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Disclosing the role of IT Suppliers as Digital Innovation enablers for SMEs: a strategy analysis of the European IT Sales Channel

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Abstract

As Information Technologies (IT) play a growingly strategic role in several industries, Small and Medium Enterprises (SMEs) adopt IT solutions to trigger Digital Innovation supporting their processes and improving their products and services. SMEs' scarce resources and inadequate IT competencies forces them to demand support from IT suppliers in the IT adoption and Digital Innovation journey; however, little attention was paid to the business models and strategies of IT suppliers in the academic and professional literature, and SMEs find it difficult to assess and select IT suppliers that best responds to their needs and aims. This study's goal is to provide a detailed picture of the IT Sales Channel and its players in the European market. A classification framework is proposed and eleven different business models are identified. The study leverages multiple case studies relying on semi-standardized interviews with Chief Executive Officers and Marketing Managers of leading European IT suppliers.

1. Introduction

Today, Small and Medium Enterprises (SMEs) recognize the important role that Information Technologies (IT) may have in supporting business processes and in the development of products and services.

IT suppliers can play an important role for SMEs as enablers of IT adoption and generators of digital innovation, but this potentially important role for IT suppliers is not yet fully exploited in practice.

IT suppliers, which operate in the IT sales and distribution channel (e.g., hardware resellers, software houses, system integrators) are facing a period of significant change in their strategies and business models. In the academic and professional literature, three main kinds of IT suppliers can be identified, depending on their commercial offer: hardware resellers, software houses and system integrators. However, the authors believe that this classification should be re-considered for several reasons: the growing strategic role of IT's in supporting business in companies of different sizes and in different industries, the evolution of companies' needs and the development of IT vendor strategies (e.g., Microsoft, HP, IBM, SAP) that create more complex and continuously evolving IT business models and strategies among suppliers. It is important for SMEs to choose the right IT partner with the most suitable characteristics and competencies; a partner that can offer the most appropriate technologies and support during the adoption process. Given these considerations, the goal of this paper is twofold. One aim is to propose a classification framework to analyze the strategic positioning and the competencies of IT suppliers, and the other aim is to identify the main strategic trends in the European market.

The classification framework, based on an empirical analysis of the European market, could be useful to various players: i) IT suppliers' top management, in order to define strategic actions more effectively; ii) IT vendors that exploit IT suppliers to market their products and services especially to SMEs, in order to recruit and select the most suitable sales channel partners; iii) corporate IT decision makers (e.g., Chief Technology Officers, Chief Information Officers), in order to help them understand the competencies and the products and services offered by different IT suppliers so that they may select the most effective external partner for the company.

In order to achieve these goals a case study methodology was used to analyze 53 IT suppliers operating in the European market.

2. Theoretical background

In the last ten years, IT has become an important element in company processes, in products and services distributed to the market, in enabling strategic and organizational change projects and in the re-definition of business models. IT is thus a potential

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source of uniqueness and competitive advantage for companies [1, 2]. Today, IT managers (referred to as Chief Information Officers in large companies) are more involved in strategic activities aimed at innovating companies' products and services, processes and business models [3, 4].

information technology) out-perform competitors that do not invest to the same extent. These results suggest that IT could offer companies a competitive advantage, allowing them to differentiate themselves in the marketplace.

However, since prior studies focused on large and often diversified companies, it is unclear whether or not these results could be generalized to SMEs [6]. Supposedly, the more flexible managerial capabilities of SMEs dctate the level of success of IT adoption and the resulting positive effects on financial performance [7].

Many SMEs try to adopt IT to support their business. On account of their limited resources, IT adoption in SMEs is different from its adoption in larger businesses [8, 9, 10, 11, 12, 13]. The existing literature documenting some of the drivers and barriers to IT adoption within SMEs is very extensive [14, 15, 16, 17, 18, 19, 20]. Drivers positively influence IT adoption, while barriers negatively influence IT adoption. Drivers and barriers may come from within SMEs or from outside SMEs. Independent, impartial consultants and IT suppliers are an often-cited source of assistance for SMEs in the IT adoption process [9, 19, 21]. Despite the number of studies available however, there are only a few that consider strategies to guide SMEs in the IT adoption process.

Focusing on the literature on IT suppliers, it is evident that they can be a source of important IT capabilities for companies of different sizes: IT suppliers support companies' innovation and change processes through technological innovation; IT suppliers offer specialized IT competencies that increase the dynamic capabilities of companies [22]. According to continuous innovation theory [3], innovation requires the ability to combine exploitation and exploration capabilities. Exploration capabilities can be strengthened by the experience of IT suppliers. External Information Technology (IT) capabilities represent a very effective tool in the pursuit of organizational goals, especially when a company's internal IT capabilities are lacking [13]. The lack of IT capabilities is often more visible in SMEs than in other companies. SMEs face specific problems in the formulation of their innovation strategies as a result of deficiencies arising from their limited resources and range of technological competencies [23, 24] SMEs have smaller budgets for IT investments than larger companies, so financial limitations have traditionally prevented SMEs from making investments in large and

A direct link between IT and company performance was established by Powell and Dent-Micallef [5] who found that highly IT-capable companies (i.e. those that invest heavily in

complex IT applications. In addition, smaller companies are often managed and operated by owner-managers who are pivotal individuals that drive the organization forward [25]. Owner-managers may have significant product and domain expertise but limited IT skills [26, 27]. Together, these findings, along with prior research about the level of IT knowledge in SMEs, suggests that collaborative efforts with external IT suppliers may be a good, if somewhat risky, investment for SMEs, which are more likely to obtain benefits from strategic partnerships in the IT industry than large companies [28, 29, 30].

As a consequence, another topic often discussed in the literature concerns the creation of a "strong relationship with the IT supplier" [31, 32]. Although a majority of technology managers want to have a strong relationship with their IT suppliers and to share knowledge and competencies, they often act in a way that undermines this goal. Many companies, especially SMEs, lose out on the potential benefit of a close relationship by engaging in value-destroying behavior by paying too much attention to costs.

With regard to the new, prominent role of IT suppliers, especially in the context of SMEs, the literature has mainly focused on the "client's perspective" by analyzing how suppliers are selected and the benefits of stronger relationships with IT suppliers [31, 33]. These studies offer operative suggestions, but they do not help companies to identify the most suitable supplier, in terms of strategy, competencies and other important aspects of supplier fit. This lack of guidance in the search and selection process could be a problem, particularly for SMEs.

A few studies examine IT vendors' perspectives, including motivations, strategies, business models and products offered [34].

The existing academic and managerial literature about IT suppliers can be classified into two main categories: 1) qualitative contributions [35, 36, 37, 38, 39, 40] focusing on the analysis of IT suppliers and their business models, competencies, main internal activities and organization; and 2) quantitative contributions provided by research centers (e.g., Forrester Research, Reed Research Group, National Electronic Distributors Association, Isuppli Corporation, National Electronic Distribution Association, Avnet, Inacom and Kompass) focusing on the size of the IT market targeted by IT suppliers.

Few studies from the first category go beyond a "traditional classification" of the IT suppliers' business

models. In fact, the majority of academic and professional contributions indicate only three kinds of players in the IT distribution channel: (i) hardware resellers that sell hardware products (e.g., PCs, servers, storage systems) from well-known brands (e.g., HP, IBM, Acer, Fujitsu, Siemens); (ii) software houses that sell self-developed software applications (e.g., ERP - Enterprise Resource Planning - systems, CRM - Customer Relationship Management - applications, business intