing countries. In this perspective the creator is the company (positioned outside the developing country) and the perspective is that of creating novel business opportunities in the developing country context. While this perspective is valuable and creates fruitful win-win opportunities for both international corporations and people in developing countries, there would be use in complementing this

perspective with considerations on how people in developing countries can engage in innovation activities themselves.

Another way to expand the perspective in examining innovativeness in developing countries can be found in relation to the very concept of innovation. The innovation discourse in the context of development has often been centred on science and technology. There could be potential in examining other types of innovations (services, business models, logistic) in the developing country context, including also, but not limited to discussion on technology diffusion, openness and human capital in promoting economic growth.

This human capital could be looked at through the lens of innovativeness and the innovative capacity of different societal groups. There are several listings of the antecedents for innovativeness especially in organizational levels (Amabile *et al.* 1996; Kanter 1988) but also in the level or wider systems (e.g. Radas 2009). The knowledge of these antecedents can be used to examine whether the current innovation system is able to create sufficient conditions for innovativeness. The organizational level antecedents could also provide a useful mirror to examine the larger system from a more grass root perspective.

Innovativeness can also be approached from the perspective of activities it entails (e.g. West and Farr, 1989, Kleysen and Street 2001). In this approach innovativeness is examined from the perspective of innovative behaviour, which is defined as all individual actions directed at the generation, introduction and application of beneficial novelty (West and Farr, 1989). Innovative behaviour in the individual level can be divided in five categories (Kleysen and Street 2001). The first of the sets is opportunity exploration, which refers to being alert to opportunity sources; identifying opportunities and collecting information about them. The second set, generativity, comprises of behaviours like producing illustrations and categories of opportunities, generating responses to them and combining ideas with necessary information. Formative investigations include behaviours that structure and enrich ideas, solutions, and opinions as well as investigate, evaluate and test them. Championing includes all the socio-political activity of mobilizing resources, convincing and negotiating to make the ideas heard and acted on. The last set of behaviours, application, includes those behaviours whose aim is to make innovations a normal part of everyday life and work. While these categories describe innovative behaviour in the individual level, they can be used to reflect on the type of activities the innovation system should be able to foster in the very grass root level.

While the above described five categories describe the innovative activities of an individual they do not examine the collaboration involved in innovation activities. Collaboration is, however, a crucial element in any innovation process and especially when examining a situation where the facilitating structures are still under development the interactive nature of innovation activities is highlighted. Hargadon and Bechky (2006) have developed four categories that describe the interactions that precipitate moments of collective creativity. These are:

- Help seeking including activities related to getting assistance in solving problems that s/he has either been assigned to solve or has recognized him/herself.

- Help giving comprises of activities related to devoting time and effort to assisting other's with their problems – either when requested to do so or proactively when recognizing a possibility to ease other's problem solving efforts.
- Reflective reframing refers to adjusting one's own perceptions to find solutions to open-ended problems, trying to grasp previously unidentified possibilities and posing questions in a novel way. Reflective reframing represents moments of collective creativity where two or more people make a genuine effort to “make new sense of what they already know” (Hargadon and Bechky 2006, pp.491)
- Reinforcing including cultural issues affecting the ways in which the above mentioned activities are carried out. In Hargadon and Bechky's model reinforcing activities stem from the corporate culture, but the concept could be applied to a more macro-culture examination.

These formulations are based on the individual and organizational levels, but could offer a mirror for examining the way the innovation systems support innovative activities in the grass root levels of the society. When examining the national systems of innovation and their effectiveness it is important also to bear in mind the type of micro-level activities they should be designed to support. The innovativeness and innovative behaviour approaches can thus complement the more structural level examination of the innovation systems.

2.3.2 The triple helix and innovativeness

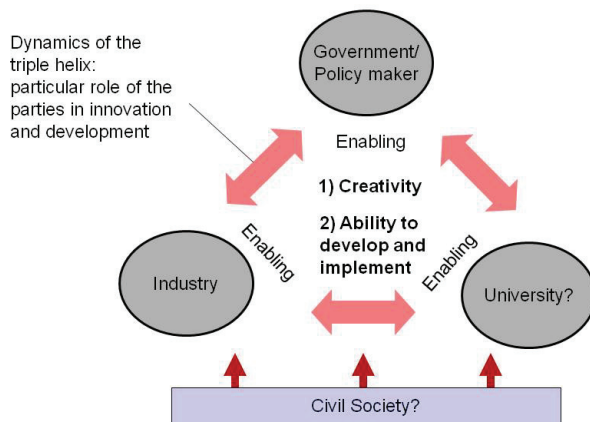


Fig. 2.1 Innovativeness and the triple helix

It is suggested (Rickards 1985) that innovation works in terms of two subsystems: the firm's innovation capacity and the external factors (social, institutional, technological and economic) that provide the environment for the firm's activities. Following this line of thinking the concepts of innovativeness and innovative behaviour can be used to depict firms' innovation capacity, i.e. the first system. When examining the external system – or the institutional environment – the triple helix offers a useful

perspective (e.g. Saad & Zadwie, 2005). The triple helix includes the university, government and industry parties and the dynamics between and within them. Innovativeness can be examined in this context by investigating 1) the elements that support the creation of novel ideas 2) the elements that support the development and implementation of ideas in these three fields. For example the university context can act well as a platform for developing new ideas but its ability to implement these in the form of e.g. start up activities can be weak.

Also, the industry can be directed towards the effective execution of familiar modes of business but can be lacking the ability to bring about novel ideas to the field. Additionally, the supportive infrastructure of the government can be directed towards either part of innovativeness and thus be lacking in ability to support innovativeness holistically.

Special attention should be paid to the dynamics between these three structures – university, government and industry – they should be able to complement each other in many respects. A useful perspective with regards to innovativeness would be to examine the way ideas are transferred between the three helixes and what role do each helix play in supporting the creation, development and commercialisation of ideas.

In addition to the three axes of the helix the role of the civil society as the fourth helix has been underlined especially in the context of the developing countries. The civil society offers an important perspective to the investigation of the innovative capacity of the country, because – especially in the context of developing countries – it offers much needed dynamism to the interplay of the helix. Thus the capacity of the civil society in bringing about and developing new ideas as well its connectedness to the triple helix should be included in the examination of innovativeness in the societal level.

2.3.3 Balancing capabilities and constraints

Building on Sen's (1980, 2000) Capability Approach, innovation capabilities are seen to consist of individual human capabilities in relation to social constraints that inhibit the exploitation of new knowledge. As an example, the capability to participate successfully in the world economy is linked to the ability to see, assimilate, and apply new knowledge; this is constrained by trade barriers (both tariff and non-tariff).

In line with Sen, it is not the capability, but what you can achieve with it that is important. Potential that cannot be used is irrelevant. This also means that investment into potential is a two-sided sword.

Nussbaum (2000) developed the Senian thinking further and listed a series of capabilities (which Sen had not undertaken himself). Out of those, *Senses, Imagination, Thought, Practical Reason, Affiliation*, and perhaps *Control Over One's Environment* are the most relevant in terms of innovation.

In practice the CA is difficult to operationalise in a day-to-day practice; it is more of a framework of thought, that allows for a identification and categorization of both capabilities and the constraints that inhibit their use. As an example, in the BoP context, technical capabilities (or the potential for them) often remain unused, as the opportunity of setting up a small

business is constrained by lack of funding, race, religion, or a lack of freedom to exercise a productive trade for whatever other reason.

The individual's relation to the socio-economic surrounding mediates the ability to use capabilities to full advantage. It is clear that there are also joint capabilities of communities to act together, which are constrained by wider circumstances. The key issue with the capabilities is their dyadic relationship with constraints. It is not enough to enhance capabilities of individuals (say, through training programmes, skills development, vocational schooling) unless constraints that inhibit the use of the enhanced capabilities are also addressed.

Individuals and entrepreneurs can also be encouraged through conducive economic policies, right incentives and supporting structures, while reducing bureaucracy, and for example by improving ownership and property rights (as noted by de Soto (2000) and Easterly (2006) among others).

Summing up, capabilities and constraints are in many ways two sides of the coin, and need to be dealt with concurrently. As applying new knowledge plays an important role in developing the innovation capability, it is argued that the facilitation of external contacts and learning are important tasks, both in enhancing the capabilities and in the removal of constraints.

3. Development cooperation



The section introduces some of the key themes in development that are relevant to innovation studies; especially participation is important, as it links up closely with the role of users in innovation. The role of institutions and development as a right emerge as issues that are closely linked to innovation systems and the thinking behind the triple helix and innovation ecosystems. Development thinking that adopts a constructivist perspective also seems to be suited exceptionally well to the view of innovation that recognizes the fact that opportunities spring from the unforeseen, and that change is inherent in society.

3.1 International development cooperation

Development today is understood to be constructivist in nature and based on participation; the key idea being that the beneficiaries of aid retain the ownership of the development processes (Cooke & Kothari 2001; Hickey & Mohan 2004; CEC 2004a; Ostrom *et al.* 2002). Development cuts across a wide spectrum, such as good governance, human rights, gender equality, and environmental sustainability that need to be taken into consideration in international development cooperation (CEC 2004a; World Bank 1998; CIDA 2003). Development is also considered a right and not an option. At the same time, donors are concerned with the efficiency and effectiveness of the delivery and impact of aid (CEC 2004a; World Bank 1998).

Todaro & Smith (2006, p.23) define development as securing and improving access to “basic life-sustaining goods”, and raising the “level of living”, and improving the “range of economic and social choices” that an individual is able to make. In his seminal work, Sen (2000) sees development as a process of empowering the capabilities of a person to do and be. This viewpoint involves the idea that constraints (of unfreedoms, as Sen names them) need to be removed in order for development to take place. These include illiteracy, ill health, lack of access to resources, and lack of civil and political freedoms.

The idea that development consists of new opportunities that potentially enhance a person’s (or a community’s) well-being sits well with the thinking behind innovation. Thus the focus is not on the absolute or subjective needs of an individual (although they clearly are present in humanitarian emergency situations), but on the opportunity creation that enables individuals and communities to develop on their own terms.

As noted previously in the introduction, international development cooperation is here defined as *the cooperative process of promoting human well-being that is supported across national boundaries*. Well-being is used in the wide sense, encompassing, among other things, good governance, accessible and appropriate healthcare and education, human rights, infrastructure and environmental concerns, economical opportunity, and resilience to natural and man-made disasters. There exist a significant number of definitions, some of which tend toward the operational like Unesco (2006): “Development cooperation refers to the activities of the agencies that help to finance development programmes in the developing countries and/or that carry out technical, support or exchange activities in these countries”.

The terminology used in the context of development is not always fully established, and “development aid” and “development cooperation” are often used interchangeably with development assistance, technical assistance, international aid, overseas aid and also foreign aid. In this text development cooperation is used, as it transmits the idea of a partnership and participation. Widely understood, all of the terms above refer to supporting the socio-economic and, in some cases, political development of the beneficiaries, often through a long term commitment.

3.1.1 Background to development cooperation

While its roots go back to the beginning of the 19th century, international development cooperation saw a noted intensification after the Second World War; this coincides with the establishment of the current major international financial institutions and the post-war initiatives like the Marshall Aid (Browne 1990). Since then, international development cooperation has intensified significantly, changing also in terms of used methods, approaches and political agendas, evolving from the containment of the spread of political ideologies to more beneficiary centric ideology (Thomas, 2000).

Bartlett (2007), among other, argues that the worldview and theoretical approaches used in development since the Second World War are deeply rooted in modernism and an Anglo-American political thought. This involves a notion of technological optimism (Bartlett 2007), which later evolved into the neo-liberalist agenda of the 70’s and 80’s with Friedman *et al.* (Parfitt 2002; Thomas 2000). This view assumed that assistance would help developing countries to follow developed ones, and that technology would foster growth.

Later on, in the 70’s and 80’s, alternative development approaches, focusing on human needs and capabilities criticized of the established institutional approaches. Through the contributions of Streetan, Haq and Sen, among others (e.g. Fukuda-Parr & Shivakumar 2003; Partfitt 2002; Bhaduri 2005), some of these initiatives were incorporated into more mainstream policies and programmes (as in the case of the UNDP Human Development Report). In the 80s, the emergent dependency theory led to failed import substitution policies, especially in Latin America (Kohler & Chaves, 2003).

Currently, the international community has an ambitious goal of reducing poverty through the Millennium Development Goals (MDGs). On another track, parallel track, others maintain that “trade, not aid” is the way forward. The MDGs has replaced the previous modernistic discourse, with a shorter perspective, while fair trade and appropriate commercial practices are seen to assist develop overall. Globalization has led to a greater apparent integration of financial markets and international trade, but concern has been voiced over the clear asymmetry of power and participation in global affairs.

Today, there are voices that doubt the current practices of development cooperation and even aid itself (e.g. Easterly 2006; Tandler 1975; Moyo 2009, Välikangas & Gibbert 2008). In these and other similar discourses aid is seen as creating dependencies that do not allow for bottom-up innovations to happen; it is also argued that aid is downright harmful and should be stopped. The delivery mechanism of aid seem to be in the very centre of the discussion; the question is whether official development aid is agile enough

to support emerging initiatives that could grow into significant sources of well-being. Increasing or decreasing aid is both advocated by key scholars. One thing seems certain: The increase of aid, often cited as the panacea for development, has been observed to increase at least the public sector expenditure (Wolf 2007).

3.1.2 A rights-based approach

Development is a fundamental human right, set out in the Universal Declaration of Human Rights (1948), the International Covenant on Civil and Political Rights (1966) and its Optional Protocols, and the International Covenant on Economic, Social and Cultural Rights (1966). The Declaration on the Right to Development (1986) and the Vienna Declaration and Programme of Action (1993) establish the unequivocal human right to socio-economic development as a basic right. The rights based approach establishes the right of individuals within their societies and a basis for the dialogue between the donors and the aid recipients.

The key implication of the right to develop is linked to it being the cornerstone for the efforts to achieve symmetric relationships, within and external to societies. If one argues that there is right to develop, and if this is to be achieved through enhanced trade and economic growth through innovation, then there exists a right to innovate.

This is an interesting thought, as the clear implication is that there therefore exists a right to access best new knowledge, a right use it to suit, and the right to benefit from the process. In other words there exists a right to participate on equal terms in the global trade. The key issue in this regard seems to be related to right of choice of the support mechanisms available: who chooses what to support and on what premises. The conventional instruments and support mechanisms of development cooperation may be of little use in the promotion of innovation, which is risky, unsure, volatile, but can create sustainable value.

3.1.3 Aid, institutions and development

Issues related to the quality of aid have come under examination of late (UNDP 2005; World Bank 2005; ActionAid 2005). The Rome (2003) and Paris (2005) Declarations argue for untying aid from sole procurement and delivery in kind, calling for harmonized and coordinated initiatives that are aligned with local needs. Aid effectiveness is also reduced due to administrative and managerial inability to cope that is caused by aid proliferation (Morss 1984; Roodman 2006; Mackinnon 2003; Wolf 2007).

Public and third sector actors within institutional frameworks have key roles in terms of enabling development (UNDP 2006). Hämäläinen (2003) and Porter (1998) attach importance to role of the institutional framework of government (North 1990). Productive resources, technologies, organisational efficiency, product market characteristics, together with external business activities, the formal/informal institutional arrangements and government policies determine competitiveness and economic growth.

A functional system of innovation is underpinned by workable relationships between users, service providers and governance on both central and local levels (WB 2003; Jüttig *et al.* 2004). As Wolf (2007) notes, governance

drives efficient service delivery and related to resource allocation. As innovation is clearly dependent on the abilities of local parties to act, decentralization policies are central issues in strengthening the local structures and institutional capacity.

Fielding & Mavrotas (2005) note that aid volatility can seriously hinder long-term development and strategic policy-making; this alters the balance between the private and public sector opportunities, especially in small, closed markets (Wolf 2007). Lensink & Morrisey (2005) and Arellano *et al.* (2005) argue that aid volatility decreases investment. They also note that permanent flows of aid tend to increase consumption.

Resource issues are important in the institutional context. In many cases a resource-scarce situation brings about inventive solutions that may turn into innovations from the bottom up, through effective grassroots mobilisation and teamwork. Current institutional arrangement and funding arrangements tend to make funding awards based on institutional convenience, placing formal accountability ahead of impact, which in the case of innovation promotion is often not easily visible at inset. The current model seems inappropriate if one is examining the development of capabilities on the individual level (Tendler 1975, Gibbert *et al.* 2007).

That being said, there may be issues which are linked to the development of innovation systems, which can be seen to consist from institutional actors; in these cases, the present mechanisms may be a viable option. There are implications if one thinks that innovation promotion needs to be a dualistic model: the top-down view may be effective in systems of innovation contexts, while the bottom-up perspective is needed when one aims to develop individual capabilities, small group dynamics, innovative ideas and risk taking. Perhaps both are needed.

3.1.4 Participation and ownership

Development cooperation aims to support the development of capabilities; this is expected to happen through initiatives identified by the aid recipients themselves (Wilson & Whitmore 1995; CEC 2004a). That noted, in many cases and ways, development cooperation initiatives have been seen to fail, partly due to the fact that they support static and stagnant structures.

Due to a significant asymmetry in capabilities, local parties often have significant difficulty in identifying, planning, and implementing development cooperation initiatives. The donors sometimes fail to understand local livelihoods, priorities and the need for participatory processes; in many cases donors end up fulfilling their own organisational and structural demands (Ariyabandu & Bhatti 2005; Saasa *et al.* 2003). Donors are also weary of governance and financial mismanagement issues.

Participation is often expected to have an immediate positive impact; evidence seems to indicate otherwise. Participatory approaches appear to be most likely to succeed when they are part of a wider political agenda, intent on securing the rights of groups (Hickey & Mohan 2004). Engagement is a process of social change instead of technocratic intervention.

Participation in innovation is an essential ingredient; the diffusion of inventions, be they social or technological, only happen through a process of perceived utility and an adoption through participation.

Recently thinking has emerged that stipulates that commercial activity can provide solutions and changes that developing country governance and official aid have not been able to deliver to date (Prahalad and Hart, 2002; Prahalad 2004; Easterly 2006; Collier 2008; Moyo 2009). This also involves the idea that commercial activity should also enable the full participation and involvement of local stakeholders. There are evident barriers and obstacles to equitable trade of products and service (and thus to growth that enables development), and key obstacles to development include a lack of freedom in seeing and seizing opportunities that would lead to self-development (Sen 2000; Easterly 2006; Collier 2008).

3.2 Development instruments

While there has been a clear move to the direction of a sector wide approach (Atherton 2002; Adams 2004; CEC 2004a) and towards the increasing control and implementation responsibility of the local beneficiaries, with resources that are injected through normal local public sector budgetary channels, the development programme and project approach still remains a main vehicle used to deliver focused development support.

3.2.1 Programmes and projects

Perhaps as an indication of a wider trend of projectification of society at large, there is an observed tendency in developed countries to identify, plan and implement innovation promotion initiatives through programmes and projects.

Programmes and projects have been in the mainstream of development cooperation in the last decades. The CIDA (2003) report illuminates the differences between projects and programmes. Programmes are focused on wide goals and outcomes, while projects tend to have a focus on the success of the project itself. While projects are often seen to enable local ownership, they are still often supply-led, and linked to a limited number of parties and partnerships, while programmes are expected to be based on locally owned wider initiatives (as in many projects within a wider programme network).

Within the official development assistance instruments, programme based support is usually targeted towards entire sectors, such as education or forestry sector. It can be also support directly to a state budget. Sustainable development, especially in the environmental context, is particularly emphasised in this instrument. In terms of limitations, it is noted that the programme support tends to be slow and tedious in identification, planning and implementation. In practice, it is often not seen to be possible to react in an agile manner to emerging development opportunities, especially those linked private investments or public-private-partnerships. Cooperation is also undertaken on the project basis where Finland gives support in a specific project such as building a regional sewage or water supply system in the target country.

Aid agencies in past have been known to undertake “their” projects using free-standing technical assistance, independent project implementation units and foreign experts instead of trying to improve the local institutional environment for service provision (CIDA 2003). Inadequate local ownership of programmes and projects has decreased the sustainability of the benefits.

Using projects has also created a narrow view of resource usage. Furthermore, a large number of projects (each with their own funding, processes and protocols) has resulted in high transaction costs (CEC 2004a; World Bank 1998).

Projects and related management are linked to a functionalist, reductionist ideology, closely linked with a positivist worldview of the organisation of work and tasks (e.g. Packendorff 1995; Buchanan and Badham 1999; Howell *et al.* 2005; Smythe & Morris 2007). There is a potential incompatibility of current development approaches with perspectives to innovation and current project management approaches. The inadequate theory of projects and management are not fully compatible with the development paradigm. This is seen to be a major reason for project failure (Koskela & Howell 2002; Cicmil & Hodgson 2006).

As Diallo & Thullier (2004) and Crawford & Bryce (2003) note, managing development cooperation projects has special challenges. Initiatives often have a focus on objectives that involve human development, making performance measurement complex. The political nature of the projects is also well recognized. Crawford and Bryce (2003) point out the unpredictability of the socio-political environments, technically challenging operations, and competing objectives of development actors. Culture and geography tend to furthermore create challenges.

As such, project management tools and techniques (e.g. logical frameworks; planning, execution and process controls such as PERT; critical path methods; or management by objectives) are applicable in the development cooperation project context (Muriithi & Crawford 2003). There are, however, issues with non-technical systems. In this regard, it has been noted that high power distances inhibit the use of sense-making (such as brainstorming) techniques; similarly, motivation through reward and recognition is culture and place specific. The economics in procurement and contracting are embedded in non-economically rational social networks that influence buying decisions and compliance to a great degree (Muriithi & Crawford 2003).

3.2.2 Direct budget and sector-specific support

Direct budgetary aid and sector approaches have been adopted partly to bypass the issues that are related to projects and programmes, giving the partner governments the lead in policy-making, strategy and spending. This enhances the coherence of development cooperation, minimising also transaction costs. Direct budget support puts donor funds into the normal revenue streams, budgeting and disbursement mechanisms, enabling coherent and cohesive administration. It also allows small and large-scale misuse and preferential agendas, and devolves all operational issues to the recipient. Sector support (or approach) specifically supports a certain sector (e.g. education, health), often through budgetary support that is tied to specific areas, or focal activities.

As Foster and Fozzard (2000) note, sector wide approaches are advisable in good macro-economic management and sector policy environments. In a similar vein, Jones & Lawson (2000) note the importance of linking policy, planning, budgeting to a holistic framework to guarantee success in macro-strategic and operational levels. Weak policy environments give cause to proceed in small, project-like steps.

It is also observed that direct budget or sector often turns into projects when implemented on the ground. While this devolves the power to set up and run projects, it does not guarantee that relevant expertise is available. While simple projects may well thrive under a devolved agenda, large and complex projects (which many significant projects are) may not get off the ground. This is clearly visible in the very low disbursement rates that some developing country governments have in soft loans from development banks.

In some cases, there has also been drive to decentralize development initiatives to implementing partners, such as Non Governmental Organisations (NGOs) that implement externally funded projects within developing countries, acting in some cases almost like private contractors (Crawford & Bryce 2003).

3.3 Instruments in the innovation environment

In this section a series of development instruments are examined that are seen to relate to the wide innovation environment. This section is largely based on the recent MFA report (Indufor 2009) and public domain information. The Indufor study was conducted in order to review the instruments that support the Finnish companies' investment and establishment in the developing countries. There support is usually divided into two kinds of instruments,

- i) Instruments in private sector development (indirect support) facilitating the development of the operating environment of the companies.
- ii) Instruments supporting the private sector operations (direct support) facilitating the private sector investments of the companies.

Basically, the Indufor-study appears to have been conducted from the "point of view of Finnish companies" and it does not appear to examine in depth how the instruments can support the development of the host country. The business development outputs and outcomes emerge as a result in supporting the Finnish companies in their operations in developing markets (e.g. Finnfund) or through supporting actors in the developing markets to buy the products or services of the Finnish companies (e.g. concessional credit). The support that is clearly directed towards local companies is the Allowance for Local Cooperation (PYM) instrument that can be effectively facilitate the local development.

Thus the contribution to the local business development (and innovation promotion) is mostly indirect through the Finnish company investments or through support to local institutions. Please note that the development instruments more directly linked to business development (as seen from a wide perspective) are examined in more detail in the subsequent section.

3.3.1 Aid for Trade (AfT)

Aid for Trade (AfT) is basically any initiative that is aimed at improving a developing country's ability to trade. The general objective of the AfT is to improve developing countries ability to efficiently participate and benefit from the global trade. Finland's AfT strategy is based on the approach

adopted in the EU strategy; the objective is to enhance the trading capacity of the countries thus improving the integration in the global economy.

AfT could be considered an umbrella for all the means of support covering the other instruments while creating the framework for the aims and objectives of the cooperation development work. In this context, the main themes are developing the private sector, information society, and attending to issues related to the environment and climate change. Main sectors to date have been agriculture, forestry and energy.

3.3.2 Base-of-Pyramid

While it is not an official development instrument per se, the **Base-of-Pyramid (BoP)** perspective is close linked to the thinking of AfT, as is another wide phenomena, **microcredit**.

BoP can be understood as a way of thinking about the 4 billion people living on less than 2 USD per day as either as consumers (Pralahad & Hart 1998) or as participants, business partners and innovators (Pralahad, 2004; Hart 2005). For innovation promotion purpose, it is useful to adopt the latter views of Hart and Simanis of the poor as potential business partners and innovators, instead of just producers or consumers. Hart and Simanis have developed an entrepreneurial processes that act as a guide for companies in developing business partnerships with low-income communities to co-create businesses and markets on a mutually beneficial basis. The BoP concept has been widely studied in many contexts to date; it is coming of age in the sense that the impact of BoP initiatives is currently under scrutiny. The need to tailor-make solutions for the BoP area are referred to elsewhere in this text.

The significance of the BoP approach for innovation promotion is perhaps linked to the fact that it considers the low-income individuals and communities as equal partners whose contributions are valuable. This leads the way to support new bottom-up initiatives that can end up creating new business and wealth, i.e. that lead to innovation

3.3.3 Microcredit

The programs are usually inspired by a social agenda of poverty reduction. It seeks to combine social ends with the means of capitalism. Microcredit can be seen from both of these perspectives; as a social and a financial innovation (Phills et al. 2008), as well as from the viewpoints of provider and receiver of the product. There is a strong emphasis on microcredit in terms of low-income individuals becoming self-reliant entrepreneurs. Furthermore, microcredit institutions themselves are increasingly aiming at financial sustainability. In many ways this supports and implements the BoP (and AfT) propositions.

3.3.4 Public-Private-Partnerships (PPP)

The wide definition includes any kind of partnership between organisations from the public and private organisations. The objective of the PPP is better quality, outcome, and/or lower cost of operations compared with the operations conducted solely in the public or private sector. The field of PPP solutions is extremely wide, and can include initiatives that aim for profit, as

well as ones that do not. In terms of thinking about innovation promotion, PPPs are valuable as they enable different types of actors to sit at the same table; at its best this creates novel solutions to old problems, enables a wider and deeper diffusion of practices, products and services. The joint action can also be seen to unblock collaboration or create new forms of administrative innovations. PPPs are referred in many ways in other parts of the text.

3.3.5 Instrument for Institutional Cooperation (IKI)

IKI is a new instrument for government agencies to collaborate with the foreign counterpart, to share the know-how and the competence between the agencies. For the foreign counterpart, it gives chance to improve its capacity and competence, whereas for the Finnish authority or agency, it gives a chance to share its know-how and learn from training the local unit.

The limitation is that this form of cooperation is only meant for the cooperation between public institutions, and does not allow public-private partnerships. This means that the instrument is limited in term of the opportunities it has to support the promotion of innovation, as it only addresses one set of actors of the innovation system.

3.4 Instruments at the enterprise level

The following section examines the enterprise-level instruments in current use.

3.4.1 Finnpartnership – a programme for business partnerships

The support extended by the Finnpartnership programme involves both the economic support and advice for the Finnish companies to increase trade with the companies from developing countries. The goal of the program is to promote economically viable partnerships between the companies in Finland and the developing countries. Support is given to companies or other institutions that are domiciled in Finland. The aim is to promote positive impact of the trade in the target countries. The program began in 2006 and it is managed and coordinated by Finnfund.

The program includes financial support for business partnerships, matchmaking for trading partnerships and helpdesk for business partnerships for developing countries. The financial support can be used for finding partners or clients in the target country, conducting market or feasibility studies or drawing up a business plan, for example.

The programme has set limitations in terms of non-coverage of high-risk projects, limited content and resources. It has been argued (Indufor, 2009) that these limitations are not enabling the programme to reach its maximum potential impact. The ceiling amount of support (250 000 EUR) does not appear to be enough to fund the projects beyond the inception phase. Also the matchmaking service has not brought desired results as the expectations and offerings of the potential partner candidates in Finland and target countries have not been in realistic enough.

3.4.2 Allowance for Local Cooperation (PYM)

The allowance for local cooperation, is a financial tool that the embassies of the Government of Finland can use locally to support Finnish entrepreneurial activities and to create local trade partnerships. It consists of a grant that can be given to a variety of purposes that aim at business or knowledge development in and of the target country. It can be used to develop the target country's society and its institutional capacity and capability. Additionally, it can be used to support the local business development, thus identifying potential business partnerships between the Finnish and target country's companies. In the Indufor report, it was noted that limitations of the programme are linked to the human resource constraints at the embassies, in addition to a limited total budget; it also appears that the PYM-rules leave room for interpretation.

It is also noted in the report that PYM is not well known among the companies, and few projects of significance are implemented. It also appears that few actors are intimate with both development cooperation and business development.

3.4.3 Finnfund – a development cooperation fund

Finnfund manages a number of instruments (equity investments, investment loan, mezzanine-funding, guarantees and co-financing) that enable Finnish companies to invest and operate in developing countries. The purpose of Finnfund is to promote the economic and social development in the developing world by financing responsible and economically viable business activities where a Finnish interest is present. The support is intended to be directed towards operations in markets that are particularly challenging in terms of raising funding for ventures. That being said, the Indufor (2009) report notes that Finnfund instruments are very seldom used to finance projects in the least developed countries (LDCs).

The fund limitations include set limits to funding of activities, and the financial support can only be allocated on the long-term financial sustainability conditions of Finnfund, implying a risk-averse investment strategy.

3.4.4 Concessional Credit (CC)

The instrument delivers a subsidy in the form of an export credit with no interest. The export has to be directed to developing countries excluding the least developed countries (LDCs). The objective of the concessional credit is to promote both the Finnish exports and the socio-economic development in the target country. OECD has recommended the concessional credit instrument should be used in the low income countries (BKT per capita < 3 705 USD) but not the least developed countries, thus being used mainly in the countries in transition. The applicant is a client in the target country that is purchasing a Finnish product or service and can benefit from the instrument through fulfilling the set conditions. In this way, the local client is seen to benefit from the know-how of the Finnish exporter.

The Indufor (2009) report observes that the instrument is difficult and slow to use, as the application process is long and complicated. It is therefore essentially used by larger firms, within significant project undertakings. The

export credit does not support soft operations, preliminary planning or feasibility studies (thus not covering the complete project cycle) and it cannot be combined with other instruments. The limitations of the credit include a limited number of countries (not including LDCs), and it has been suggested that the instrument is susceptible to graft and creates distortive effects on competition. The instrument is seen to be resource-intensive from the donor governance aspect; and concern has been voiced that export promotion and the development cooperation aims are incompatible with each other.

3.4.5 Summing up

At the risk of being simplistic, perhaps an ideal development instrument for innovation promotion would have the institutional links of IKI, together with the local business dimension of the local cooperation (PYM), married to the international business development perspective of, say, Finnfund, but extended also to least developed countries. This fund that would have a public-private-partnership (PPP) nature would be highly agile and managed by a dedicated business oriented party, perhaps a socially oriented venture capital, with investment return targets dimensioned so that losses can be incurred. The fund would be organised into umbrella programmes that focus on high impact areas in the local contexts, ensuring that the desired benefits would be negotiated, established and achieved through a joint exercise; each initiative would be organised into a project that is led locally, in formats to be agreed upon. The projects would not have asset format or entry requirement, as long as they link up with the overall benefit target. Returns on investment may be calculated on financial or social indicators.

4. Business Development



This chapter examines business development, through reviewing ideas related to business models, offering of goods and services, customer interaction, the front-end processes, and foresight. It furthermore looks at the Finnish experience in terms of innovation strategies, and business and innovation promotion systems.

4.1 Defining business models

The concept of business model has been nearly absent in the academic literature before the past few years (Tikkanen *et al* 2005; Amit & Zott 2001; Morris *et al* 2005; Osterwalder *et al* 2005) and still the concept is under-conceptualized (Tikkanen *et al.* 2005) and no generally accepted definition for the concept exists. (Morris *et al.* 2005). Business models have been defined by numerous authors (see e.g. Afuah 2004; Amit & Zott 2001; Chesbrough & Rosenbloom 2002; Osterwalder 2004; Tucker 2001) somewhat differently. Consequently, there is ambiguity in terminology and concepts such as business model, strategy, business concept, and revenue model are used interchangeably. (Morris *et al* 2005; Osterwalder *et al* 2005) The definition presented by Christensen *et al* (2002, 292) seems particularly suitable in the context of this context and it is the one we adopt here:

“The way a company captures value from its innovations. This includes the structure of its costs, how it prices its product or service, whom it attempts to sell that product or service, how it sells it (one time sale, licensing agreement, and so on), what value proposition it purports to offer, how it delivers its product or service, how it offers post sales support and so on”

The definition is detailed, holistic and somewhat complex. A more simple definition is offered by Tucker of business models as descriptions of how the company creates value for customers that in turn generate revenue and profits for company (Tucker 2001).

4.1.1 Components of business models

As the first definition already implies, business model is composed of various components. However, in the literature there is a lack of consensus on the key components of a business model. (Morris *et al.* 2005) Morris *et al* (2005) have summarized the existing literature and found 24 different items proposed as components. Accordingly, the most frequently cited components are firm’s offering, economic model, customer interface/relationship, partner network roles, internal infrastructure and target markets. Based on literature review Morris *et al* (2005) build a integrative framework for characterizing business model. The model consists of three “increasingly specific levels of decision making” that are foundation, proprietary and rules –levels. The foundation level consists of six main components of business model that are:

- i) How will the firm create value?
- ii) For whom will the firm create value?
- iii) What is the firm’s internal source of advantage?
- iv) How will the firm position itself in the marketplace?

- v) How will the firm create money?
- vi) What are the time, scope and size-related ambitions?

Thus, at the foundation level decisions about what the business is and what it is not are made and internal consistency of such decisions is ensured. In order to create sustainable advantage the firm needs to apply unique approaches to the foundation components. The purpose of the model at proprietary level is to enable development of unique combinations among decision variables. Whereas the foundation level is relatively easy to replicate by competitors the proprietary level is not, thus it is important from the competitive viewpoint. The rules level again gives guidance to ongoing strategic actions thus giving discipline to business operations (Morris *et al.* 2005).

Osterwalder (2004) clarifies how business model is connected to the entity of an organization. He describes business model as one of three layers along with strategic and process layers. To him business model represents a translation of strategy into a statement of organization's logic of earning money. Additionally, business model acts as glue between strategy and processes. The three layers tackle the same problem but on different organizational levels. Thus, business model represents the "money earning logic" between vision, goals and objectives and the organization, processes and workflow. Thus, business model ties together the planning and implementation activities in the organization.

The business model also ties the innovation environment to the innovation processes. As noted elsewhere, one of the key challenges in innovation promotion is to achieve a holistic approach to transforming inventions to useful and (commercially or otherwise) successful innovations. Without a clear business model, this transformation process is less likely to succeed. It is therefore useful to support the development of the capabilities that are needed to create these models.

Changing business models

The challenge of business models, as with all models of different kinds, is that they describe something in a certain point of time, thus they provide a snapshot on a subject. (Osterwalder 2004). However, business models have to be constantly reconsidered; as business context or organizations change the business models need to be updated. (Norman 2001; Osterwalder 2004) Changes in the law, competitive moves, changes customer/ user preferences and needs or technological innovations are examples of changes that cause pressure for business model change. (Linder & Cantrell 2000) Also, the new possibilities create by ICT as well as the trends of servicification, e-ification and experiencification enable new business models to be created. Norman (2001) Tikkanen *et al* (2005) conceptualize business models as a sum of material, more concrete, structures and intangible, cognitive, meaning structures. Thus, changing an existing business model is always related to changes in the cognitive models of managers in organizations (Osterwalder 2004).

Linder & Cantrell (2000) have presented a change model for business models that distinguishes four different models for changing business models according to the extent to which the model changes the core logic of the organization. The realization model concentrates on small changes

within the existing business model such as brand maintenance, product line extensions, new sales channels or geographic extensions. Renewal models refer to consistent changes in product and/ or service platforms, brands, cost structures or technology bases. Renewal models are about leveraging core competencies to create new positions in price/value curve. Extensions models expand business to new markets, value chain functions, or product/ service lines. Journey models involve taking company to a whole new business model. The model is presented in the figure below. Linder & Cantrell (2000) have also reviewed various change methodologies for planning and implementing a business model change.

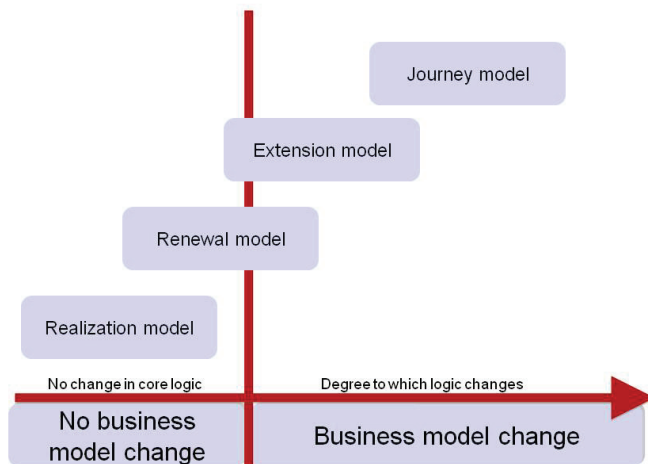


Fig. 4.1 Change models for business models (Linder & Cantrell 2000)

In this line of thinking there are many similarities to categorizing innovations based on their “radicalness” into incremental, really new/ discontinuous and radical innovations. (Garcia & Calantone 2002).

As noted in the previous section, capabilities to develop business models are needed - this is especially true in the developing countries, where business skills are not as developed in terms of operating in the formal and international economy. Just as much, capabilities are needed to understand the fluid nature of the business models, and the need to update them on an ongoing basis. It can be argued that this requires a life-long learning mindset, which is not often promoted in the educational delivery systems of the developing countries. Seen from this viewpoint, innovation promotion should support constant learning processes. The objective is to see, assimilate and reconfigure new knowledge (i.e. enhance absorptive capabilities) to identify and capture business and social opportunities on an ongoing process, and not a one-time affair.

4.1.2 Developing an offering

The term *offering innovation* refers to innovation that may include product, service and customer interaction components as presented in the figure below. In addition, offering may be incremental (small improvement of an old offering) or radical (development of a completely new offering)

(Christensen 1997). A more thorough categorization of innovation in relation to their radicalness is provided by Garcia and Calantone (2002), who have divided innovations into three categories: i) incremental; ii) really new; and iii) radical.

Radical innovations are innovations that cause marketing and technological discontinuities on both a macro (world, industry or market) and micro (company or consumer) level. Incremental innovations occur only at a micro level and cause only a marketing or technological discontinuity but not both. Really new innovations are between these two extremes (Garcia & Calantone 2002).

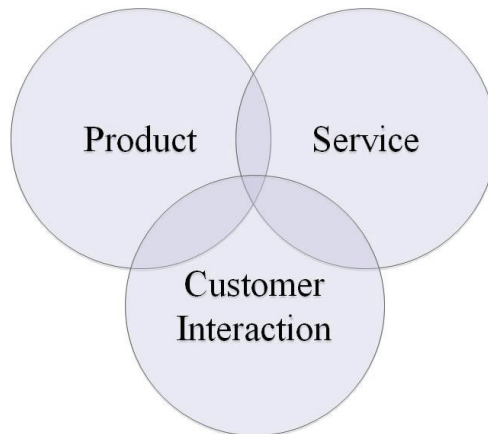


Fig. 4.2 Elements of offering innovation

Our approach dealing with developing countries focuses on innovations where all components of the offering are taken into account. All types of offering innovations in terms of their radicalness are also included in the focus

Next the concept of offering is clarified from three viewpoints: goods, services and customer interaction.

4.1.3 Goods (Products)

Goods are something sold by an enterprise to its customers. The goods are determined type of offering which is engineered, discrete and physical. Dealing with goods (products) Ulrich and Eppinger (2003) introduce several categorizations which are seen to be useful in determining the required resources and capabilities that need to be in place for offering innovations to be feasible: market-pull products, technology push products, platform products, process-intensive products, customized products, high-risk products, quick-build products and complex systems.

In the **market-pull product** situation a firm begins product development with a market opportunity and then uses whatever available technologies are required to satisfy the market need. In developing **technology push products**, the firm begins with a new proprietary technology and looks for

an appropriate market in which to apply this technology. A **platform product** is built around a pre-existing technological subsystem (a technology platform). Examples of such platforms include the tape transport mechanism in the Sony Walkman, the Apple Macintosh operating system, and the instant film used in Polaroid. Huge investments were made in developing these platforms, and therefore every attempt is made to incorporate them into several different products.

Examples of **process-intensive products** include semiconductors, foods, pharmaceuticals, chemicals, and paper. For these products, the production process places strict constraints on the properties of product, so that the product design cannot be separated, even at the concept phase, from the production process design. Examples of **customized products** include switches, motors, batteries, and containers. Customized products are slight variations of standard configurations and are typically developed in response to a specific order by a customer. **High-risk products** are those that entail unusually large uncertainties related to the technology or market so that there is substantial technical or market risk. Design reviews must assess levels of risk on a regular basis, with the expectation that risks are being reduced over time and not being postponed.

For the development of some products, such as software and many electronics products, building and testing prototype models has become such a rapid process that the design-build-test cycle can be repeated many times. This process takes advantage of the fast prototyping cycle by using the result of each cycle to learn how to modify the priorities for the next cycle. Large-scale products such as automobiles and airplanes are complex systems comprised of many interacting subsystems and components. Developers are assigned the special challenge of integrating components into the subsystems and these into the overall system.

In thinking about innovation promotion in the development context it is necessary to think about the nature of the offering and the goods & products intended to be produced. This has a strong bearing on the resources and capabilities needed.

4.1.4 Services

Service innovations differs from innovation in physical goods (products) due the their intangible nature and the fact that they are often produced and consumed at the same time. As service offering is more or less inseparable from its production, the term “service innovation” can be understood to cover both innovation in service contents and innovation in the production system. Many researchers include such categories as innovation in the service concept, client interface, delivery system and technological options under the umbrella of service innovation.

In this classification, innovation in the service concept includes the development of service characteristics. Innovation in client interface refers to changes in marketing and activities in the client interface. Innovation in the delivery system covers changes in the internal organisational arrangements, which includes production processes and arrangements, as well as skills and competences of service produce (Jong & Vermeulen 2003). For example, Edvardsson *et al* (2000) define the outcome of a development process as prerequisites of a service. These prerequisites include service concept, service system (resources) and service process.

Johne and Storey (1998), on the other hand, define organic business development to include offer development, process development and market development. Offer development, in their model, consists of development of core product attributes as well as product augmentation development, e.g. development of the processes that take place in service purchase, evaluation and consumption. Based on Booz *et al.*'s (see Johne & Storey 1998) classification, they further divide product innovation into new-to-the-world products, new product lines, and additions to existing product lines and improvements to existing products.

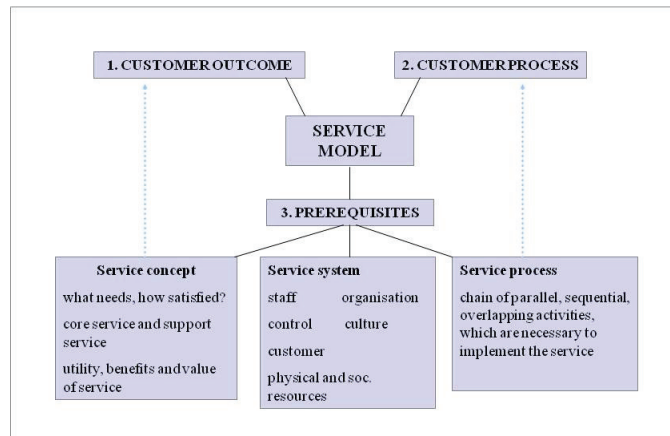


Fig. 4.3 Service models (Edwardsson 2000)

In Gallouj and Weinstein's model (Gallouj & Weinstein 1997), service innovation may involve changes in some of the attributes of service concept or in all of them. In radical innovation, the entire system is changed and the final and technical characteristics of a new product have no common elements with the former one. Improvement innovation means that certain qualities of a product or a process are improved without changes in service characteristics. In incremental innovation certain new characteristics are added to a service. Another form of innovation is recombinative innovation, which means making new combination of various existing characteristics and competences. Gallouj and Weinstein also recognised formalisation innovation, which means changing the degree of standardisation of the various characteristics (Gallouj & Weinstein 1997).

As a conclusion, the extent to which development activities are seen to belong under service innovation activities varies slightly among different authors. There also exist differences in classification of different categories of service innovation. However, most of the authors recognise that service innovation includes not only innovation in the product characteristics but also innovation in the production/delivery system, or at least these two types of innovations are closely intertwined (Tuominen *et al* 2004).

4.1.5 Customer interaction

The theoretical foundation of customer interaction is built on two pillars: theories of expertise and theories of customer-orientation. Thus, in the following a short review to customer orientation and expertise theories is presented.

Expertise and customer orientation

Traditionally, expertise is being conceptualized as a characteristic of an individual possessing a rich knowledge base and extensive experience from a certain domain. In many definitions expert is attached to a long and high-degree scientific education (Saaristo 2000; Kontinen 1997) and long experience in a domain (Kirjonen 1997). The traditional conception of expertise has changed as new ideas and innovations emerge all the more often from interfaces of traditional domains of expertise and are all the more seldom achievements of single individuals and organizations. Lehtinen & Palonen 1997; Launis 1997; Eteläpelto 1998). This strongly points to collective expertise. Collective expertise shows in ability to act together to solve new and changing problems (Launis & Engeström 1999). The need to build collective expertise in front end context shows in the recommended cross-functional organizing of front end -processes, and in the active integration of customers and other stakeholders in the process.

The context -based definition of expertise manifests that expertise is not a universal position that is gained once and kept forever (Lehtinen & Palonen 1997, Eteläpelto 1998). Instead, it suggests that all expertise is bound to the context and the situation in which it is applied. Accordingly, expertise is defined in each situation according to the current frame of interpretation and problem-definition (Saaristo 2000). This kind of an approach offers a possibility to theoretically integrate and clarify the debate in literature concerning the usefulness of customer orientation by examining different innovation contexts. Currently, empirical evidence about the relationship between market-orientation and performance is inconclusive (Atuahene-Gima 1995), because there are both studies that argument on behalf of customer orientation (Cooper 1999; Montoya-Weiss & Calantone 1994), and others that take an opposite viewpoint. Customer-orientation has been criticized for leading to incremental and trivial product development efforts; myopic R&D programs and confused business processes (Atuahene-Gima 1995; Frosch 1996).

Salomo *et al.* (2003) claim that customers may have more knowledge about their needs and better understanding about the relevant product- and service requirements than the organization developing the new concepts. Also, Cooper states that successful businesses have a “slave-like” dedication to the voice of customer. However, Thomke and von Hippel (2002) state that even if customers knew what they want they are not able to transfer that information neither clearly nor completely. Furthermore, Christensen and Bower (2004) state that existing customers can constrain a firm’s ability to innovate because innovations may threaten their current way of doing business. Consequently, firms might then “age” along with their customers by becoming gradually captives of their own history of actions and cognitions (Danneels 2003).

Naturally, there are different customers. Very often, a difference between “ordinary customers” and “lead users” (Von Hippel 1986) is made. Lilien *et*

al (2002) carried out a performance assessment of the lead user concept in the idea-generation of new product development and found that lead user ideas were significantly newer than ideas generated by non-lead user customers. Also they found that lead user ideas address more original or newer customer needs, thus having significantly higher market share and a greater potential to develop into an entire product line. However, Neale and Corkindale (1998) state that lead user method is a demand-driven technique for new product development and Ulwick (2002) states that lead users may offer product ideas but since they are not average users their recommendations might lead the organization to develop products that have limited appeal in the markets. Furthermore, Atuahene-Gima (1995) found in his own study that market-orientation contributes to the success of incremental new products but has an insignificant affect on the performance of radical new products. Finally, Atuahene-Gima (1995) states that in less-turbulent environment market-orientation is relatively less important than in turbulent markets while for example Jarowski and Kohli (1993) found that market orientation is important irrespective to the competitive intensity.

Tynjälä (1999) defines expertise as a process producing continuously developing know-how. This makes it possible to examine expertise from two viewpoints: from the viewpoint of the process in which collective expertise is built and from the viewpoint of output and study more closely the relationship between the two. Within the process viewpoint there are two essential elements: the substance and the communication. This highlights the fact that no matter how strong the competence in front end is on individual or on organizational level, it can not be leveraged unless it can be communicated. This viewpoint allows to demonstrate that the long range success in organizations does not build on single outputs of innovation process but on managing process itself.

Finally, a viewpoint of open expertise is taken into the theoretical framework which suggests that if expertise is built on substance *and* communication context-bound it means that expertise can not be acknowledged or rejected beforehand. Instead, any relevant knowledge or skill presented by anyone is considered equally important.

This view is particularly important in the front end of innovation since it encourages open-minded thinking in front end and makes possible to theoretically study and ground the importance of striving to look for new sources and new ways of gaining information about customers. Danneels (2003) claims that an organization only learns about the section of customers with which they interact. Consequently, Kim and Wilemon (2002) state that there are instances when it is wise to ignore current customers. Especially in conditions of high uncertainty strategies that concentrate on finding more information prove to be inadequate, instead strategies that concentrate on finding new types and sources of information should be applied (Neale & Corkindale 1998).

User-led innovation

The thinking in increasing customer interaction, taken together with the ideas linked to open innovation, co-creation and users as the originators of innovations lead to thinking of innovation as a user-led process. This appears to be particularly important in thinking about innovation promotion in the context of developing countries.

Classen *et al* emphasize the importance of creating possibilities for participation for the most marginal ones in local communities (Classen *et al.* 2008). This is often seen to require extensive external facilitation. In developing countries it is particularly important to understand the needs of customers and depart from the limitations that customers face, that is limitations in regards of money, and on the other hand the benefit offered to customers. (Chandra & Neelankavil, 2008)

In thinking about users as innovators, it is essential to assume that users are capable and willing to act as innovators. While this may be seen to be banal to voice explicitly, it had been recognized that support mechanisms that aim to promote innovation often assume that capabilities exist where none are to be found. People in developing countries are recognized to possess significant knowledge and local resources. From the viewpoint of innovation activity they need to be mobilized through providing them with tools and practices to needed to participate in creating products that fulfil their needs better (Von Hippel 1998, 2005; Jeppesen & Molin 2003; Gassmann 2006; Von Hippel & von Krogh 2003).

The significance of user communities in innovation activity is another issue that needs to be taken into account. Existing communities can and need to be utilized for innovation promotion and new innovation communities need to be built up; the approach is to build up an environment conducive to the revealing of ideas, in which users benefit more from revealing than from hiding their ideas.

Living labs

Living labs include users in the innovation activity and give them a possibility to get familiar with and test new ideas, prototypes and products and that way influence in product development so that products that fit their needs and financial resources are more likely to come out. Living labs bring producers very close to the actual every-day practices of people and enables them to learn about the needs and wants of people

In living labs innovation becomes a part of lives of people; this is seen to promote a culture of innovation and development within local communities. Testing products and participating in development work would create local people technological and development competence. Classen *et al.* (2008) discuss a case where a group of farmers were trained to test out new techniques and crop varieties. Members of this group are taught to plan, execute, evaluate and analyze formal experiments to resolve agricultural challenges faced by their community and share those results within the community to others (Classen *et al.* 2008).

4.2 Managing the innovation process

One critical question is how to control the front-end phase of the innovation process while simultaneously maintaining the innovativeness and assuring the company's short term and long-term objective achievement. Contingency theorists and many others have acknowledged that the degree of task uncertainty influences the optimal way of organizing management processes (see e.g. Tidd *et al.* 2001; Burns and Stalker 1966). Thus innovations including different degrees of task uncertainty, e.g. incremental or radical product innovations need also different control approaches.

A variety of models and formal process descriptions for managing innovation processes and activities are presented in the literature. The roots of such models lie in the product development literature. The PDMA (Product Development & Management Association) handbook defines the product development process as “*a disciplined and defined set of tasks and steps that describe the normal means by which a company repetitively converts embryonic ideas into salable products or services* (PDMA, 2002 p. 455). The definition emphasizes the importance of having a systematic approach towards the management of different kind of innovations. The most useful processes are clear and structurally detailed enough, are committed to company wide, have top management support, are managed according to the business goals and integrated with other business processes, and are flexible enough to enable effective and efficient innovation activities in different contexts (Davidson et. al. 1999).

A widely applied model for managing new product development and also the front-end phase is the Stage-Gate -model (Cooper, 1998). The model for the front-end phase includes three phases and three decision gates. The Stage-Gate model is one of the most linear and formal process models presented to manage the front-end phase. An opposite process model, i.e., the non-linear and informal process model, is a new concept development model (Koen *et al.* 2001). The model consists of three key building blocks: a) five front-end elements, b) the engine which is fuelled by leadership and innovation culture, and which nourishes and gives power for the elements, and c) external influencing factors such as organizational capabilities, business strategy, and the enabling science.

The front-end elements are: *The Opportunity Identification* - which identifies the opportunities (both business and technological) worth pursuing in relation to business strategies, *The Opportunity Analysis* - which translates the identified opportunities into specific business and technology opportunities, and conducts the first technology and market assessment; *The Idea Genesis* - which develops the opportunity into a concrete idea, *The Idea Selection* – which focuses on finding the most valuable ideas from the business point of view by using different selection models and tools, *The Concept and Technology Development* - which includes estimating the business potential, customer needs, investment requirements, potential competitors, technology unknowns, and the overall project risk of the idea.

Between two above extremes, there are several other process models for managing the front-end phase of the innovation process. The product development process developed by McGrath (1996) includes two phases for the front-end: concept evaluation, and planning and specification. Cagan and Vogel (2002) have introduced a process-model for the front-end including a series of funnels. Khurana and Rosenthal (1998) have proposed a holistic approach to the front-end phase, including strategic-level foundation elements and project-specific elements. They emphasize the importance of this distinction because the two levels require different management skills and level of influence.

Poskela *et al.* (2005) noticed empirically that the most important activities in the front-end phase are customer need assessment, idea generation, technology verification, concept testing, task definition, concept development, idea screening and selection, opportunity identification, task definition, and business analysis. The results also indicated, that the front-end phase reflects the characteristics of the specific innovation context. The

radical innovations went through a series of different development cycles. Incremental cases where the development idea was more mature included only one comprehensive front-end development cycle. That supports the idea that innovation process models should be tailored or used flexibly to manage different types of innovations. The critical mission of front-end process model development is to find an appropriate balance between formal coordination mechanisms and activities fostering creativity. The fundamental task of any process model is to coordinate the efforts of different individuals and functions to share and integrate their specific knowledge (Poskela *et al.* 2005).

4.2.1 Front-end of innovation process

According to Hertenstein and Platt (1998) about 75-90% of the final costs of new products have been determined at the front end phase of the innovation process. However according to recent studies, the front-end phase represents the weakest and most troublesome phase of the whole innovation process, and at the same time it provides one of the greatest opportunities to improve the overall innovation capability (Reid & de Brentani, 2004; Nobelius & Trygg, 2002; Kim & Wilemon 2002; Koen P. *et al.* 2001 and Zhang & Doll 2001). The front-end phase nourishes the new product development project phase by developing defined opportunities and ideas into new incremental and radical product concepts. The outcome of front-end phase is a well-defined product concept, clear development requirements and a business plan aligned with the corporate strategy (Kim and Wilemon 2002). In addition, the front-end phase should result a decision on how the product concept will be developed further. The front-end phase has a very strategic nature since important strategic decisions related to e.g. target markets, customer needs satisfaction, value propositions, expected product price and product costs, the main functionalities of products, and the predominately used technologies are all made at this stage (Wheelwright and Clark 1992). These decisions embodied in a product concept define and guide the subsequent development activities later in the innovation process. An important activity in the front-end phase is also to ensure that decisions and choices serve the best interests of the company and fulfill its short term and long-term strategic objectives.

The front-end phase shows often characteristics of high uncertainty and ambiguity, while the development project phase shows characteristics more of formality and certainty. Zien & Buckler (1997) characterize the front-end phase as experimental, requiring high tolerance for uncertainty, ambiguity and chaotic phenomena, and willingness to consider the unreasonable.

They further stress that the front-end phase requires a different management culture and approach compared to the other phases of the innovation process, i.e. a development project or a commercialization phase. Koen *et al.* (2001) emphasize that just because of the different nature of these phases, many of the management practices and activities applicable for the development project phase are inappropriate for the front-end phase. The importance of studying different phases of the innovation process separately has also been discussed by Olson *et al.* (1995).

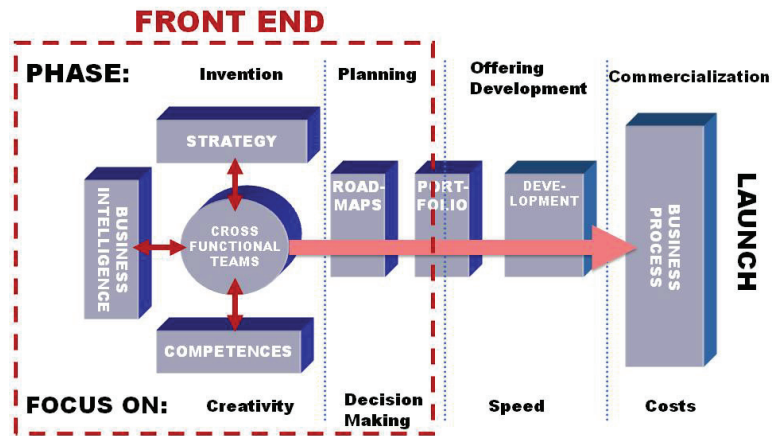


Fig. 4.4 The front-end phase of the innovation process

The literature identifies the strategic level front-end elements that form a basis for the operative level front-end activities to succeed, and necessitate company-wide support and top management participation (Khurana and Rosenthal 1998). According to Khurana and Rosenthal, these strategic foundation elements are a clear product strategy, a well-planned portfolio strategy and organizational structure (Khurana and Rosenthal 1998). The product strategy includes the formulation and sharing of the strategic vision, a product-platform strategy and a product-line strategy supporting and facilitating decision making in the NPD. In addition to the strategic consideration of NPD initiatives, portfolio management considerations of existing products and ongoing development projects also need to be taken into account. In the innovation management context, this means the assessment of existing gaps in the offered product selection, potential risk aspects of development initiatives, and long-term market potential of planned products. Structural issues include the decisions and implementation of the relevant organizational structure, communication channels, as well as roles and responsibilities (Khurana and Rosenthal 1998). Zhang and Doll, in turn, propose internal powerful product champions, the involvement of external parties, and the way of organizing innovation activities as important foundation elements of the front-end (Khurana and Rosenthal 1998).

The front-end models presented by Cooper (1998), Koen *et al.* (2001, 2002), McGrath (1996), Cagan and Vogel (2002), Khurana and Rosenthal (1998), and Nobelius and Trygg (2002) include different front-end activities that are considered to be important in successful front-end execution. Based on these models and their discussion by the authors, front-end activities at the operative level can be summarized to include the following activities: opportunity identification, task definition, idea generation, idea screening and selection, concept development, concept testing, customer need assessment, technology verification, business analysis, and project planning. These are the concrete work activities that upper management tries to influence by implementing control through different control mechanisms. The essential elements of these activities are briefly explained in the

following chapters in order to illustrate what actually happens in the front-end phase at the operative level.

4.2.2 Foresight and scenarios

Richard Slaughter (1995) envisages that the 21st century will be a catastrophe period, because unresolved systemic problems will create instabilities: “environmental and cultural systems could ‘flip’ very suddenly from one state to another.” Garry D. Petersson *et al.* (2003) note that traditional planning is frequently based upon the belief that the application of professional expertise to achieve well-defined goals will ensure efficient and effective management. Slaughter (1995) states foresight as the “deliberate process of expanding awareness and understanding through futures scanning and the clarification of emerging situations and management needs. Foresight also provides business executives with ways of seeing the future with different eyes and fully understanding the implications of alternative technological and social paths. Tsoukas & Shepard (2004) note that we must accept that the future is inherently open ended.

That means that there are limits to the extent we can forecast, but at the same time it makes possible an active attitude to plan what is to come. Because the future in a way or other is created by human beings it is also possible to influence what is to come relevant. According to Tsoukas & Shepard (2004) an organization becomes perceptive when it sharpens its attention through helping them to spot differences between how things canonically and routinely should be and how they actually are and might be. They also states that the point is not forecasting exactly what might be, rather by juxtaposing what should be and what is the tension that activates the organizational sensory system can be activated. The objective of foresight is not only predicting the future but to ascertain meaning to present activities. As insight into complexity, uncertainty and change has itself become an area of business competition, the field of industry foresight has grown up to provide theoretical and practical tools to improve this ability.

Denis Loveridge (1999) states that foresight is not a way to get a definitive picture of the future, but its creative thinking about the future and elicitation expert views are an important source of information for scenario planning. Scenario planning is a systemic method for thinking creatively about possible complex and uncertain futures. Scenarios were initially developed by Herbert Kahn in response to the difficulty of creating accurate forecasts (Kahn & Wiener 1967). Unlike forecasts, scenarios stress irreducible uncertainties that are not controllable by the people making the decisions (Petersson *et al.* 2003). The central idea of scenario planning is to consider a variety of possible futures that include many of the important uncertainties in the system rather than to focus on the accurate prediction of a single outcome Tsoukas and Shepard (2004) states that scenario planning recognizes the inherit uncertainty and tries not to reduce it but to be aware of it seeing uncertainty as an opportunity. Denis Loveridge (1999) says that scenario requires learning about activity in many different fields that may be described under the general headings of social, technological, economic, ecologic, politics and values.

Petersson *et al.* (2003) states that scenarios are alternative, dynamic stories that capture key ingredients of our uncertainty about the future of a study system. Scenarios are constructed to provide insight into drivers of change,

reveal the implications of current trajectories, and illuminate options for action. Although trends, expert predictions, visions of the future, and models are all parts of scenario-building exercises, they should not be mistaken for scenarios themselves. Scenarios may encompass realistic projections of current trends, qualitative predictions, and quantitative models, but much of their value lies in incorporating both qualitative and quantitative understandings of the system and in stimulating people to evaluate and reassess their beliefs about the system (Greeuw *et al.* 2000).

Useful scenarios incorporate imaginative speculation and a wide range of possibilities; those based only on what we currently know about the system have limited power because they do not help scenario users plan for the unpredictable. According to Petersson *et al.* (2003) a scenario describes a possible situation, but the term has been used in a variety of ways. One common use of scenario refers to the expected continuation of the current situation—for example in the statement that “under the current scenario, we anticipate that the species will become extinct in the next 10 years.” Another common use of scenario derives from systems models. The results of integrated computer simulation models depend on assumptions about the extrinsic drivers, parameters, and structure of the model.

Foresight methods, models and tools helps organizations interpret the new business opportunities inherent in change, and innovate accordingly, while managing uncertainty and minimizing risk. The Delphi survey is one commonly used for widespread consultation in foresight programmes. In that sense the Delphi method and foresight tend to be interdependent and the essentials of the process have a pervading influence on the information a foresight programme creates for use in scenario planning. The Delphi technique is in essence a series of sequential questionnaires or ‘rounds’, interspersed by controlled feedback, that seek to gain the most reliable consensus of opinion of an ‘expert panel’. The technique has been used widely in business, industry and health care research with a variety of methodological interpretations and ‘modifications’. The main advantage of the Delphi is reported to be the achievement of consensus in a given area of uncertainty or lack of empirical evidence (Delbecq *et al.* 1975; Dawson & Barker 1995). Delphi participants bring a wide range of direct knowledge and experience to the decision-making processes. From another viewpoint Jones *et al.* (1992) remark on the benefit of few geographical limitations. Sackman (1975) notes that the consensus approach may lead to a watered down version of the best opinion. Sackman (1975) also proposes that one of the key principles of the Delphi, anonymity, may lead to lack of accountability of views expressed and encourage hasty decisions.

To recognize new business potential and to develop new offering and business models there is a need to have more documented and transparent picture of emerging possibilities and challenges. Foresight and scenario work are useful practices to scan the bio-industry environment and create a common basis for future discussions. Delphi survey is an adaptable method to produce alternative scenarios and focus the research and development work.

4.3 The Finnish innovation ecosystem: some issues

4.3.1 Innovation strategies: case of Finland

This section examines the new Finnish innovation strategy; this is seen to be useful as a benchmark that can be used as a point of reflection for the promotion of innovation in the development context. The innovation strategy consists of the following points:

Innovation activity in the globalised world: Finland has to create supreme value-added to innovation activities to attract more R&D investments. Finland has not managed to attract enough R&D investments and this requires active marketing and branding; as an example the Greater Helsinki Promotion and Otaniemi Marketing have intensified their efforts to attract foreign direct investment to the region.

Demand- and user driven innovations: In the modern innovation concept, the user and customer are positioned as a starting point of innovation. As most technology is widely available, the key of the success is how to find the underlying customer needs and package the technology in the way that it creates value for the customer. In the open innovation environment, the customers and enterprises work together on the innovations tapping into the tacit customer needs creating new kind of markets.

Innovative individuals and their communities: Innovation policy is strongly linked with the economic policy, encouraging entrepreneurs through extending right incentives and supporting structures. Business investors are encouraged to invest in the promising start-ups. As an example, Tekes has launched a program for New Innovative Enterprises, TEM launched a new virtual accelerator program called Vigo for speeding up the growth and financing processes of the Finnish start-ups, while VeraVenture provides in seed or first-phase financing

Systemic Nature of the Innovation System: An innovation policy has to be logical, consistent and target oriented. The work pursuing new standards and policies has to be conducted across the country or even in the international scale. Matching, harmonizing and integrating bottom-up is seen to be raising de-facto standards. and the strategic leadership in the public sector has a pivotal role to play. The pioneering work of the Nordic countries to create a single mobile communications market is a prime example of such harmonization efforts.

Implementing the Finnish innovation strategy

In order to implement the innovations strategy shown above, a ten-point agenda has been created:

Points addressing the innovation environment:

- i) Upgrading the management of state government as a global forerunner of the systemic modernisations.
- ii) Updating the national landscape of the expert and financing service for the needs of demand and user-focused innovation activities.

- iii) Adjusting the strategies of different actors implementing innovation policies to the national innovation policy.
- iv) Developing the Finnish research and university system into an internationally competitive developing for competence and innovations.

Points that address business modelling and offering:

- v) Forming strategic clusters focusing on certain industries and areas.
- vi) Creating and utilising new market and competitive instruments that encourages enterprises and communities widely to engage into the innovation activities.
- vii) Modernising the financing and service system of start-ups into a clearer and consistent ecosystem that serves both the entrepreneurs and investors.

Points that address innovation processes:

- viii) Taking a Finnish leadership education up to an International top level.
- ix) Developing a learning environment to Finland that facilitates and encourages innovativeness.
- x) Improving an income tax system and other aspects that affect the Finnish attractiveness to foreign professionals.

As can be observed from the listing the implementation agenda for the innovation strategy rests on elements that help to establish an enhanced innovation, environment, while paying attention to improved possibilities to develop both business modelling and offering, and not forgetting the demands that innovation processes have on capabilities and skills of individuals and organisations.

4.3.2 Issues with business promotion in the Finnish innovation system

This section examines business promotion within the Finnish innovation system, through business stages, business support mechanisms, by reviewing the key challenges that businesses face when in the incubation, start-up, growth and re-structuring stages. The objective is to introduce the system to the reader; it can be used as benchmark when making comparisons across nations and contexts.

Stage-wise business support mechanisms

Three main stages are identified in terms of business promotion: start-ups, growth companies, and re-structuring of existing businesses. The start up stage in this study is further divided into pre-incubation and incubation stages. This division is somewhat artificial (the reality is somewhat more complex), but it is used here to simplify the challenges and support mechanisms that these, fairly generic business development stages demonstrate.

Generally speaking, the challenges that face businesses in each one of the stages are somewhat different, and thus mechanisms for supporting business development also vary somewhat. Three issues tend to manifest themselves

in all stages, but in varying ways and weights: The lack of know-how and knowledge, the lack of networks and connectedness, and the lack of access to resources (in many cases finance).

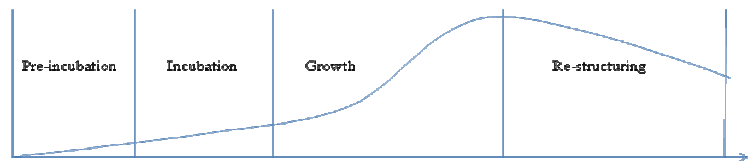


Fig. 4.5 Business stages

A pre-incubation start-up is considered to be a company or a team that has a business idea and is in the process of drawing up a business plan. The company is in formation or the incorporation has recently been carried out. The pre-incubation usually lasts from three months onwards.

Generally speaking, the incubation start-ups have been incorporated, a business model, offering and plan exist and there may be one or more employees in the company. The start-up may be located in a business incubator or outside one. Typically this stage lasts up to two years during which the entrepreneur is actively pursuing the initial goals set in the business planning. The offering may exist or be in development still.

The growth companies have graduated from the incubation programmes or are reaching a growth track through other means and are actively pursuing strategies that aim for growth. It should be noted that many firms never develop growth orientation, but remain small after the initial start-up stages, either through choice or circumstance. The EU commission gives a five year limit to the young companies; the same limit that Tekes imposes to the start-ups that are applying for the New Innovative Enterprise (NIY) financing.

Companies in re-structuring are companies that have already developed in their industries that are looking for new opportunities by developing new technologies, new business models, or new offering, either through incremental or radical innovations. The companies tend to be large or medium-sized, and the re-structuring can lead to the creation of spin-offs (such as Outotec from Outokumpu) or the transformation of the company by shifting the focus onto a different industry, investing in new sectors and technologies and divesting the old ones. Often this re-structuring is caused by radical alterations in the operating environment, that forces change upon companies. A more proactive search for opportunities drives other companies.

4.3.3 Challenges: Lack of know-how and knowledge

The pre-incubation companies and teams are observed in many cases to lack both the business competence and right tools for business development, in both to the commercialization of the product or the service and the actual setting-up of the enterprise. Often the teams are homogeneous ones with technological background but lack experience in selling, marketing or

business development activities. Inventors lack the know-how on how to commercialise innovation into a viable product. One of the institutes that help the inventors in intellectual property rights and patenting strategies is the **Foundation for Finnish Inventions** (Keksintösäätiö). In addition to the advice, they provide financing similar to **TULI instrument** that is a full 100% grant for feasibility studies. The other instrument that is used for both stimulating the entrepreneurship and giving advice to the young entrepreneurs is **Venture Cup** business plan competition and business idea contests such **Villi Idea** and **IIDA** competitions. The competitions both encourage the young teams to present their business ideas and their juries give feedback on their business ideas. **Pre-incubation programmes** support the development a business idea into an incorporated company. These programmes usually consist of training, tools and networking activities with the emphasis on the start-up phase, combined with grants for feasibility or initial market studies.

With the businesses already in the actual start-up stage, the competence gaps can be fulfilled in two ways: through enhancing the existing the team members' capabilities by sparring, coaching and training, or through connecting them to outside talent. **Coaching** can assume informal forms where the advisor or mentor meets the entrepreneur on regular basis conducting consistent dialogue concerning the business idea and the implementation plan. It should to be conducted with a systematic manner where the current state of the entrepreneur and the business idea is compared with the desired state of the both. More **formal training** usually starts with the basics of the business studies such as sales, marketing, accounting and financial planning, later taking a more case-focused form, helping the entrepreneur to develop their own business idea. Another way to increase the know-how is **bringing in external talent**, either to the operational management or to the advisory board. The operational management here refers the operating management, i.e. when the hired director or the manager takes part in the day-to-day business operations and decisions.

External service providers can provide support functions in recruitment process, or in finding temporary reinforcement of competence, e.g. when the start-up is looking for external capital. For that need, an external CFO/controllers function is an option. Start-ups often miss the insight and contacts that more experienced professionals can bring, either in the actual management of the start-up company or in industry specific experience. The start-up team also often misses the right set of tools with the know-how of using them. Another way to increase the company's know-how is through conducting the market research. In Finland, the government has allocated funding for the feasibility studies of the new innovations, the support has been 100% funded whereas the international market studies have been subsidised but not completely compensated.

4.3.4 Challenges: Lacking connectedness

During the pre-incubation, the teams of the start-ups are usually being formed. In many cases, this involves a course, workshop or a larger company that spins off the team as a supplier, partner or even a competitor. Often a group of friends can act as a starting team of the new enterprise. In Finland, it has been a challenge for the entrepreneurs to form teams that represent different backgrounds and disciplines.

The need for cross-disciplinary approaches has been a key driver behind the new **Aalto University**, uniting the Helsinki University of Technology, Helsinki School of Economics and University of Industrial Art and Design. The new institutional structure incorporates multiple mechanisms to encourage connectedness across disciplinary boundaries, including the **Design Factory**, a living lab and an incubator, the **Aalto Entrepreneurial Society**, and learning programmes such as the **International Design Business Management Program** and the **Helsinki School of Creative Entrepreneurship**.

Companies in incubation programmes are typically provided a number of different kinds of networking opportunities through peer-to-peer support, external professional experience, financiers, NGOs, potential partners and prospective and existing clients and other stakeholders. One of ways to enhance connectedness between parties is to provide a common forum, such as the breakfast sessions for start-ups organized by an incubator service, where networking is combined with interesting and educational presentations. The same idea is with **Entrepreneurial Tuesday**, the event organised by the **Helsinki Metropolitan Entrepreneurship Academy**, an event targeted both to young students and starting entrepreneurs. In many cases, start-ups in the pre-incubation phase are looking for service providers, such as law or accounting firms. Incubator services can either recommend a suitable service provider or subsidise the service if they fulfil the conditions. Experienced professionals often join start-ups first as mentors, both boosting the credibility of the companies and bringing a wealth of contacts that can lead the company to potential clients, financiers or partners.

An arena where the entrepreneurs and business angels, venture capitalists and financiers can meet serves the purpose of creating personal contact between innovators and the funding opportunities. The **PreSeed** program with the **Intro**-platform managed by **Sitra** facilitates this type of networking. **Money Talks Forum** has been a similar kind of forum provided by **Technopolis Ventures**. In addition, **InvestTech Finland** organised by **SpinVerse** facilitates the matchmaking between finance-seeking companies and the financing providers. Like MoneyTalks Forum, InvestTech Finland is organised by a private company, supported by public funding.

In addition to the real-life forums to create contacts, there are also online-tools for the matchmaking in the Internet. **VeraVenture** has created “**SijoittajaExtra**” as an extranet tool for equity investors looking for new promising investment subjects. The coverage of that tool is still limited as it includes only the VeraVenture’s investment portfolio. **Technopolis On-Line** is targeted to all the start-ups and investors in the Finnish start-up scene. The model for Technopolis On-Line is from Israel where such a tool has produced good results.

The non-governmental organisations (NGOs) are important contacts for the start-ups that are considering the internationalisation and expanding to the different markets. Even though the start-ups are not in the primary target group of the investment attraction agencies or regional promotion services, they also offer attractive packages. Technopolis Ventures has organised events where the investment promotion agencies from different countries such as **UK Trade and Investment** have met local start-ups.

For the small company, a key challenge is often to establish a viable contact with a large company. The underlying philosophy of the contact facilitation has been that a single small start-up alone is not an interesting subject to get to know but once there are a number of start-ups together to be met, even large MNCs such as Nokia, NSN or Itella are willing to attend networking functions.

For the growth companies the internationalisation (or globalisation) is the key challenge, and publicly subsidized services such as the **export partnerships** (in Finnish vientirenkaat) have been set up as shared export consultants helping the market expansion and sales efforts of the growth start-ups in different countries. Public funding has also been supporting the internationalisation through offering the international marketing services at subsidized rates. The service provider **Finpro**, formerly known as the Finnish Export Trade Association, is providing services to Finnish companies, while also cooperating with the Finnish embassies and other foreign representative associations. In Silicon Valley, the cooperation has been taken into a more integrated level, as local offices of Tekes, VTT and Finpro have been combined into a single institute called **Finnode**, which also operates in partnership with American companies that are looking for partners in the Finnish market, not only for exporting to Finnish market but also in the area of R&D cooperation. This also facilitates partner searching for Finnish companies.

4.3.5 Challenges: Lack of financing

Financing is bottleneck for a number of start-ups and Finland it has been particularly challenging, as funds have been scarce and the successful start-up exits have been relatively few. In addition, the bad experiences during the early recession of the 90's and the burst of the Internet bubble have taught the equity investors to be cautious. That's why the Government of Finland has been forced to offer the early stage financing for the different stages of the start-up.

For the business ideas that have not been incorporated into companies yet have the possibility to apply for **TULI-financing** that is meant for the market and feasibility studies of the new innovation. The aim of the instrument is see if the invention can be really commercialised. Also the **Finnish Foundation for Innovations** (Keksintösäätiö) provides financing for both the private persons and young start-ups. It could be allocated for the costs of patenting the inventions, commercialising the innovations or even research and development.

For the pre-incubation companies, the major instrument is the pre-phase money in **Tekes New Innovative Enterprises (NIY)** program, a 50.000 EUR grant for the starting up of the operations where the company has to provide another 16.000 EUR as their contribution. The Tekes idea is that the company will produce a complete business plan with the help of the external services and consultants (50% of the grant). The other purpose of the grant is to the conduct its proprietary development activities (50% for own development staff costs). Tekes uses a jury deciding on who is eligible for the money, still using veto over the jury decision if necessary. Other grant is the kick-off granted by **TE-Centre**; it is a grant for a half year for the companies admitted to incubation services. Alternatively, if the company does not want to enter the incubation service, the entrepreneur is entitled to apply for the start-money at the inception of the company.

If the start-up company is looking for aggressive growth, subject to viability, it is eligible for further Tekes NIY financing. Even though the company does not have to give ownership in return of the financing, Tekes follows carefully on the execution of the strategy and how well the company can meet the goals set together. The **Avera** equity investments on the other hand require companies to give shares. The Avera is a state-owned (through **Veraventure**, a subsidiary of **Finnvera**) fund, established to bridge gap for the start-ups as venture firms have been reluctant to invest in the very early stage companies. The fund provides financing, and actively participates in the board work and helps the company to find further financing.

Suitable instrument for the growth companies has been missing from the public funding palette to date, but now the second phase in the Tekes NIY has been established, which is an up to 750.000 grant for promising young companies. This grant is both for the companies that have completed the NIY first phase and meet the goals that have been set during the first phase.

Other instrument of the Finnish government is the **Finnish Industry Investment** (FII) (Suomen Teollisuussijoitus), a governmental investment company that invests the money generated by the state investments. For growth companies, FII is seldom a lead investor but usually acts as a co-investor. It is important to point out that FII also invests in a number of other kinds of companies such as spin-offs, major industrial investments, and sector and corporate restructurings.

The support for the re-constructing companies seems to be focused on monetary support as the re-constructing companies usually can afford to use market-price consulting services. The support depends on the size of the companies, there are more instruments available for the SMEs, for instance the de minimis-support or grant for expert services whereas the big companies usually have the programmes focused solely on the research and development.

4.3.6 Financing R&D in the Finnish innovation systems

Tekes provides a number of instruments for the R&D activities, which can be either grants or loans. Grant is usually for projects of developing technologies or concepts that pave way for developing the new products or services. Usually, there are more uncertainties related to these projects. Therefore, also money can be granted for the studies related to feasibility and commercial opportunities related to these projects. The loans, in turn, are for the projects that already aimed at the development of new product or service. It's worth pointing out that these grants are available for all kinds of SMEs, not only the start-ups.

The Grant for Innovation Services: An SME can also apply for the grant to the external expert services; it supports the companies in the long term business development, such as commercialisation of the innovation or supporting the internationalisation. The difference between HelpDesk services and the Grant for Expert Services is that the latter will only be given to the complete projects where there can be several service providers meanwhile the former was given to a single service with a single provider. It is also worth pointing out that all the SMEs can apply for this support, not

only the young companies. However, direct overlapping between the NIY program and the grant is not permitted.

De Minimis –support: The SMEs can receive de minimis -support for its innovation activities. The support is intended to encourage the SMEs to develop their technologies and commercialise them. It is worth pointing out this support is available to all the SMEs regardless of their age. The support is exceptional in the aspect that the company can fairly freely define the objective from R&D to business development.

Preparation funding for R&D by TE-Centre: The SMEs can also apply for preparation funding for R&D which could be used for the preparing the R&D projects, such as market studies or business plans for the new projects. Usually, the project funding has to be allocated to purchase external services.

The R&D support for large companies: Large companies are eligible for financing from Tekes to encourage them to start challenging long-term research projects and increase cooperation with SMEs and research organisations. The objective of the projects is increase competences that can be capitalised in form of new products, services or processes. This also includes business competence.

Tekes Programmes and clusters: The programmes and clusters are the shared ways in which companies can benefit from public-private partnerships. This can offer a large pool of resources for R&D to the participating companies. However, the companies can also conduct their own R&D projects as part of the programmes. The clusters favour collaborative work with the other companies, universities and research institutes.

4.3.7 Innovation promotion in the Finnish innovation system

The following observations have been made by examining the Finnish innovation strategy together with the current Finnish business support instruments. They illustrate the current issues.

It is noted that within the Finnish system, non-monetary instruments are usually intended to the young SME companies and the support channelled through incubators or associations like Venture Cup and Finnish Foundation of Innovations. Financing for business development is mainly aimed at young innovative companies, but the research and development financing is available for all the companies with different conditions depending on the size of the applicant. For the re-structuring companies, there is public venture capital public money available in addition to the R&D money, with the Finnish Industry Investor acting as the investor. Apart from the equity investments, New Innovative Enterprises (NIY) programmes and the R&D financing, the monetary support is directed to procure external services that are identified by the actors themselves.

Basically, the new innovation strategy imposes higher requirements for the start-ups and growing companies, in which technological novelty by itself doesn't justify giving support and financing to the company. The organisation needs to have a story in place that includes a team, a value

proposition and a business plan. The start-up does not have to have all these elements in place but it has to show fast advancement on the learning curve. For the companies in the reconstructing, the new strategy means that the companies can benefit better from the collaboration with clusters and public institutions, particularly in the international scale. This means that the companies don't have to necessarily invest in R&D themselves but use the leverage that they can get from the public-private-partnerships.

In **incubation companies**, the business idea does not have to contain technological novelty; it could be based on the user need. Conversely, the technological novelty does not necessarily imply that the idea is attractive; it has to demonstrate that it creates value to somebody. This also emphasises the importance of credibility of the founding team, do they understand the industry and the clients of the possible innovation. Joining strategic clusters, intended to support whole sectors of industries, usually means positive news to incubation companies, as the networks help the start-ups to understand the big picture of the industry, and to understand better the possibilities and opportunities in the business environment they are living in.

On the other hand, being a part of the strategic cluster also means being somewhat exposed; therefore a start-up has to know what to tell and what not to disclose. It also requires the start-up to protect the patentable innovations so that the potential or existing competitors. For the start-ups, one of the consequences of the re-structuring the financing and service system is that there is more financing available faster. Until this year, all the promising companies have got some financing. Currently the most promising companies get more financing than before. However, the beneficiaries of the financing tend to be more carefully selected. This sets higher requirements for the teams that they should sharpen up the business idea faster and also show the capability to execute it faster. That's why it might pay off to first incubate the idea longer before applying for financing. However, this might be difficult if the window of opportunity is open only for a short period of time and the idea needs quick execution. Therefore, incubators and external advisors are highly needed in the application process.

The movement towards the open innovation systems means that the **growth companies** might able to purchase or acquire key ideas from the outside. One of the examples is the Nokia Innovation Mill –project where Technopolis and Tekes go through the Nokia's portfolio of unused patents and intellectual property. The challenge is how find match between the companies and innovation. Streamlining the structure of the innovation systems has placed Tekes in many ways on the drivers seat of the innovation promotion systems. They coordinate the Vigo-programme, use their veto on the NIY programme and wield considerable power on the Venture Cup, especially in the open series. For the growth companies, it is critical to maintain their close contacts with Tekes and the funding processes; the positive novelty is that now growth companies can access more business development funding than before.

Both strategic clusters and increased cooperation between universities and companies mean that **restructuring companies** can achieve easier access to technologies developed outside of the companies' internal R&D function. Also financing is available for this kind of cooperation. However, this sets demands on the competence to conduct these operations and to e.g. manage the legal issues at hand. If the cooperation takes place in the international

environment, this makes the issues more complicated and sophisticated leadership and expertise are required. The new institutions such as Finnnode in the Silicon Valley enable the restructuring companies to explore new opportunities in the lead markets. Increased financing in the clusters and in university cooperation give more choices to explore both the opportunities of financing and then share the risk of the business development and R&D projects. As the university is going through the profound reform with emphasis on cross-disciplinary and international aspects, this means is that the financing for available for wider spectrum of activities. As an example, instead of pure R&D projects, a commercialisation of a prototype with technical, business and design aspects can be a Tekes funded project.

5. Conclusions and recommendations



The first section of this chapter initially provides some general conclusions and recommendations on development cooperation, instruments, and monitoring and evaluation practices drawn from the review of the previous chapters.

The subsequent section proceeds to develop a framework of four dimensions (Enhancing innovation ecosystem, Developing integrating roles, Strengthening innovation arenas, Promoting innovation capability) that emerge as potential opportunity areas for increasing the impact of the present practice. Recommendations are given in each section.

The clear impossibility of covering every aspect of innovation studies has led to a focus on four key dimensions of promoting innovation in the context of international development; the dimensions are noted to be interlinked and hierarchical. Through enhancing the innovation ecosystems, developing integrating roles, strengthening appropriate innovation arenas, and promoting innovation capability, the practice of development cooperation can approach innovation in a systemic way, matching needs with resources for best practice and high impact.

5.1 General conclusions and recommendations

Initially, two key questions were asked in the study. The first question was formulated as:

Is the current practice of international development cooperation (and related projects/initiatives) relevant to the promotion of innovation and systems of innovation in developing countries?

The second question was posed as:

On a conceptual and general level, are the current MFA development instruments suited to the promotion of innovation in development?

The following two sections review the conclusions related to the two questions that the study set out to answer.

5.1.1 Development practice

In summary, it is argued that the current practice of international development cooperation does not fully support the promotion of innovation in its context. The main reasons are understood to be linked to fragmented and non-integrative support; the fact that capability development and the removal of constraints do not often go hand in hand; the observation that initiatives tend to adopt risk-averse strategies supporting established structures; a weak consideration for the specific nature of innovation; a lack of agility and the incorporation of the idea of constant, even disruptive, change; and finally the notion that current practice mostly supports knowledge sharing, not joint and open knowledge creation: this is akin to redistribution being favoured over new wealth creation.

There is furthermore a lack of systemic thinking in the delivery of aid: the current practice demonstrates a divide between top-down efforts and bottom-up approaches, leading to competition instead of collaboration in many cases. This implies that planned approaches find it difficult to accommodate emerging phenomena, while human inventiveness at the grass roots level is difficult to turn into wealth creation due to inbuilt rigidities.

The stated main objective of the Finnish development policy is to eradicate poverty and promote sustainable development in accordance with the UN millennium development goals. If one argues that human good life is underpinned by economic well-being, and if we accept that innovation is a key driver of growth and economic development, then it follows that innovation promotion has a significant role in eradicating poverty. That being said, innovation does not automatically result in sustainable development. This is perhaps the key challenge in any process of promoting innovation.

Innovation promotion overall could be understood to be linked to all of the Millennium Development Goals, as a cross-cutting theme, just as human rights, gender and health issues are. Specifically it is related to Goal 1, through the perspective of innovation promotion as an enabler of economic growth and thus well-being.

The current development policy of the Finnish government explicitly calls for coherence, complementarity and effectiveness in the practice development cooperation. These elements are well in line with the current thinking of what innovative initiatives are. The policy does not, however, explicitly and widely incorporate the idea of novelty into the equation as an element to be planned for, implemented, and controlled for in any initiative (noting however that the policy does call for new mechanisms in aid). Secondly, the diffusion aspect on innovation is not taken up as explicitly as it could; it is assumed that it is embedded in the effectiveness. Transferability of innovation is a key issue to consider in the promotion of best practice.

5.1.2 Development instruments

It is argued that most of the current set instruments are not fully aligned with innovation promotion. Current instruments do not promote a holistic perspective, but support initiatives in segments or within silos.

Utilizing **direct budget support** or **sector support** instruments implies that the support is essentially directed toward maintaining existing public sector structures and systems within the developing country jurisdictions. It can be argued that these jurisdictions may find it difficult to successfully create and diffuse new ideas or ways of working (i.e. innovation) within their day-to-day operations; this is mostly due to embedded high risk adversity, avoidance of change, and the inertia caused by vested political and economic interests. Governance structures do not often support initiatives that aim for change, especially from within institutional structures. A key observation is that budget and sector support instruments are top-down support mechanisms that may not be well suited to bottom-up contexts; thus not supporting systemic thinking. That being noted, if the local jurisdictions have an innovation agenda, then direct budget can be an effective tool.

Innovation promotion in the form of **programmes** and **projects** is also fraught with uncertainties. Both programme and project approaches in current western development cooperation are essentially built on the premise of a positivist worldview, which implies that exact planning can be done, implementation can be ordered, and control enforced through recognizing and eliminating deviance. This philosophy, inbuilt into e.g. the projects management cycle method does not usually allow for the ongoing incorporation of novelty as it comes along. Limiting or eliminating the ability to accommodate and embrace unforeseen changes makes programmes and projects unfriendly to innovation. At the same time, the process of identifying the programmes and projects usually signifies that they are captured in to the same governance systems as direct budget support. Supporting promising but risky “outliers” of projects is usually not encouraged. Research also shows that official development assistance projects do not tend to demonstrate concurrent presence of novelty, significance, effectiveness and transferability; all these would have to be present at the same time for projects to be considered as innovative. As with budget and sector support, programmes tend to be top-down planned, implemented and controlled, thus not supporting systemic approaches. Projects in turn tend to be planned top-down, while implementation may take place in any context, ultimate control is also top-down, as external donors maintain ultimate say in the funding regime.

That being said, it does seem to be possible to develop programmes and projects that are innovative; this may mean that new methods need to be developed, and attributes such as novelty, transferability and the use of knowledge management tools needs to be incorporated into the initiatives. Projects do allow for the transfer of best practice and expertise, but research indicates that only a series of projects will do this adequately, as the set up of new projects and project management systems from scratch is inherently inefficient.

Supporting **Aid-for-Trade** initiatives and **Public-Private-Partnerships** are seen to potentially enable innovative practice; this will, however, depend entirely of the circumstances, the adopted approach and the individuals that are involved in the planning, implementing and controlling of these activities. In other words, there is no reason why these initiatives could not be innovative, but there is also no reason why they should be; they are not structurally specifically inclined toward innovative practice, even though they do address collaborative issues (PPP) and trade and business development (AfT), both which underpin innovation.

Specifically directed to business and trade development, **Finnfund**, **Concessional Credits** (CC), and **Finnpartnership** demonstrate some potential in terms of innovation promotion. They do not, however, explicitly address co-creation of knowledge, or incorporate user-driven innovations. The wealth creation opportunities tend to be one-sided.

That being said, the limitations in terms of covering risk are seen to be limiting the impact of the Finnpartnership programme; furthermore the onus is on companies already domiciled in Finland, excluding thus new innovative business and start-ups in developing countries. The fund does enable existing companies to develop their partnerships further, and could thus be useful in terms of promoting incremental innovation through existing product ranges. These incremental innovations may be radical ones

in new circumstances; they may also support the transfer of technology and know-how, provided this is an aim of the projects at hand.

The Concessional Credit scheme is essentially export promotion, avoiding high risk and least developed country contexts. Due to the way it has been set up, it tends to support the export activities of large companies, and does not have any impact on developed country start-ups or grass-root business development. As the knowledge is embedded in the goods, it also has a very limited role in technology transfer. The programme is seen to very top-down in terms of management, although it does support indirectly commercial relationships between Finnish and developing country firms and organisations.

The equity-investments, loans, mezzanine-funding, guarantees and co-financing that Finnfund offers to Finnish companies to invest in and operate in developing countries (but not in LDCs) exclude effectively new indigenous business development. Benefits of the programme for innovation promotion could include technology and knowledge transfers, developing skills for individuals that are involved, and enhancing the business base in the target countries.

The funds for **local cooperation** (PYM) and **institutional cooperation** (IKI) hold more promise in terms of promoting innovation in local institutions and business enterprise than the previous instruments, due to their specific nature. The local cooperation fund is able to potentially (but not necessarily) address bottom-up innovation promotion. The use of the fund is limited in practice, though, as it requires human resources at the Finnish representations; also firms are not familiar with the fund, leading to limited impact.

The institutional cooperation fund is still quite new, but it has promise to address a significant aspect of innovation promotion: the co-creation of knowledge between Finnish and developing country institutions. The scheme is lopsided, though, as it addresses only the institutional partners, eliminating the private partnerships.

In summing up, it is noted that no effective mechanism supports systematic knowledge creation; thus failing to support a key area of innovation systems. Current instruments are in most cases very risk averse, and implicitly or explicitly promote unsustainable stability through engaging with structures that are change averse. Current instruments in business development tend to be skewed in favour of Finnish enterprises, and cater less for indigenous needs. Instruments in use today do not allow for, or thrive on, unexpected events as positive driving forces. In many cases, instruments do not necessarily support continuous improvement/innovation, as instruments tend to be one-shot only, albeit seriality exists in some of the instruments. Instruments such as the project management cycle practice are based on a problematic positivist worldview leading to potentially conflicting internal assumptions when used with constructivist development agendas.

5.1.3 Emerging opportunities

While the overall practice of development cooperation is found to be somewhat wanting in terms of the promotion of innovation, there are

elements within the current practice that may contribute towards emerging best practice.

In the first place, a constructivist world-view is often shared between development practice and innovation as a field of practice. Knowledge is seen to be local, shared, and co-created in a social circumstance. This implies that the understanding of knowledge in development and innovation promotion is potentially aligned. The view of innovation as new wealth creation sits well with the objective of eradicating poverty; development initiatives can emerge from the paradigm of redistribution and adopt the idea of co-created new wealth.

Secondly, both innovation, as a field of practice, and development both often focus on enhancing individual capabilities and transferring knowledge. Both field also need to remove constraints that limit the application of individual capabilities.

Thirdly, in the best of cases, existing participatory approaches in development enable individuals and communities to innovate on many levels, through the fact that socially constructed constraints are removed and individual abilities are allowed to flourish. There are encouraging examples of bottoms-up innovation changing the world, especially in areas like micro-credit and BoP, through innovative business models, offering and processes. At the same time, linking systemic thinking in innovation and public-private-partnerships in development is able to integrate parties into collaborative efforts, which can lead to concurrent top-down and bottom-up innovations.

In the fourth place, current development instruments can be developed further. In terms of development instruments, some individual instruments (IKI, PYM, PPP) can be seen to support innovation promotion in specific aspects. The process of setting up and managing these instruments would have to be revised, however, to include active consideration for novelty, transferability, emerging and unforeseeable phenomena, and the co-creation of knowledge. This may pose formidable challenges, and perhaps could only be achieved through outsourcing the management of these instruments without rigid operational constraints (which does not mean that they cannot be monitored, reported on and evaluated in due course with full accountability).

5.1.4 Enhancing development instruments

A series of recommendations emerge from the review of the instruments. These have the overall aim to align development instruments with the idea of innovation promotion. It is argued that, in order for development instruments to support the promotion of innovation they must:

- i) Address the holistic nature of innovation by developing the selection of the instruments to cover the complete business cycle.
- ii) Develop programme and project identification, planning and implementation so that the ideas of novelty, transferability and the use of knowledge management tools are taken into account in all of the steps.

- iii) Generally speaking develop new instrument(s) that can support community level business innovations, through innovative business models and enhanced innovation processes. The current PYM instruments could be a useful starting point, but administrative constraints need attention.
- iv) Generally speaking develop new instrument(s) that can specifically address advocacy issues related to the identification and removal of constraints in governance, administration and management at a level above the communities. This is a key enabler of community level support. Perhaps the IKI instruments could be adapted for this purpose.
- v) Expand the current business partnership programmes so that both preliminary work (feasibility studies) and follow-up work (post-inception mentoring and training) could be included in it, both for Finnish and local companies, and especially partnerships between them.
- vi) Clarify further and expand the Allowance for Local Cooperation mechanism (PYM) to provide agile support to enterprises in developing countries on the local level; perhaps in focal areas identified through research. On need the expansion of tasks could be managed through outsourced management. Also a more extensive allocation could be made to the local companies, maybe even a possible separate allocation for the private sector. The impact of the instrument could be increased when used together with other instruments.
- vii) Create a fund specialised on special risks that could support the business activities in the LDC environment; this could expand collaboration to truly emerging areas, context and ground breakthrough innovations.
- viii) Consider expanding the Finnpartnership program and increasing the flexibility of use. Also, the concurrent use of other instruments such as PYM and IKI should be allowed together with Finnpartnership – overall the joint/serial/cross-use of instruments could be beneficial for enhanced impact.
- ix) The Concessional Credit programme could be made more effective through enhanced administration and by combining financial aid into concessional credit, for example to support the education and developing capacities; this could be mixed credit - preventing at least partly issues with the distortion of the competition.

5.1.5 Planning and evaluation for innovation

Typically planning and M&E activities examine issues such as efficiency, effectiveness, relevance/significance, sustainability, coherence, human rights and gender issues. In the case of the Finnish development policy, these are summed up under the wide topics of coherence, complementarity and effectiveness.

There are three factors, however, that are usually not specifically taken into account, monitored for, or evaluated; these include the elements of novelty,

transferability and the use of tools related to knowledge management. These first two elements are included in the criteria used by the Kennedy School of Government of Harvard University, and adopted in innovation awards in Peru, Brazil, China, Chile, Mexico, Uganda, Tanzania, among others. The list of knowledge management tools has been adapted from European Commission's report on Innovation Management and the Knowledge – Driven Economy (CEC 2004b).

It is suggested that these factors could be incorporated not only in the M&E structures, but also within the issues to be taken into account in the identification and planning stages. Thus they would appear throughout the project cycle.

The first factor, **novelty** is linked to the degree in which the program, project or other initiative demonstrates a leap in creativity. This can be understood through a change aspect: does the initiative propose or represent a fundamental change in terms of how things are done or where they are done? Secondly, is there a proposal to make significant improvements in the process? Thirdly novelty can be assessed through how new is the business model? And how new is the product or service offering? The last item can also involve substantially new technologies. Essentially all of the above indicators are concerned with **inventions** that may exist in the initiatives.

The second factor, **transferability**, is linked to either the proposition (in planning) or observation (in M&E) of how well the undertaking could or is replicated elsewhere; it is also concerned with how well the initiative could or is serving as a model for other such undertakings. Thirdly, it could be assessed how well the individual components, concepts, principles or insights of the initiative at hand would transfer to other contexts, disciplines or even policy areas. The second factor is concerned with the diffusion of the inventions; without which there is no innovation.

The third factor is the planned or identified presence of **knowledge management tools** in the initiative. These are standard tools used in monitoring and mapping, document management, information analysis, decision support, and knowledge distribution and management. As with the innovation award in the previous section, these tools represent the state of the art in knowledge management. The thirty-nine tools are organized into five main categories. It is by no means expected that all of these tools would be used in all of the initiatives, but the existence (planned or observed) of some is indicative of managing the knowledge that is introduced to the projects and programmes, created by them, and recycled into new uses and forms through an assimilation process; this is seen to contribute to the innovation process. The full list of KM tools is shown below, together with a clustering of the tools into manageable and relevant categories.

- i) The use of monitoring and mapping tools (business intelligence, environmental scanning, knowledge mapping, concept mapping, knowledge audits, technology watch, web mining, use of internet search engines, yellow pages).
- ii) The use of document management tools (automatic classification tools, bibliometrics, document management, content management, data warehousing, IPR management).

- iii) The use of information analysis tools (cluster analysis, content analysis, data mining, internal and external benchmarking, semantic analysis, workflow tools).
- iv) The use of decision support tools (communities of practice, CRM systems, decision support systems, PM tools, balanced scorecard, brain storming, case based reasoning, collaborative technologies, executive information systems, SCM, Delphi method).
- v) The use of e-techniques in knowledge distribution and management (corporate intranets, e-learning platforms, groupware tools, voice recognition, creativity software, e-mail, internet).

5.1.6 Learning from best practices in Finland

There are also other types of methods available to be applied in development cooperation besides the conventional development instruments. Collaborative research can address many of the issues that are problematic in innovation promotion: the co-creation of new knowledge, the transfer of learning and skills and the enhancement of innovation capability through an improved absorption capacity.

One of the world-class offerings that Finland could give to development cooperation is the deep experience that exists in creating synergies from the multiple combinations of design, technology and business. In the last decades, multidisciplinary teams have done substantial research and practice into the role of design and technology as elements that create distinctive high value added competitive advantage. This knowledge could be put to the use of development cooperation.

The idea of developing new global business or actors in developing countries through design and technology could be a central approach of university collaboration between Finnish and developing country universities. Design is seen to incorporate three approaches: technical factors, business factors, and human factors. An applied research approach would thus involve the technical feasibility, business viability and the process-factors related to the functioning of the research team (e.g. team diversity, learning, and collaboration). Especially the human factors and distributed learning are currently highlighted.

As an example, this is seen to be particularly important for Vietnamese companies, which have traditionally concentrated on technological factors and are excelling in technological development. The objective of the collaboration in this case is thus to improve the business and human factors of innovation potential of Vietnamese companies with the help of this comprehensive perspective. This will in turn lead to the increased competitive advantage of Vietnamese companies. The main idea is to link management research with design-thinking in a multi-disciplinary way.

Outputs of international research collaborations would be presented in the form of common research papers and research visits as well as in collaborative empirical efforts. This would also include active practice based learning for companies, through multidisciplinary teams that have higher education backgrounds. This model has been highly successful in transforming the Finnish design and technology-intensive business in the last two decades.

Again, as an example, this collaboration could involve creating the structure of the activities, the development of an outline and an organization, securing the cooperation of different parties and setting up a nationally and internationally significant aggregate. It could also involve the development of technology platforms and setting up physical ICT premises, studying innovation activity in industrial and academic projects and educational programs which utilize the ICT technology platform, and examining, developing and intensifying learning processes in both academic and industrial environments.

One objective would be to generate high quality basic research in close cooperation with the participating companies. The purpose is to create a test bed within the participating companies where the researches could monitor and participate in the test group activities. This would generate deep knowledge of the innovation/design process and human factors influencing the successfulness of the project. The goal is to transfer this test bed model, from academic to corporate environments.

As another example, development cooperation could collaborate with the Academy of Finland and Tekes, the National Technology Agency of Finland, in the Finland Distinguished Professor Programme (FiDiPro), which is a funding programme to recruit foreign professor-level top researchers to Finland for a fixed period of time.

The goal of the funding programme is to raise the level of scientific and technological knowledge and know-how in Finland, add a more international element to the Finnish research system, generate added value into the national innovation system and support research-driven profiling of universities and research institutes. The programme is also aimed at creating new kind of international cooperation between basic and applied research and the R&D efforts of business companies.

Within the framework of the funding programme, Finnish universities and research institutes can hire foreign researchers or professor-level Finnish researchers who permanently work abroad for 2-5 years to conduct research together with Finnish researchers and research groups. The researchers shall be internationally highly merited and have strong experience of researcher training.

The benefits of collaboration in the international relations are two-fold. Firstly, by clustering similar but non-competing projects together is possible to create a larger contact surface for the international experts. Secondly, the costs from international visitors can be distributed over several projects and the benefits disseminated to a wider audience with little additional cost.

The benchmarking among researchers supports international dissemination of research results, as the papers are first commented by the collaborating partners and improved by the comments before submitting to a review process. The benchmarking among participant companies offers added value to the participants of each project. By benchmarking practices also among companies that are not focusing on similar problems in the innovation process it is possible to gain a better understanding of one's own position.

5.2 Enhancing innovation eco-systems

The innovation ecosystem, conceptually an expanded innovation system, is the overall framework within which innovation activities take place. It is of interest to see what elements of the innovation ecosystem can be enhanced (and evidently, which ones are worth the effort). By definition the ecosystem includes both top-down and bottom-up elements, as shown in Fig. 6.1. The figure illustrates the complexity when both bottom-up and top-down approaches are used at the same time.

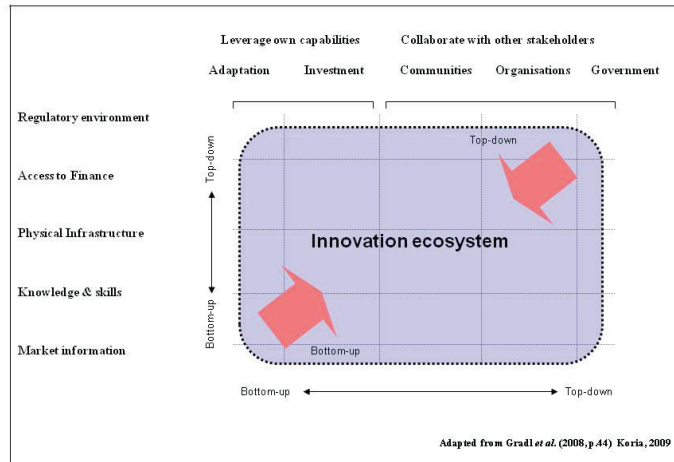


Fig. 5.1 Innovation ecosystem elements

As noted previously, innovation ecosystems organize themselves in multiple ways, and each system is in many ways distinct, due to historical paths, national cultures, and even chance. They do not necessarily share evolutionary paths, but a global economical space. They may not be competing in the same economic space or through the same competitive advantages. They create their own rules and internal logic, through innovation. That being said, they are also dependent of the supranational global trends within the globalised economy, which acts as a driver for isomorphism and a reduction of diversity.

The key advantage of thinking of innovation ecosystems is that it caters for both the local context (communities, local actors, local production and consumption, business models, innovation processes and capabilities) and the wider innovation environment (national and regional systems of (hopefully enabling) governance, policies, research, knowledge creation and larger, possibly supranational private sector development). This forces stakeholders to consider both local and global issues and needs (e.g. through strengths, weaknesses, opportunities and threats, or similar frameworks of analysis).

5.2.1 Key challenges within innovation ecosystems

Some of the key challenges that exist in creating a coherent and bottom-up/top-down inclusive innovation ecosystem in developed countries include developing the research institutions, universities and knowledge creating

structures so that they are able to cater for the bottom-up needs; that being said, this implies an appropriate offering of global best practice and not a downgrade of existing offering.

It is noted that there are significant constraints related to innovation in terms of market information, knowledge and skills, the physical infrastructure, access to finance, and the regulatory environment. To address these constraints, one can leverage local capabilities, either through adaptation or by applying new investments, and thereafter through collaboration with communities, organisation and government.

Governance and institutions play an important role in the innovation ecosystem; local and central governments can act as innovation champions, supporting the bottom-up business initiatives. The regulatory environment is a key enabler or a constraint within the system. As noted also within the Finnish innovation support system, finance presents another set of challenges in the equation; often it is possible to acquire initial funding for, say, product development, but then miss out on marketing finance. There is a clear need to think holistically about support systems in this regard. Deficient physical infrastructure has been perceived to be a major constraint to innovation and business development in developing countries. There are also needs that exist in terms of knowledge and skills, and local market knowledge.

In summing up, it is proposed that innovation promotion in terms of the innovation ecosystem has a focus on integration as shown in Fig. 5.2. This involves managing a high degree of complexity, and requires crosscutting and integrative skills and a systemic approach. It is also proposed that holistic attention must be paid for the various constraints at play; failing that, one area of the innovation ecosystem might be out of balance with the other pieces. As an example, when top-down multinational companies cannot find local service providers, supply chain partners or trained labour, they tend to import these elements in their value chains. This leads to a vicious circle that does not enable the development of local competence.

5.2.2 Enhancing the innovation ecosystem

Observations	Recommendations
The regulatory environment	
The regulatory environment can act as an enabler and a constraint	<i>Within the specific ecosystem, identify potential enablers and constraining factors</i>
Development is a right, not an option.	<i>View symmetric capabilities between actors as a focal aim; needed to engage in two-way knowledge transfer that is meaningful and adds complementary value. Symmetric capabilities allow and end to development assistance.</i>
Innovation needs to be seen from a wide perspective, not only focusing on technologies.	<i>Include concurrent consideration for social-economic, cultural and technological aspects in innovation promotion</i>
Innovation can cause	<i>Consider change (even disruptive) as</i>

disruptions in existing social and business arrangements.

producing new opportunities and new business. Promote proactive responses to change through planning (scenarios, foresight).

The innovation environment, business models & offering, and innovation processes are interlinked and changes in one affect all others.

Adopt a systemic view of the innovation environment, business modelling and innovation processes; lack of wide view increases chances of failure.

Create tools for planning on the three levels at the same time.

Innovations are derived from internal and external value chains, and in many cases co-created by users of products and services.

Engage participants to understand the multiple sources of innovation in their own contexts, to identify opportunities in new contexts and situations.

Access to finance

Lack of access to finance constrains innovation

Identify new sources of finance.

Develop existing sources of finance, create better awareness of the existing opportunities.

Develop investment mechanisms further to make them accessible.

Consider specific finance needs for each innovation arena.

Knowledge and skills

Knowledge and skills are needed to innovate both bottom-up and top-down

Identify the specific context and various skill sets that are needed in the specific innovation ecosystem

Learning and organisational knowledge creation is seen to underpin innovation activity more than organisational form or the ability to restructure quickly.

Enhance learning and the co-creation of new knowledge, perhaps through research and development activities that feed into other operational activities.

Transferring knowledge and innovations often involves a double challenge of cross-organisation and cross-national transfer, also across a wide and deep capability gap between donors, technical assistants and the local host organisation.

Establish the starting capabilities of the actors involved; the absorption of new knowledge is highly dependent on existing competences and abilities; these are also very difficult to improve in a short space of time, as there is a strong history and path dependency.

Innovation needs to be understood as an ongoing process, aiming at continuous improvement.

Promote a continuous process of learning and transferring knowledge. Strive for serial projects, programmes where learning across initiatives takes place

Participation and ownership of processes is essential for innovation to happen

Support full use of local capabilities.

Strive to remove social constraints that inhibit the use of abilities.

Physical infrastructure

Deficient physical infrastructure acts as a barrier to business development and innovation

Establish the key constraints that the physical surroundings have.

Review opportunities of adapt activities to infrastructure, or to adapt existing infra to current activities.

Failing that, invest in activities or infrastructure to align them with each other.

Market information

Market information is critical to business development; it underpins success in diffusion of innovations

Establish mechanisms that link top-down global marketing knowledge with best local knowledge for full picture.

Study mechanisms that integrate local knowledge tools, practices and patterns with the latest opportunities offered by ICT.

5.3 Developing integrating roles

As this study is explicitly concerned with innovation promotion from the business enterprise perspective, it follows that creating opportunities through new business models and offering in goods and services is a central concern. This raises the question: what would be the role(s) of development cooperation in creating these opportunities?

In the previous section, the innovation ecosystem was described, and the constraints identified. In operating within the innovation ecosystem, several demands emerge: i) there is a need to integrate between the top-down and bottom-up approaches, and between the various types of partners and innovation arenas that are expected to operate in the ecosystem; and ii) there is also a need to translate between the same partners, in terms of technology transfer, knowledge, asymmetry of skills and competence, and between incremental and radical innovations. These two needs are translated into roles that require actors in the innovation ecosystem.

5.3.1 Integrating

The overall idea of the integrating role is shown in Fig. 5.2. Depending on the nature of the innovation ecosystem, and the context in which the development cooperation initiatives take part, there are areas in which local actors possess the best knowledge; there are also needs for knowledge and skills, for coordination and advocacy.

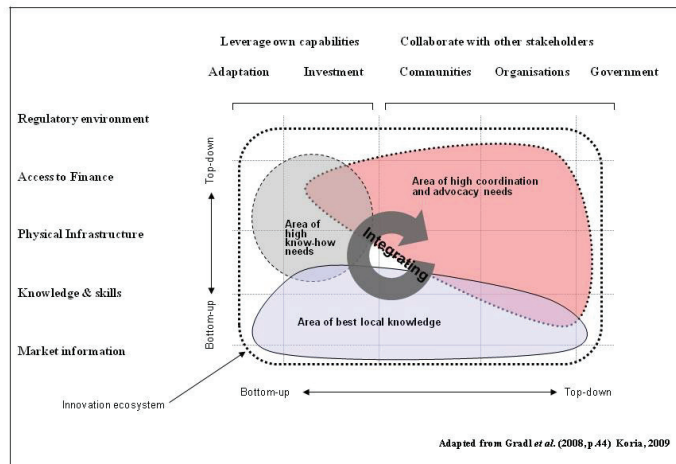


Fig. 5.2 Developing integrating roles

Developing the local knowledge

The model assumes that indigenous actors have the best knowledge of the local conditions. That being said, the knowledge is often in tacit form, not widely available, and often hidden within procedures and processes that are not easily opened to external parties. These issues limit the value of the local knowledge as a basis of equitable trade. One of the tasks of innovation promotion is to develop the indigenous knowledge base in terms of making

it accessible to outside parties: thus adding value to already existing know-how.

Filling knowledge needs

The best local knowledge base is assumed to be limited, however, and promotion innovation is assumed to bring about needs for new knowledge from external parties. These knowledge needs are specific to the time and place, but they are assumed to exist in all cases. They may consist of market knowledge, skills needs, knowledge of physical products, environment, finance or the regulatory environment, among other things. These knowledge needs maybe fulfilled though local efforts, adaptations, and investment.

Advocacy and coordination

In other cases, there is a need to collaborate with external parties. In the case of open innovation, multiple parties are engaged in the collaboration at any one time. One of the roles of development cooperation is to promote this collaboration that aims to access knowledge that cannot be obtained through local means. This can mean supporting research collaboration in R&D, providing backstopping and information services through knowledge centres, or providing access to training in various ways, among other such possibilities.

5.3.2 Translating

Both incremental and radical innovations exist in developing country contexts. Top-down initiatives are seen to tend toward the radical, while local-origin initiatives are more inclined towards incremental innovation; this is a result of the embeddedness of local knowledge: things coming in from the outside are usually more alien than what exists already on the spot. The familiarity aspect and psychic distance between the parties can lead to either quick adoption or rejection of new ways of doing things, depending also how things are put forward.

In the Base-of-Pyramid context, as London and Hart (2004) note, western sponsored programmes were significantly less successful when compared to locally organised and sponsored initiatives (60% of the local initiatives were seen to be successful, versus only 22% of the externally sponsored ones). At the same time it has been noted that the applications of technology mutate when the context is changed, as is demonstrated in certain uses of mobile phone short text messaging; these unexpected ways can transform incremental innovations into radical ones, and vice versa. In promoting innovation these issues need to be taken into account, and the second role foreseen for development cooperation in this context is linked to translating.

Translating between incremental and radical innovation

Perhaps a key issue in this regard is to understand what is incremental and what is radical innovation, and what are their sources. It would appear that there is a tendency for top-down initiatives, often coming from the outside, to appear as radical innovations, either due to the fact that they are new to the world, or by the fact that they are new to the local circumstance. At the same time, it is assumed that much of the innovation produced locally would be incremental in nature, building on local skills and knowledge. This is an assumption that needs to be validated constantly. The role of development cooperation in innovation promotion would be to translate between the two perspectives.

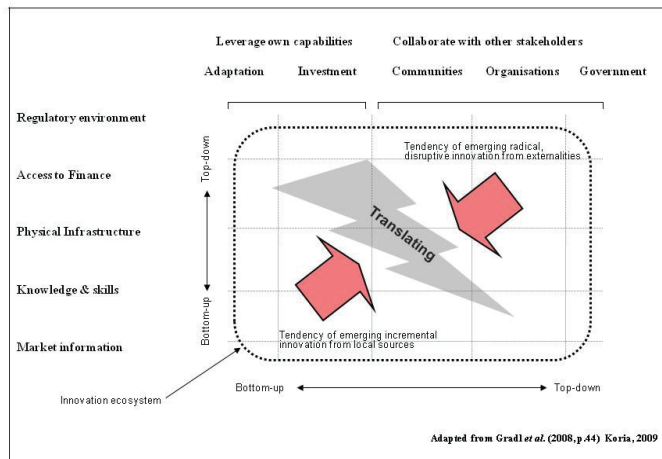


Fig. 5.3 Translating between top-down and bottom-up

Translating technology

Just as knowledge needs require collaboration and integration, technologies (such as ICT) need translation services, to ensure that they are appropriate and sustainable on both the short and the long run. Environmental issues are a prime concern in this regard. It is not suggested that development cooperation should pass judgment on these issues; the role is more akin to consumer advocacy, where the positive and negative sides are espoused equally.

Translating between asymmetric capabilities

The translating role is also proposed to counter the inherent asymmetry of knowledge that exists between top-down and bottom-up initiatives and stakeholder groups.

5.3.3 Developing integrating roles

Observations	Recommendations
	Integrating role
Bottom up development activities are linked with the individual capabilities and their immediate community contexts. E.g. BoP business and partnerships exist at this level, as do micro-credit schemes. There are challenges to see the world from this level, and aid agencies have advocacy roles beyond the	<p><i>Develop community level networks for support and mentoring (investment clubs, angel investors, mentors)</i></p> <p><i>Support creation of local level technological platforms for community level innovation activity.</i></p> <p><i>Support the creation of local services for entrepreneurs and individuals (e.g. banking, micro-credit).</i></p> <p><i>Teach relevant, basic entrepreneurial and</i></p>

communities, to search for new models, offering that could be beneficial on this level.

The level of the business enterprise drives the whole innovation ecosystem. The key role of support is to enable business development.

Top down activities take place outside of the community levels, but they impact on the local level in many ways. It is on this level that aid agencies may influence policy decisions that enable both bottom-up innovative practices and integrating practices.

Creating the enabling conditions for an innovation ecosystem to function well is done at this level. The key role of support is to provide access to outside knowledge, networks and finance.

Systemic approaches need to concurrently address the three levels of environment, business models and offering and processes.

business skills at community level.

Support communities in seeing best practices in external business models and innovation processes.

Enable practices that cut across disciplines and established way of doing things.

Assist in developing the long view of continually improving the offerings of product and services.

At the same time encourage opportunity seeking from change situations and develop resilience to disruptive change.

Help to secure/acquire technological solutions from donor countries that promote systemic connectedness, and provide new knowledge for the local levels.

Develop strategies to remove structural constraints that inhibit the use of local and systemic capabilities.

Help to remove institutional barriers to business creation and growth.

Support measures to reduce graft and informal taxes.

Promote ownership registrations to achieve regularized equity.

Initiatives involved in innovation promotion must link these levels together, if the potential to succeed is to be enhanced.

Enable Public-Private-Partnerships on all levels.

Translating role

Benefits from open innovation are seen to derive from an open innovation approaches - this is a logical extension of the fact that knowledge has become something to sell and buy. Open innovation is creating new forms of interaction between companies; this can potentially also be extended to Public-Private-Partnerships.

There are different types on innovation ecosystems; they

Develop awareness of the new and potential roles of customers, users and firms in the local context.

Support the networking ability of parties to place their relevant knowledge that they do not need onto the market – assist in procuring relevant external knowledge.

Arrange for study tours, visits to develop new standards of comparison.

Recognize the specificities of the innovation ecosystem and promote

are linked to historical paths, national cultures, and potentially random chance. Each innovation ecosystem has specific attributes and ways of working, which need to be recognized when dealing with the system.

Trust and confidence among actors reduces transaction costs

compatible thinking and tools.

Support acquiring compatible-to-local ecosystem technology and managerial know-how from donor countries.

Advocate for Government support for grassroots innovation climate.

Link aid support to quality of innovation climate.

Support activities that promote close contacts (study trips, workshops)

5.4 Strengthening innovation arenas

As the background for the third major proposal in this study, it is observed that business enterprises come in a series of sizes and shapes. They possess different competences and are in various phases of the business stages, as noted in Chapter 4. Any innovation promotion scheme must be able to distinguish the typology of the target company/industry, where it stands in the business stage, and what is the overall issue (e.g. knowledge, connectedness or finance, to name the three common main issues).

In this study we identify a series of innovation arenas, or typologies of circumstances where business enterprises find themselves in. It is argued that various arenas of actors and enterprises exist concurrently in the same economic space, but they do not share the same characteristics, nor are they necessarily in the same business stage. They are linked to each within the innovation ecosystems, sometimes tightly and sometimes through extremely loose couplings.

5.4.1 Typologies of innovation arenas

Multinational Corporations (MNCs) are defined as companies operating in several countries but managed from one (home) country; in some cases also defined as any firm or that derives a quarter of its revenue from outside of its home country. They also often maintain key elements of their innovation processes in their home countries, outsourcing only secondary tasks to countries where they operate; they might need to review this operational mode if and when they enter into, say, the context of BoP. They tend to be somewhat resilient to dynamic changes, and are often able to take on continuous innovation as a matter of practice. That being said, MNCs tend not to be very agile, and thus may not be able to profit from unforeseen opportunities and rapid changes.

State-owned Enterprise (SOEs) are business entities established by central and local governments, and whose supervisory officials are from the government. In many cases legal corporatization and privatization reforms have not yet been fully implemented. SOEs are traditionally well represented in developing countries, in many cases due to legacy issues from centralized and planned phases of their economic development. They form a distinct innovation arena from MNCs (and from local SMEs), having close links to local R&D mechanisms, but often lacking close contacts with current best practice coming from the outside. Their innovation arenas are often subject to disruptive changes, due to collapsing business protection schemes, privatizations and like; their opportunities to enhance value with continuous innovation is also limited.

Small and Midsize Enterprises (SMEs) are categorized as having varied numbers of staff (usually 10-250), with turnover/the sales between 2 and 10 m EUR (EU definition). Turnover, capitalization and staff numbers vary significantly, especially in developing countries. The innovation arena for SMEs is complex, and it may not have the resilience against disruptive changes, nor the protection of size and political clout of the SoEs; what it has, or should have, is a great deal of agility – to use the limited resources to best effect. SMEs employ and generate most of the value in many countries,

so how they innovate is a major concern. Especially the growth strategies are important in this regards- going from small to big.

Micro Enterprises form their own innovation arena, characterized by a constrained resource-base that very effectively limits what they do. That being said, they are in some cases the hotbeds of innovation, set to become SMEs and later on, large companies.

Linking in to the enterprise innovation arenas are **Non-Governmental Organisation (NGOs)** and third-sector organisations. The international ones tend to have more protected resource bases than local micro enterprises or SMEs; they also take on tasks that require development work in their innovation arenas which are not subject to immediate profit motives.

The **universities** in developing countries have still more leeway in terms of mandate for innovative activities; they are, however, often constrained by lack of resources that effectively blocks their innovation promotion activities. Local governments are usually risk averse, often change averse, and are also constrained in terms of resources.

Seen from this perspective, NGOs would appear to have the most extensive leeway in combining resources and will with activities that do not have immediate profit motives; they are also places in the middle zone between the two ends; a perfect place to be in terms of effective PPPs, and the role of NGOs in innovation has been recognized.

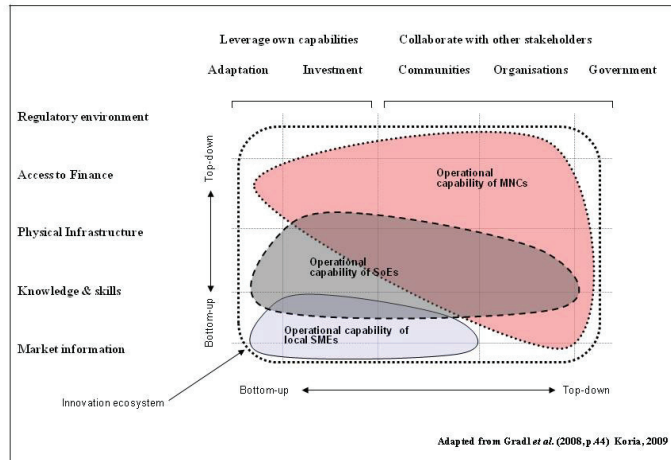


Fig. 5.4 Variance in operational capabilities within ecosystems

5.4.2 Enhancing knowledge and skills

As noted already in Chapter 4., in the context of the Finnish innovation support mechanisms, three main universal challenges for business enterprise anywhere in the world are not being able to do what one would want, not having the access to those who know, and not having the financial resources to proceed. As noted previously, this affects especially pre-incubation companies, start-ups and also businesses that require extensive regeneration.

Development cooperation can provide support by enhancing the existing capabilities or by bringing in external expertise and talent, or by funding feasibility studies and needed consultancy services.

5.4.3 Creating connectedness

Development cooperation can also address the second major issue, lack of connectedness, through creating and sustaining matchmaking forums that bring entrepreneurs and business angels, venture capitalists and public sector enterprises together. Platforms for creating connections can be appropriate venues for networking large companies with small ones, and for creating public-private-partnerships. Larger companies may require export advisory services, especially to deal with regulatory issues.

5.4.4 Supporting finance

The third major area that is felt to be problematic is linked to the availability of financial resources. In the case of Finland, for example, public funding is only widely available to certain steps in business development, as in the case of new product or technology development; less attention is paid to the subsequent marketing efforts. It would appear that similar issues exist also in developing countries, where good ideas and products are hard to market due to lack of funding. Development cooperation can address funding issues holistically through funds that can address the business development issues on a wide, front; flexibility would be an asset in this context. Seed funding and co-funding schemes, with or without equity arrangements should also be considered.

5.4.5 Strengthening innovation arenas

Observations	Recommendations
Enhancing knowledge and skills	
Creating value for customers may sound like a simple and straightforward proposition; it is however not always so clear who the customers are, and how do they relate to other key stakeholders that may wage significant power through informal systems.	<p><i>Support stakeholder analysis to identify vested interests, blockages and opening for new opportunities.</i></p> <p><i>Develop mechanisms that support the identification of new users, customers and customer groups.</i></p> <p><i>Assist in the development of methods to identify and collaborate with other businesses, public entities.</i></p> <p><i>Invisible constraints need to be identified, understood, and planned for as much as is possible.</i></p>
Business model change (as in many other change-related issues) is a very delicate issue in development cooperation. Championing may be required in this context. Incremental change tends to be more acceptable than disruptive,	<p><i>While business models evolve quite naturally, innovation promotion initiatives need to build up a championing system with top-level endorsement of change; change needs to be seen as an opportunity and not a threat. This requires that change is perceivably and preferably immediately</i></p>

radical moves.

beneficial to key parties.

Creating connectedness

In terms of innovation promotion, offerings are a critical thing, as they constitute those goods and services that will have to be both useful and desirable for the customers and users - the acid test naturally being whether the customers buy or users use.

Help to develop competences in thinking about customer interaction: how will it take place, where, when, and what expertise is required to manages the issue.

Support the mobilisation of user/customers in the co-creation of knowledge and innovations.

In promotional activities, the concept of innovation arenas could be a useful tool to identify, categorize and explain the varying innovation contexts

Focus attention to the specific nature of the innovation arenas.

Extend attention to non-business organisations to network partnerships.

Living labs are a recent development in the developed countries; they also are an opportunity for the developing countries.

Develop initiatives joining research, incubation, business, arts and culture in places that develop into innovation hotspots.

Promote connections and joint initiatives between institutions. Develop mechanisms for visits and study tours, to avoid operations in a knowledge vacuum.

Supporting finance

The lack of know-how about resources needs to be addressed in business support mechanisms in the developing countries; they are also significant issues in developed countries.

Raise awareness of the financial support models that exist in the developed countries.

Develop platforms that join entrepreneurs, business angels, venture capitalists and public sector enterprises and organisations.

5.5 Promoting innovation capability

As the last main dimension in innovation promotion, there is a need to expand on the capabilities of the local actors to participate in the wider contexts. This implies both a development of the capability to innovate and advocacy toward the removal of constraints. The key issue with the capabilities is their relationship with constraints. It is not enough to enhance capabilities of individuals (say, through training programmes, skills development, vocational schooling) unless constraints that inhibit the use of the enhanced capabilities are also addressed. This is why it is argued that all training programmes must involve advocacy issues on e.g. placement, business development, or regulatory issues.

5.5.1 Expanding

The key objective is to reach a situation where the integrating, translating and expanding roles of development cooperation can be seen to be redundant, i.e. when actors operate within the innovation ecosystem without continuous external assistance. It is recognized that business support structures need to exist in any case; but these are not organized in a sustainable way as long as they are dependent on external funding.

5.5.2 Creating capabilities

While the innovation environment is the key enabler that makes it possible to implement innovative business models that diffuse useful and desirable products and services, it is the people on the ground that create the ultimate push-pull effect that creates the innovation from the invention.

A combination of novelty, utility, and success through diffusion underpins every innovation. Innovations early on in this paper were defined from a wide perspective as extending beyond new technologies into new social arrangements, business models, services, ways of working and of organizing, and managing the processes.

The ability to participate successfully in the world economy is linked to the ability to see, assimilate, and apply new knowledge, or what has been coined as the absorptive capacity in innovation. It is not the capability itself, but what you can achieve with it that is important - unrealizable potential is useless.

Innovation management

In the context of this paper, it is useful to focus on the capabilities that are needed for innovation management, as this is the key to promoting innovation.

Many of the challenges facing business enterprise today require systemic responses, as the environment is complex and often very ambiguous. As innovation promotion has, by definition a strong business orientation, the complexity that exists in the private sector comes across also to the public sector that aims to promote innovation.

The implication of this is that any training and capability building in terms of innovation management (both for public and private sector individuals)

needs to aim for systemic skill/competence development. This in turn means that there must be a base of instrumental and interpersonal competence, achieved through secondary and first cycle higher education. While entrepreneurs can come from any walk of life, it is argued that promoting innovation requires formal education that builds on a tiered understanding.

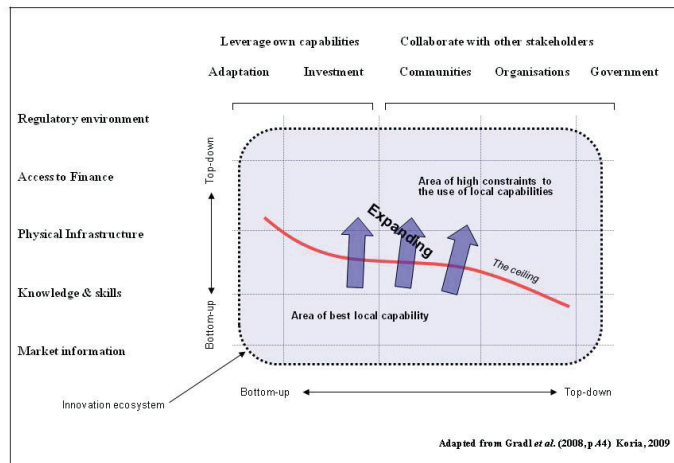


Fig. 5.5 Expanding capabilities

Global and multidisciplinary context

The training in innovation management must include multi- and interdisciplinary elements; it must also have a global perspective. This means that one has to reach across existing professional fields and across national borders. This is a challenge for capability development: there is a need for “T-shaped professionals”: these are individuals who have a strong background and knowledge of a professional field (say, engineering), but who are able to widely work across other field, such as business, or design.

Innovation promotion needs the enhanced abilities in the individuals to recognize and acknowledge value in the tools, practices and mental models of other professions; this is seen to improve teamwork in complex development projects and turbulent operational environments. Multidisciplinary teams can achieve higher outputs and innovative contributions to business when compared with teams with homogeneous backgrounds.

It is also known that creative abrasion that exists within multidisciplinary teams can contribute significantly to successful invention and its diffusion and commercialisation.

Creating multidisciplinary teams that are able to operate in highly ambiguous environments and within systemic issues requires extensive, time-consuming simulation, hands-on practice, and training; real-life situations are needed in addition to theoretical knowledge. In many cases it is found that real-life interaction between students (or professional trainees) and business enterprise creates the best platform for learning.

Foresight and agility are needed

Innovation promotion also needs to have a perspective of strategic foresight and future orientation, as it seeks to develop capabilities that reach for the future in new business, product and service development.

Agility is also required, as the fast paced business environment needs flexible and quick responses. Dynamic capabilities underpin the ability to reconfigure operations and assets in changing environments and emerging contexts.

Effective and efficient innovation processes are in a key role in providing companies with practical means to respond systematically to emerging challenges. In the context of this study, two issues present themselves when the process of innovation is examined through the lens of promotion. In the first instance, the front end of the innovation becomes a critical stage in seeing, assimilating and reconfiguring new knowledge to create innovative business models and offerings. In this regard, abilities in foresight and in making scenarios are an important capability. On the other hand, the concept of innovativeness is also a key issue: residing partly in the individual, it is also linked to the social arrangements at hand. Furthermore, being able to manage the innovation process underpins success.

There are opportunities in creating and utilizing new market and competitive instruments that encourage enterprises and communities to engage into the innovation activities. This can be linked to study tours that introduce (through plan or chance) participants to new ideas and ways of doing things. The key issue is to create a two-way traffic: from the bottom-up and the top-down. These efforts would also need to involve modernizing the financing and service system of start-ups and small businesses. It is argued that micro-finance is not enough, and clear and consistent systems that serve both entrepreneurs and investors are needed. There is ample room for development in this direction, e.g. through the matchmaking technologies that engage small-scale investors with entrepreneurs on voluntary basis through the internet.

5.5.3 Removing constraints

At the same time the idea of expanding involves removing a series of constraints that hold back the application and development of individual capabilities. This essentially implies enhancing the innovation environment, to encourage individuals and entrepreneurs through economic policy, right incentives and supporting structures, while cutting the red tape, and by improving the current situations of things such as ownership and property rights.

The constraints from this perspective are seen to be mostly top-down issues, where the individual's relation to the socio-economic surrounding mediates the ability to use capabilities to full advantage. It is clear that there are also joint capabilities of communities to act together, which are constrained by wider circumstances.

The removal of constraints is often seen to be related to correct and timely information and feedback loops that top-level leaders receive. In many cases, there is an alienation between a leadership and the reality on the field,

and business enterprises and individuals operating in them do not have a channel for feedback.

Policymaking without current knowledge through feedback is bound to not only maintain current constraints, but to create new ones.

On an individual level, coaching can be a useful tool to remove constraints, as individuals may not see the constraints that they create or maintain; there may opportunities for external parties to widen perspectives through dialogue.

Still yet, development cooperation that involves innovation should plan for the incorporation of novelty into the initiatives from the start.

Summing up, it is noted that capabilities and constraints need to be dealt with concurrently. As applying new knowledge plays an important role in developing the innovation capability, it is argued that the facilitation of external contacts and learning are important tasks, both in enhancing the capabilities and in the removal of constraints.

5.5.4 Promoting innovation capability

Observations	Recommendations
Creating capabilities & removing constraints	
Inventiveness is omnipresent in developing countries; but it is difficult to turn into innovation. In this context, the social constraints to innovation are of special concern.	<p><i>Promote the development of individual capabilities in systemic thinking, multidisciplinary work, foresight and agility.</i></p> <p><i>Promote the reduction of constraints that inhibit the use of individual capabilities, through feedback loops, coaching or planned novelty.</i></p> <p><i>Promote agility and resilience to (disruptive) change.</i></p> <p><i>Promote continuous innovation.</i></p> <p><i>Promote opportunity seeking in change situations.</i></p> <p><i>Reduce aid-dependency through supporting creativity, imagination.</i></p>
Special attention is needed in the early stages of the innovation process; the front-end. This is important as most of the potential value added is established at this stage; this also applies to committing resources.	<p><i>Promote the management of the front-end by recontextualizing best developed country practice.</i></p> <p><i>Develop ways to incorporate foresight into initiatives from the start.</i></p> <p><i>Encourage the development of new indigenous knowledge, skills and models through contact with external practices</i></p> <p><i>Support the creation of appropriate tools and approaches for local context.</i></p> <p><i>Collaborate in research on front-end issues in the contexts of, AfT and BoP.</i></p>
Linked to the front-end,	<i>Develop managerial ability in e.g.</i>

business intelligence needs to be addressed. Foresight and scenarios are two approaches that aim to look into the future.

foresight and scenario planning; localize the tools and their use.

Support the use of locally suitable knowledge management tools.

Promote processes that enable knowledge co-creation.

Explore and support the use of locally suitable ICT in business intelligence.

PART II

Case studies



This section includes a series of eight case studies that have been taken from recent literature and the experiences of different parties operating in international development cooperation. There are two main objectives in this: in the place they illustrate the issues involved in thinking about innovation and development. Secondly, the case studies demonstrate the great variety of approaches that can and need to be adopted. The cases attempt to capture the lessons learnt from the recent development cooperation projects that have had an innovation context. The cases are heterogeneous in their nature, and serve to illustrate various stages of business development, various socio-economic contexts and approaches to innovation. While it is noted that there is extensive variation in conceptualizing and implementing innovative initiatives in the context of international development, there are nonetheless commonalities that can be used to examine the cases with a degree of uniformity.

In this report the cases have been reviewed through several main attributes: the (innovation) environment, taken to mean needs and changes and the new business opportunities emerging them; the business models; the offering; and finally the types of innovation that can be identified. In the cases, issues such as knowledge & learning, networking, and resource implications are examined in more detail.

The first two cases, Tsinghua Tongfang Chengfang (a provider of localized computers in rural China), and Tiviski (commercializing local dairy products in Mauritania) examine product innovations that are driven by the environment. Both involve close partnerships; Tiviski is deeply engaged with the local herder communities, the source of their raw material, while Tsinghua is linked with local educational authorities. In both case products are linked to training and capacity building activities.

In the case of A to Z Textiles (providing bed nets in Tanzania) the partnerships have a mix of commercial and altruistic aims. The product

innovations are incremental in nature, developing existing offering further, through global technologies that are applied locally.

Coco Technologies (a provider of coconut based products in the Philippines) has built their innovative production network together with local communities; turning low value agricultural semi-waste into ecologically sound, innovative products in erosion control systems.

The cases of Edenor SA (a electrical utility from Argentina) and Smart Communications (a provider of mobile communication services in the Philippines) illustrate innovation in the utilities sector. In both cases, the challenge has been to enable access of low-income populations to the services at hand. Edenor has created a win-win, as pre-paid power cuts the cost of management of the supply for the provider, while allowing the user to manage her consumption in a very flexible manner. Smart in turn has developed a volume business out of pre-paid mobile telephony, one that includes sophisticated air-time procurement and remittance systems, effectively leapfrogging the land-line technology altogether.

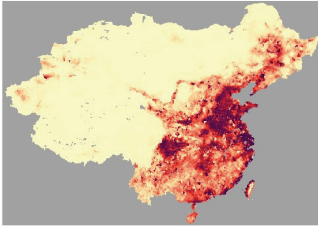
The last two cases illustrate the possibilities of innovative learning and the support to technology platforms. Innovation Democracy (a US based NGO aims to turn small steps into major beginnings through empowering people), has developed an Innovative Entrepreneurship Programme, run at the Kabul University, while the SAFIPA programme (an ICT platform development project in South Africa, funded by the MFA of Finland), aims to develop the competence to run ICT development initiatives.

These case studies illustrate a great variety of approaches; they all have innovation as their common theme. Through them it can be argued that innovation can be (and is) a key driver of human development in developing countries. The cases also illustrate the need for local initiative; innovation is not something that can be handed out, it has to be based on local needs, local users and their partnerships within and with the outside world.

Table 1. Case Study Summary		Enterprise & Introduction	Environment	Business Models	Offering	Innovations
Enterprises, Products and Public-Private-Partnerships						
CASE 1: Tsinghua Tongfang Chengfang (China) Large national enterprise providing computers designed for the needs of rural China	-Observed urban-rural digital divide -Needs for enhanced education -Well-established national manufacturing available	-Originally computers to households – now to government schools or information centres -Partnering w./ service providers	-Computers tailored to rural needs -Information centres for training -Distance learning for minorities -Domestic high quality dairy products -Opportunity to learn and earn from livestock & herding	-The needs of the rural user at the centre point of innovation -Using private-public relationships with development and promotion -Processes innovation in collection and distribution system -Products from local materials		
CASE 2: Tiviski (Mauritania) SME commercializing locally produced dairy products out of camel, cow and goat milk	-Income generation for camel herders -Need to improve hygiene of dairy products sold in the Urban area -The adverse environment was changed	In addition to the normal sales, the company supports the herders financially deducting the support from compensation they receive	-Products from local materials -Erosion control from local materials -Ecological products and know-how for erosion control	-Product innovations to improve health status -Distribution of nets -Product innovation in turning local waste in valuable products -Service innovations in know-how -Organising local production		
CASE 3: A to Z Textiles (Tanzania) A SME producing insecticide impregnated, a PPP with Sumitomo Japanese technology & Exxon raw material	-Individual & community health needs driving product innovation -Need to reduce impact of malaria in East Africa	-Donations from Sumitomo and Exxon -Nets sold with full cost recovery or as subsidised (GOV, NGO)	-Pre-paid electricity with full control over consumption - Offering advice on how to use energy more efficiently	-Product innovations to improve health status -Distribution of nets		
CASE 4: Coco Technologies (Philippines) SME producing bio-gradable nets out of coconut husks, related consulting and bioengineering services PPP with local communities	-Need to improve the position of coconut farmers in the region -Need to tackle the soil erosion	-Selling the nets -Consulting and bioengineering services, - Subcontracting communities	-Pre-paid electricity with full control over consumption - Offering advice on how to use energy more efficiently	-Product innovation in turning local waste in valuable products -Service innovations in know-how -Organising local production		
Services, Utilities						
CASE 5: Edenor SA (Argentina) Large national enterprise providing pre-paid flexible power utilities & distribution	-Need to reduce cost for utility provider -Need to reduce cost & increase flexibility to user	-Using pre-paid model for the electricity distribution -Advisory service and devolved control create client loyalty	-Pre-paid electricity with full control over consumption - Offering advice on how to use energy more efficiently	-User co-created utility -Cost-effectiveness by design -Enabling energy efficiency through training		
CASE 6: Smart Communications (Philippines) Large national enterprise providing innovative mobile services for telephony and banking	-Technology: analogue to digital -Competitive conventional business -Geography, low-income customers dispersion, need for banking services	-Pre-paid mobile telephony -From premium to volume business -Flexible banking w/ low cost	-Pre-paid SIM connection card with flexible documents and payment -Faster & cheaper banking	-Studying continuously the customer needs and innovating more cost-efficient, affordable and useful services		
Development initiatives						
CASE 7: SAFIPA (South Africa) Development Cooperation between the Finnish and South African governments to build up information society in South Africa	-Challenges due to the past inequalities and current difficulties - Need to bridge gap between the black majority and affluent minority	-No actual business model -Leveraging investments with other partners,	-Financing -Workshops -Contacts SA and Finland - Extend network to Finland	-Discovering and promoting the issues that are important to the stakeholders		
CASE 8: Innovation Democracy (US /Afghanistan) An NGO with focus on empowering people to take small actions that produce significant beginnings	-A need for bottoms-up approaches the enable innovation -Resource constraints act to electrify innovation	-Aims to build economic stability through learning and capability development in entrepreneurship	-Innovative Entrepreneurship Program supports learning in meeting the challenges of creating innovative business	-Learning programmes based on networks, local initiative and involvement, latest learning methods, and creativity		

CASE 1: Tsinghua Tongfang Chengfang (China)

Public-Private-Partnership to bridge the digital divide in rural China



Darker color means high population density.
Source: Asia Population Data, 1997

Tsinghua Tongfang (TTHF) is one of the leading companies in the Chinese computer manufacturing industry. In addition to an information technology unit, it has other divisions in digital-TV and energy. Out of the domestic computer manufacturers Tsinghua is the only one that has committed to producing a suitable computer for the rural people in China. Tsinghua has worked in partnership with the local municipal officials from the Beijing region in developing the *Chang Feng* computer in 2005 for the needs of the rural users in China. The computer has a Linux-based open source operating system and it contains software applications that address the key needs in rural China, ranging from children's school education to agricultural advisory services. As the Chinese rural users are only slowly picking up on the importance computers, the government has established rural information centres to provide training in the use of the computers, while also promoting computers as an every-day tool. In addition, the computer has found new markets by combining it with SMS based information services and distance learning directed to ethnic minorities.

Knowledge for the rural Chinese

The basic technology for the *Chang Feng* was already existing but two important questions remained: what are the primary needs of the Chinese rural users and how to meet them in a cost-effective way. TTHF conducted market surveys with door-to-door surveys to discover the needs of the rural people and came up with a series of features. The company collaborated closely with Beijing Municipal Government Commission for Science & Technology (BMGCST) and the Beijing Software Industry Productivity Center (BSIPC), developing the *Chang Feng* computer, equipped with robust and inexpensive software and specialized applications that were developed by four external application providers. It is important to understand that the whole project was a collaborative result of several partners, both private enterprises and government agencies, combining and sharing their knowledge in the R&D phase and the following market launch. As it was difficult to promote the computer in the rural area in China, it became clear that even though TTHF had the knowledge on the needs of the rural users, it did not know how to market and sell the computer to them. Thus the public sector support and other partnerships were needed to find innovative ways to promote and distribute the product.

Spreading digitalization in rural China

As mentioned before, even though the users' needs were taken into the consideration in the design phase, marketing and selling the computer was a difficult task. The rural Chinese viewed the computer as a luxury product without tangible benefits and the traditional promotional activities was not able to convince them of the potential value. As an anti-computer attitude is deeply rooted in the Chinese rural people, convincing them is a time-consuming effort, requiring innovative approaches and collaborative effort by different stakeholders.

The rural information centres, with the help of the Beijing municipal administration, were introduced - acting as both rural cyber-cafes and education centres. The BMGCST procured the *Chang Fengs* from THTF with service package. Other locations where *Chang Fengs* were put to use included the distance training on Mandarin language education of the ethnic minorities in Xinjiang Province and sending the agricultural info SMS messages on the service run by China Mobile in Hebei province. Thus the computer has found slightly different user groups but serves the same purpose: contributing to the well-being of the rural people in the Chinese countryside.

Pooling Resources to reach across the digital gap

THTF directly admits that it would not have taken on the task alone because the rural market is viewed as a difficult one for any company. It is important to notice that the shared resources have played a key part in both the R&D and in the launch of the products. In the development phase, the assistance of government research centres from the public side BMGCST granted the funding US\$770,000 to develop *Chang Feng*, sharing thus the risk of the development. Government institutions also facilitated starting the private sector collaboration as BSIPC, another government agency assisted THTF in finding the suitable software developers from its wide network. The same government agency also tested the computers before the market launch, giving feedback and adding credibility to the line computers. However, the support from BMGCST and BSIPC also came with obligations, and by June 2007 THTF had had to sell 30 000 *Chang Feng* computers, otherwise BMGCST could have withdrawn the initial support. This had an effect of making sure that THTF was completely committed to the project.

Some conclusions

China has become a divided nation; while the urban inhabitants have become wealthier and more educated, the rural areas have remained relatively poor and backward. Thus, there has been an urgent need to develop the rural areas in order to stop the widening gap between the urban affluent and the rural poor. The offering was developed to accommodate the needs of the rural users considering the circumstances of the countryside and the disposable income of the rural people. Despite the careful design process, the *Chang Feng* computer did not sell as well as expected, thus new marketing strategies and customer segments had to be pursued (schools teaching students from minority language groups), together with upgrades to the product.

As the rural users did not embrace the *Chang Feng* computers, it became clear that THTF had to consider alternative business models. Thus the primary clients became the state organisations such as BMGCST that operated the information centres or other big private services providers such as China Mobile whose service could benefit from the *Chang Feng* computer technology. The innovation process at THTF has required continuous consideration for the needs of the end users and how this could be provided at reasonable cost. However, the underlying assumption has been that every household would have their own computer. The information centre already showed that more social innovation would be needed as the product failed to attract enough buyers.

Sources:

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CASE 2: Tiviski Dairy (Mauritania)

Dairy products - Mauritanian style

Tiviski Dairy was founded in 1987 - Mauritania having the first camel milk dairy in Africa. The dairy also has produced milk products from goat and cow milk. The company currently employs over 200 employees and additionally provides income for 1,000 families of herders, traditional milk processors, farmers, transporters and food suppliers. Despite the difficult circumstances and various challenges, Tiviski has grown into a profitable company, purchasing its milk from semi-nomadic subsistence herders,



Source: www.tiviski.com

enabling them to generate their income from their livestock. In addition, the domestic camel milk has partly substituted the imported milk products, making a contribution to the national economy. Tiviski has also founded the Association of Milk Producers of Tiviski (APLT) that provides assistance, training and information to the herders. Tiviski offers support to livestock owners to help them through hard times in form of credit and loans.

Knowledge to produce milk under harsh circumstances

The idea of producing dairy products from camel milk faced both cultural and technical challenges. Basically, the logistics of the milk collection had to be designed considering the scattered geography and dispersed herding locations. This also set requirements for the

system considering the long distances and ability to preserve the milk's freshness under the difficult circumstances. The company has developed the production of camel cheese, facing technical challenges as the milk did not curdle naturally and the cheese-making process proved to be a very delicate one. Through intensive experimentation, Tiviski has taken the hygienic standards to a new level in Mauritania. It also shares its knowledge with the herders about health and veterinary issues.

Spreading the good news about the milk producing and drinking

Tiviski faced a double cultural challenge, as people were not used to the idea of selling their milk production, considered an activity practiced by the least fortunate people. Tiviski included the herders in the production system, and persuaded them to sell the surplus milk to the company; the herders were able to continue their lifestyle and keep a camel by selling its milk instead selling the camel itself. In addition, there was a need to promote locally produced milk to urban Mauritians. They needed to be reassured that the local treatment of milk had improved from before. In addition to cultural challenges, the business environment was very underdeveloped, Tiviski had to generate its own processes as how to collect milk and to compensate the farmers, while giving them technical support. Tiviski gives loans to the herders during the time of hardship and this amount was deducted once the producer redeemed the coupon. Tiviski also had to persuade the local Ministry of Commerce to support the industry.

Acquiring resources in the country burdened with scarcity

The dairy operation was made possible through a loan from La Caisse Française de Coopération Economique (CFCE) of one million French francs (about 150,000 euros). As the operations expanded, additional financing was required to build a UHT milk processing plant. Proparco (an affiliate of the French Development Agency), International Finance Corporation and GBM, a local bank supported by the European Investment Bank) gave the further loan, while a part of the 3m additional investment was financed through Tiviski's cashflow. Even though they did not provide financing, official government support was important for drawing up the regulation related to milk products.

Innovative solutions in unfavourable circumstances

Mauritania did not provide very favourable environmental circumstances to build up a dairy company; but there was obviously an opportunity in waiting for the camel herders to earn extra income and for the urban Mauritians to buy camel drink with a better quality. Tiviski actively developed the business environment by introducing new ways of milk collection, treatment, distribution and consumption. Tiviski had a very innovative approach, as it directly started with fresh milk production instead powdered milk or importing European milk. After the fresh milk, UHT milk was introduced because of seasonal surplus of the milk production, and the product family was enlarged to cater the different niches of the market, as in the case of "El Medina" (a 50/50 camel/cow milk). The company is currently increasing its attempts to export to Europe despite regulatory difficulties.

The innovation in the business model introduced was that they do not only bought milk from herders but also actively assisted them both financially and through giving them advice and training. This creates trust and a stronger relationship between the company and the herders; without Tiviski might have difficulty in securing a steady supply of raw material. The owner Ms. Nancy Abeiderrahmane was required to come up with the whole dairy system in Mauritania since it did not really exist before she started her company. The local challenging circumstances made the task daunting - but it succeeded thanks to the careful planning and the processes that fit into the local circumstances. It is important to understand that initial idea was not feasible without the continuously innovations on how to implement the whole dairy system locally in a profitable and sustainable way.

Sources:

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CASE 3: A to Z Textiles (Tanzania)



Source: <http://www.acumenfund.org/investment/a-to-z-textile-mills.html>

Innovative Public-Private-Partnership for the health of the nation

A to Z Textiles produces long lasting insecticide bed nets in cooperation with Japanese Sumitomo Chemical Company and Exxon Mobile. The idea originated from a WHO scientist; the idea was implemented through a cooperation where Sumitomo transfers the technology and chemicals free of licensee fees and trains the A to Z production technicians; Exxon sells resin for the nets that are produced by A to Z Textiles. The Tanzanian government subsidises and promotes the nets - that the can kills mosquitoes for five years without re-treatment, while being tear-resistant. UNICEF and the Global Fund to Fight AIDS, Tuberculosis and Malaria buy the remaining nets that are not sold via normal commercial channels. In addition, Acumen Fund has financed A to Z's purchase of the machinery. Exxon Mobil has donated money from the resin sales to UNICEF to buy A to Z produced nets and sells them through its MobilMart stations in five African countries. As a result, A to Z has been able to generate more turnover and currently created employment for 3.200 workers out of whom 90% are women. The use of long lasting insecticide bed nets had proved to decrease severe malaria by 45 percent, premature births by 42 percent and all-cause child mortality by 17 to 63 percent. This has resulted both in cost savings in malaria treatment as well as better general health condition of the people.

Knowledge to create an effective Public-Private Partnership

The used *olyset* (insecticide impregnation) technology had been invented already in 1978 by Sumitomo, and has been proven to be effective against mosquitoes. However, the nets with *olyset* technology are more expensive than the ordinary nets, thus being less affordable to poor people in the country who cannot prioritise the long-term benefits. Therefore, subsidies have been needed to promote the nets to the poorest of nation.

It is worth pointing out that the technology was virtually given to A to Z, which was chosen to be the producer of the networks as it was one of the lowest-cost manufacturers of bed nets in Africa already before the partnership. Still, the commercial sustainability was a crucial factor of that allowed the company to grow. Also, the A to Z developed know-how on successful commercialisation of bed nets with the distribution networks. Thus, it widened its knowledge from a single product manufacturer to multiple lines of products.

Diffuse the bed nets across the country

A to Z markets long lasting insecticide nets in two ways: direct marketing by the company in the open market and through the Public-Private-Partnership where the sales are subsidised. The subsidies have been essential in making the more sophisticated bed nets affordable - also in changing the attitude of the local people out of whom many are not accustomed to using bed nets. The Tanzanian government and a number of the non-profit partners have been assisting in designing promotional campaigns, whereas the local village professionals were involved in training sessions. Thus the public resources are in use of the promotional activities in other several ways in addition to direct subsidies.

Diverse resources pooled for two aims

Basically, the A to Z case presents a Public-Private-Partnership where a win-win situation is created by introducing technological innovations to a local actor and promoting the products by government subsidies. The external technology and government resources could have also been channelled through charity organisations, but the choice was to do it through a commercial enterprise. It is worth pointing out that the A to Z production has required philanthropic work from the commercial multinational companies, Exxon and Sumitomo and NGOs like Acumen Fund, UNICEF and Global Fund, subsidies from the government and willingness from A to Z to deploy the sources to sales and training. Therefore, it can be seen that the profits of A to Z is seen as a means to ensure the long-term sustainability of the project and production.

Some observations

The principal catalyst of the A to Z public private partnership was the Abuja Declaration in 2000 where the participating countries committed to halving the malaria mortality by the end of 2010. This contributed to the political will to facilitate the protection against malaria enabling the subsidies boosting the demand and lowering the risk of the project. Even though the technologies and raw material has been offered to A to Z with other support, the company has been actively developed the product, offering it in different colours and sizes. It also produces *olyset* door covers and curtains, which could be more economical alternatives to bed nets for poor people due to their suitability for multiple functions.

Basically, A to Z business models are divided in the for-profit sales where the clients pay the normal price and the subsidised sales where the government or NGO subsidise the sales or even purchase and donate the product if the end-users are extremely poor. The tendency has been increasingly towards for profit sales as the subsidies are costly on the long run. The innovation with A to Z has concentrated on the further development of the products and the commercialization processes, as the technology has been given. As stated before, they have come up with product variations to offer alternative solutions and widen the offering into a variety colours and sizes.

Sources:

<http://www.acumenfund.org/investments/a-to-z-textile-mills.html>

http://www.growinginclusivemarkets.org/images/pdf/english/Tanzania_AtoZ%20FINAL.pdf

CASE 4: Coco Technologies (Philippines)

Products that make a difference for the community and environment



Coco Technologies (CocoTech) is a private company in the Philippines producing geo-textiles from waste coconut husks. By developing coconut fiber nets (coconets) for slope protection, river and shoreline rehabilitation and erosion, the company has grown a micro-enterprise of \$7000 equity and 5 employees into a medium-sized company with the turnover of 300.000 euros and 27 employees. In addition, there are over 6,000 families as the co-producers of coconets and CocoTech is exporting its product to Asia and Europe.

Knowledge to transform the lives of the local people



There were three challenges that were understood by the founder of the CocoTech, Dr. Justino Arboleda. The 3.5 million coconut farmers in the Philippines were disproportionately poor and their living circumstances were also adversely affected by serial and serious flooding and landslides. In addition, the coconut is the main agricultural waste and its disposal by burning was (still is) a main source of greenhouse gas emissions.

The founder of CocoTech developed new solutions based on modern ways of Coconut husk grinding and old traditional ways of weaving nets. The university-based research discovered that coconut fibre nets can prevent the partly absorb the groundwater, preventing soil erosion. The knowledge was shared openly with both government officials and local farmers. The local farmers learned how to weave the coconets and the government officials how to prevent the erosion by using the new organic-material nets. The knowledge played a pivotal role in partnering up with different stakeholders, both with the farmers and cooperatives as well as the government officials.



Spreading the coconets across the islands

The weaving of the coconets was done by the local families; mainly the women and unemployable men. Capacity building played an important role, for both the farmers and the women involved in the weaving. The government extended their support to the capacity-building and the feasibility studies. In addition, CocoTech has openly supported coconet producers elsewhere in the Philippines, which have acted as consolidators of coconut production in their areas through selling their coconets to CocoTech. CocoTech has had an integrator role in the industry, as it has been able to loan machinery, equipment and provide hands-on training. The other challenge was that the CocoTech products were not internationally competitive – the company was instrumental in securing the domestic demand by obtaining a protectionist decision from the President to use the domestically produced cocofibre nets.

The company still faced challenges, however, with lengthy payment times affecting the revenue streams; as a countermeasure the company expanded their business area to cover overseas consulting and bioengineering services. Additionally, the company partnered with German and Dutch producers to develop new products for the coconut fibre; projects soil erosion management have been undertaken in Sri Lanka and in China.

<http://www.cocogreen.net/productlines.htm>

Combining the scarce resources of the challenged nation

The founder of the company understood early on the need for contributions from different stakeholders including the universities, local communities and government officials. The governmental funding was pivotal as the feasibility studies were needed as well as and the training for the production. The public sector in the Philippines has been the most important customer but it is extremely slow in terms of payment processes, creating a need to expand into consulting and engineering business.

Some final observations

The founder of the company saw coconut production in a different way than others in the Philippines, realizing the lack of research into the issue, persuading the government to fund it and proceeded with unique way to do business with the product that before was considered only waste. The company offering consisted of two things; income for the the coconut farmers and an opportunity for the local government to improving the environmental conditions in the country. Additionally the initiative improved the living conditions of the women by giving them opportunity for income generation with their new competences, thus becoming more independent. Other products and services have become part of the offering when the income streams from the coconets have not been financially sustainable.

Whole communities have been able to benefit from the innovative products and business model, which, however, has not been a full success story for the company itself. Twining and weaving the coconets has enabled to mobilise the whole family, mothers and the men outside the labour market. Also the business model of facilitating the birth of other Coconet producers and acting as a aggregate distributor of the coconet produced by the partners is a smart business model. As the cocofibre production has been relatively expensive in the Philippines and the public sector has been a difficult client, the company has leveraged its know-how into new areas such as anti-desertification projects and turning landfills into a improved landscapes. Even though the innovation process has been more technology-based, it has also understood the client's point of view providing environmentally sustainable solutions.

Sources:

<http://www.cocogreen.net/>

http://www.growinginclusivemarkets.org/images/pdf/english/Philippines_CocoTech%20FINAL.pdf

CASE 5:Edenor SA (Argentina)

Empowering customers to become energy-efficient

Edenor SA is the largest electricity distribution company in Argentina with the market share of 18.7%, an annual net sales of approximately of 2.0 billion pesos (521 million USD), and a net income of 122.5 million pesos (32 million USD). The company started to pilot a new kind of energy distribution in the Escobar district where the 50 % of the customers owed money and 30% were 'hanging', i.e. connecting illegally to the distribution network. Only 14% of the customer base was paying for electricity as the rest were without electricity connection. The low connectivity was due to the fact that electricity was not affordable to the recession-burdened population in the way it was being delivered; connections were consuming a disproportionate part of the available income. The innovation of Edenor lay in changing the way the electricity was charged; instead of billing for two-month periods (and disconnecting on non-payment), consumers pre-paid for electricity according to their estimated consumption. This enabled the consumer to control their consumption and manage the paying off bills in advance.



Source: <http://www.iredenor.com/aboutedenor/>

Knowledge from the customers

An understanding was needed of the difficult situation of the low-income population in the country, during and after the severe economic crisis. In order to find out the thoughts, wishes and reality of the residents, Edenor representatives made extensive visits to the communities. The management of Edenor understood that many of the consumers were willing to pay for electricity given that they had enough money to do it. This caused the fundamental shift of the company philosophy to include the social inclusion in their decision making process.

As a result, the system was designed that Escobar district resident used pre-paid system for the electricity on pay-per-use basis. This enabled them to adjust their consumption according to their needs and financial situation, while monitoring the use of both money and electricity. As a consequence, Edenor shared the knowledge of the electric consumption empowering the customer to be in control. In addition to the income generated by the new model, the company saved money by having less 'hanging' consumers and not being forced to cut (and connect) the electricity connection.

The other important know-how was how to design the system with the vending machines and meters in such a way that these would be optimally located within the district area – the fear being that otherwise the consumers would not adapt to the new ways of payment and stick to 'hanging'. Finally, Edenor had to foot the bill for the high cost of prepay meters (that had to be

imported from remote South Africa). The company soon improved the performance of the meter and shifted to domestic production, which made the system more affordable.

Spreading the joy to pay your electricity bills

The system was a success as it not only generated revenues but also helped Edenor to restore their reputation as an active stakeholder in the community (and assisting in devolving customers' pride of being honourable and respectable citizens). As the residents in the adjacent districts heard of the pilot programme they sent requests that the new model should be expanded to their areas. This reflected the desire of transferring from a free-rider to a paying customer. Consequently, Edenor has extended the project to Merlo district whose residents share similar characteristics with Escobar district inhabitants.

Including the customer as a resource

Basically, Edenor understood the customer as a source of innovation, by examining the needs and radically changing their mindset to new innovative and more profitable business models. The radical transformation of the business model gave a chance to create a new kind of relationship between the clientele and the company; the goodwill of the company increased in the press and town council viewed the change as a significant improvement. In the process the company noticed that many households were using energy inefficiently; therefore, the company has established a programme called "Casas por energia", where both social activities and technological pilots are conducted in order to improve the energy-efficiency of the households. The company has also entered into Public-Private-Partnerships as the public sector foundations are supporting these projects.

Some final observations:

The business environment had become more challenging for Edenor to operate due to the financial crisis in between 1999-2002 when the poverty rate reached 53% in country's urban areas. For the electricity provider, widespread poverty is a problem as the 'hanging' is possibility for the free-riders. Thus, problem had to be addressed by selling energy in smaller amounts. The offering of the prepaid system meant that the electricity can be bought in 'sachets' according to the short-term need without major investment. For Edenor, widening offering means including more districts into the programme and offering the complementary programs for better energy usage. Thus, the customer is not only able to control how much electricity he uses but also use the electricity more efficiently obtaining more value for his money.

Sources:

<http://www.iredenor.com/aboutedenor>

http://old.metering.com/archive/mi_4_2005/pdf/67.pdf

Edenor S.A: energy and development for the base of pyramid, Gardetti *et al.* in Sustainability Solutions at the Base of the Pyramid edited by Kandachar et Halme

Since the pre-paid business model existed already in the mobile phone business, basically Edenor transferred an existing model into a new industry. The major innovation was the successful application of the pre-paid model into new industry and the local circumstances. In addition, the company realised that it should not stop with providing the system itself, but the innovation should continue with the users on how to save energy and how to use it efficiently. Thus the user will stay in the centre point of this innovation where she has been right from the beginning.

CASE 6: Smart Communications (Philippines)

A global forerunner of wireless valued-added services

Smart Communications is Philippines' biggest wireless services provider with 35.2 million subscribers (12/2008) with the turnover of over US\$ 1.542. It is wholly owned by the Philippine Long Distance Telephone Company (PLDT), a multinational quoted on the New York stock exchange, offering wireless services on a cellular network, a fixed wireless broadband service, and a satellite phone service. The revenues from wireless value-added services can be divided into SMS based services (89,6%) value-added services (10,2%) and Smart Money (0,3%) Smart Communications has become famous for its innovative mobile banking and remittance services, which has fuelled the company growth, while helping the development of the communication services of the whole nation. Smart Com serves primarily the domestic market, but also provides with the services for overseas Filipino workers.

Knowledge taking the services further

Smart Communications was not the first operator that introduced GSM services to the local market, as Globe was the first mover providing wireless GSM services to the up market and corporate customers, Smart Com directed its offering to alternative segments, aiming for a wide low-income consumer base that had not had previously access to the services. The initial innovation was to increase accessibility, through waiving the requirement of presenting official documents from the subscribers of the pre-paid cards; a great number of the Filipino low-income customers did not possess credit cards, utility cards, proofs of employment or income tax certifications, previously required to open mobile connections. Later on the reloading of the pre-cards was also made attractive by decreasing the required minimum reloading sums. In this case, the knowledge of the local market and the firms relative positioning viz a viz competitors were important success

Smart Padala International



Smart Padala Domestic



Remittance Partners Abroad



Source: <http://smart.com.ph/corporate/services/Remittance.htm>

factors. Also, it can be seen that the decision required a bold risk-taking attitude together with an ability to see the future potential of an increasing number of people with low incomes using the services and generating profits, once given the access and minimal opportunity to participate. The other knowledge that can be seen important is the understanding of the challenges that overseas Filipino workers face when making remittances to help their relatives back at home. Before it was more expensive and

troublesome to send money from overseas to the Philippines; this has been made more simple and affordable thanks to Smart remittance services.

Diffusing the business across the islands

As the entry requirements of the pre-paid services were lowered, it met the needs of the low-income, community-oriented Filipinos for communication. On the other hand, fixed-line communications were often missing and island-scattered geography made traveling challenging, and thus the consumers moved directly to wireless communication solutions. Still in terms of commercialisation process, the traditional distribution networks of daily fast moving consumer goods were utilised as the local shop owners could promote and sell pre-paid SIM-cards, airtime and m-banking solutions. As a result, Smart quickly established a distribution network of some 800 000 resellers, exponentially expanding business for all parties involved.

In terms of the banking services, the eased requirements have also functioned as the engine of the dissemination. As the beneficiaries are not required to have bank accounts, it makes the remittance process much easier and the target group of such a service much larger. The overseas workers could transfer money to their relatives with lower cost, faster and less formalities.

As the company has been able to scale up the operations, it has offered more attractive pricing scheme to the phone users that have less and less disposable income. Smart has not only developed more sophisticated solutions to cater the mobile banking needs but also developed applications facilitate the using of the basic telephony services, such as over-the-air system for topping up the pre-paid balance. As the mobile banking required several updates and modifications in the country's legislation, Smart and other operators engaged in the active dialogue with the government to obtain the required changes.

Smart – pooling resources across the nation

It is worth remembering that Smart was a subsidiary of a fixed phone line company that gave it the needed support at the start-up phase. On the other hand, as the company was a late arrival to the GSM market after its main competitor Globe, Smart had to think of alternative ways to thrive on the market. The key success factors for Smart were the revenue streams from the old analogical mobile phone business, the support from the parent company, and the local knowledge combined with the innovative approach. As mentioned before, Smart was able leverage its sales force and distribution network through collaborating with local shops and resellers, through extending a 15 % commission to them, quickly expanding to 800.000 re-sellers nationwide. The local village-level entrepreneurs were mobilised to promote and resell their services creating win-win situation for the micro-entrepreneurs and Smart.

Some final observations

Case of Smart points out that the challenging position in the market can result in the market innovation, more services to more people instead of intensifying competition based on business models in old premium market segments. The case highlights the power of the combined innovation in markets and technology, where developing new markets gives the direction,

while technological innovations provide the vehicle to benefit both the company and the Philippine community, both inside the country and overseas.

In terms of the innovation environment, the initial new business enabler was the industry transformation and the technological shift from analogue to digital communications, where the GSM standard enabled Smart to access more geographically scattered customers, creating an effective substitute for inadequate fixed line telephony.

The offering of Smart products and services evolved in two directions. In the first instance, Smart offered telephony services to people who hadn't previously had access to the services due to the identity verification and/or pricing policies. This was possible both for the policy changes (no identification required) and technological innovation such as over-air credit loading system. Secondly, Smart offered new solutions catering to people's needs. The banking and remittance services addressed the needs for alternative banking that had not been adequately addressed; therefore Smart developed the systems that could meet Philippine needs to use the banking services in cost-efficient ways.

The emerging business model was based on Smart changing the wireless business from the premium business to a volume business. The more accessible and attractive pricing, together with more permissive regulatory policies and attractive schemes for resellers expanded the market share boosting the sales and thus also profits. The innovative banking and remittance systems enabled Smart to enter the same market as companies such as the Western Union and commercial banks with substantially faster service and cheaper pricing.

Smart has been able to put the user and his needs on the centre of its innovation process. By studying the needs of the Filipino users, it has been able to develop solutions for the low-income customers with weak access to credit, and to tailor a banking remittance service for their needs. It is worth pointing out that, in this case, technological innovations have been serving the Filipino users better, and not vice versa. Smart has also contributed to development in many ways: through making communications

Sources:

<http://smart.com.ph/>

http://www.growinginclusivemarkets.org/images/pdf/english/Philippines_Smart%20FINAL.pdf

<http://www.undp.org/gimlaunch/download.shtml>

CASE 7: SAFIPA (South Africa)



Going grassroots through SAFIPA

SAFIPA (South African Finland Knowledge Partnership on Information and Communication Technology) is a partnership programme between Governments of South Africa and Finland, managed by a development consultant, Advansis, with the project organisation hosted by the Meraka Institute, commissioned by Department of Science and Technology of South Africa. Meraka Institute operates under the Council of The Council for Scientific and Industrial Research (CSIR), which is VTT-type of research organisation. The project duration has been set for three years, and the aim is to create an environment which facilitates the development and deployment of ICT service applications for the benefit of South African citizens in national, regional (provincial) and local levels. Before the SAFIPA programme, the COFISA (Cooperation Framework in Innovation Systems Between Finland and South Africa) programme developed the groundwork where the Finnish and South African governments facilitating the development of the local innovation system with different components and institutes; this was supported through consultancy services. SAFIPA has expanded the Finnish support in the local innovation activities to the grass-root level. SAFIPA also manages funds that can be allocated to the start-up companies, university projects or public-private partnerships with targets in line with overall objects of the programme.

Knowledge to build the information society

South Africa has had a world-class research and development set-up as the economy was forced to develop self-sufficiently during the long, apartheid-induced embargo. The main challenge today is the uneven distribution of knowledge, as the black majority (79.5%) has been in many cases excluded from the information society – this rising the need for assistance by the Finnish programmes.

SAFIPA has been facilitating the local knowledge development in several ways. The challenge is that the field of innovation has been very fragmented, and partnerships between public and private research organisations have been based on bilateral cooperation, with the multilateral programmes missing from the equation. Thus the centres of competence, clustering and multilateral cooperation have been important themes in the promotion activities undertaken by both SAFIPA and COFISA. Through workshops and seminars, local stakeholders have acquired knowledge on a range of topics and have also had the opportunity to see what kind knowledge and competences are being developed across the country. Receiving funding is not a pre-condition to attend these sessions; also projects and teams who have been not received grants are eligible to participate.

Like COFISA before, SAFIPA has been actively bringing Finnish knowledge to assist the local system. One of the key elements has been to use the Finnish know-how in education and capacity building, as in the case of the Nokia-built mobile learning platform. The program has also supported visits of South African researchers to Finland; with a group visit planned again in the near future.

Facilitating the networking within the nation and between Finland

As noted before, the workshops have facilitated the creation of contacts within the South African ICT-community. In addition to this, the project organisation has connected Finnish experts to the local ones, creating opportunities for mutual learning and business. South Africa also has a venture capital investment industry, but the ideas and the money don't always seem to find each other; thus SAFIPA has been given an opportunity to network the idea owners and financiers, helping them to meet one another.

Providing the needed resources

SAFIPA has provided grants for potential projects that have aims within the overall objective of the project. The given grants have been between 10 000 – 110 000 euros, ranging from supporting prototypes to complete programmes, a mobile learning pilot run by Nokia being the biggest one. The project is a typical example of a co-funded project where a third of the project is funded by SAFIPA, a third by Nokia and a third by Nokia Siemens Networks. When the potential candidates apply for the financing, they often are given advice on how to prepare a proper application as many of the candidates lack these skills. Even though the application is not approved, the applicant can still participate in the workshops and trainings, thus he is more able to acquire resources from somewhere else and he can still progress on the learning curve.

The financing is also distributed in tranches according to milestones achievements which require reporting from the recipient; this promotes systematic approaches and long-term thinking.

Some final observations

The end of apartheid started the process of raising the well-being level of the black majority to be on par with the affluent white minority. That being said, poor infrastructure, inadequate education and the difficult aids situation make the situation very challenging, even though the GDP per capita is relatively high, 10 119 USD. New innovations are needed as people need education and training; the black majority has to be included in the development and wealth creation as redistributive strategies are not sufficient to guarantee a good life to all. The program offers financing and workshops which in turn can increase the contacts and knowledge of the participants. In the national level, the program helps to bring together the different players in the private and public sectors. The advantage of the SAFIPA organisation that is a neutral player in the field being an acceptable moderator of discussions, for instance on the recent IPR –regulation of the universities.

As SAFIPA is a development cooperation project, it does not generate income. However, as Nokia led mobile learning demonstrates, SAFIPA leverages the magnitude and capability of the projects with public-private partnerships. SAFIPA does not officially innovate but it is committed to come up with the topics that are relevant to its stakeholders even though they might not be officially in the list. One example of this is the discussion forum for the universities on the new IPR regulations.

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Skype Interview with Kristiina Lähde, SAFIPA 15.6.2009

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CASE 8: Innovation Democracy (Afghanistan)

Liisa Välikangas¹

June 15, 2009

When less is more –how to focus development aid effectively

When it comes to helping the poor prevailing orthodoxy boils down to a catchphrase: “Give adequate resources to those with inadequate resources.” Many see lack of resources as fundamentally inhibiting without recognizing that a resource-driven mindset encourages managers to throw money at



Source: Innovation Democracy

problems in the hope that innovative outcomes will result. While hope springs eternal, innovative outcomes in this top down perspective are rarely achieved. Instead, institutions in charge of allocating resources consistently choose to give funds to recipients that help fulfil the donor organization’s needs for accountability instead of results thus skewing the funding system toward institutional control at the cost of reduced local innovativeness

(Tendler, 1975)

The current action model is antithetical to a society that seeks to nourish its capacity to innovate. On the other hand, in a bottom-up perspective, the returns [to innovation] are a matter of effective grassroots organizing so that imaginative ideas will surface and teams may form to foster these ideas.

The policy implications are vastly different: the top-down view seeks more effective institutional guidance while the bottom-up perspective requires an understanding of small group dynamics that result in innovative ideas and risk taking, and an understanding of social rather than purely economic strategies.

Development aid must foster local solutions to overcome resource constraints. Paradoxically, this is accomplished by using these very constraints as inputs to innovation processes (see Gibbert et al. 2007).

Innovation Democracy, Inc.

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Innovation Democracy, Inc. is a not for profit corporation organized in accordance with the laws of California, USA. Its aim is to build economic stability, thereby providing the necessary base for human rights at practical grassroots level. Innovation Democracy does not give direct humanitarian assistance. Instead, it empowers individuals to help themselves, their families and their communities – for their entire life-time. We guide the new generation to be innovative and start their own businesses so they can take part in building their country, have more stable family life, enjoy the economic means, and give employment opportunities to others. Teach people to be imaginative, and they will tinker with the resources at hand until they’ve found innovative solutions.

In our experience, flooding a country with financial aid reduces the incentives to find innovative solutions to overcoming resource constraints. Here is an example of our operations in Afghanistan.

.....
The missions of Innovation Democracy:

Take small actions and turn them into significant beginnings.

Mission 1:

Make the ability to contribute – and innovate - everyone’s right and privilege in a society.

Mission 2:

Invigorate people’s belief in their own self worth; Integrate men and women as equal actors in their society; Boost and support their capacity to make a difference to their local community and beyond.

Mission 3:

Skill and empower graduating students of major universities to turn their novel ideas into business ventures. Partner with “sister companies” - world’s leading corporations - to mentor and act as an early-stage investor to ingenuity and entrepreneurship.

.....

Innovation Democracy Afghanistan (I.D.A.O.)

Innovation Democracy Afghanistan is a registered local non-profit organization in Kabul, Afghanistan. It is a sister organization to Innovation Democracy, the California organization. Its projects have been funded by private people and private foundations in Afghanistan, Europe and USA. In Afghanistan, we have worked with AISA, USAID, the Agency for Export Improvement, and such local dignitaries as Dr. Ashraf Ghani.

“The multibillion amounts of international funds channeled to Afghanistan have not helped us come closer to realizing our dream.”

- A student in University of Kabul, Afghanistan.

Money flows to Afghanistan have created inflation and distorted the economy. Despite an investment of some \$20 billion in development funds, people’s average living standards, even in Kabul, are low. Development

efforts dominated by resource-driven thinking extenuate this situation. Development aid should make a difference in these peoples' lives by supporting resourceful innovation rather than suspending the need to innovate due to temporary resource abundance.

The premise of Innovation Democracy Afghanistan is that grassroots, profit-motivated initiatives can produce self-perpetuating returns to the society and economy. We teach innovative entrepreneurship and encourage students to take small actions that produce significant beginnings. We support local innovation and entrepreneurship and maintain that investment in innovative entrepreneurial education is an investment in healthy long-term economical growth. Our Innovative Entrepreneurship Program is based on four cornerstones: 1. Networks, 2. Local initiative and involvement, 3. Latest learning methods, and 4. Creativity.

Our Innovative Entrepreneurship Program teaches entrepreneurship in a concrete manner. This increases the likelihood of business success. Students become more knowledgeable candidates for coming up with new business ideas or more responsible candidates for companies to hire. They also gain a support network for their future endeavours. At a national level, the Innovative Entrepreneurship Program establishes a foundation for modernizing education, building entrepreneurial attitudes, cultivating habits of inquiry and curing the imagination deficit so that potential solutions to persisting problems can be identified locally. We also believe the members of the Innovative Entrepreneurship Program and its alumni, will play a critical role in stabilizing the society in Afghanistan.

Results to date

In 2007: Six-day introductory course on innovative entrepreneurship at Kabul University, Kabul, Afghanistan. In November-December 2007: Seventy-five students participated in the course. Students focused on creating innovative business ideas, challenges of starting a business, and transforming small businesses into big operations. Three female students of this class have opened up a café at Misbah Educational Institution.

In 2008: A full academic year course on innovative entrepreneurship started in April 2008 at Kabul University and ended in December 2008. Thirty-nine students took part and nine complete business plans emerged. The students received mentoring outside of the classroom and were introduced to the business community in Kabul. The students also worked as apprentices in local businesses such as construction businesses, banks, and bottling companies during the summer break, thus gaining work experience. Also other Afghanistan and world-wide networks have been established. The students engage in apprenticeship programs and take part in visits to businesses and other relevant organizations. In addition to mentoring by IDAO the student groups receive mentorship from successful businesses. For example a group of students planning a tissue paper company have an experienced paper industry mentor from outside Afghanistan. The student café has a Kandahar coffee shop as a mentor. A group of students planning a dried fruit plant are planning to use family money as venture capital.

"I am very happy for being a participant of Innovation of democracy program in Kabul University. What we learned in this course was very useful for us because before we didn't have skills to start businesses, nor to make a business more efficient, nor to find financial resources, or to do market research, or write business

plans. Now we are able to do all that and can start filling our market with national businesses.”

A local student

We intend to run entrepreneurship courses in all universities and most of the high schools in Afghanistan using the Innovation Democracy methodology. The overall mission is to support local innovation and entrepreneurship in countries important to world stability. In Afghanistan Innovation Democracy is the most resource-efficient, privately-funded operator, educating and mentoring a generation of students capable of taking responsibility in a society that urgently and desperately needs jobs, stability, imaginative problem-solving skills and a strong (but so far lacking) culture of team work.

Indicators

Number of students on 2007 6-day course: 75 (10 female)

Number of businesses established and running by 2007 students: 1

Cost per student in the 2007 6-day course: 146 dollars

Number of students on 2008 year-long program: 39 (6 female)

Number of business plans created by 2008 students: 10

(Students currently working on establishing businesses)

Cost per student for the 2008 year-long program: 615 dollars/student

Number of applicants for 2009 Kabul University year-long program: 66

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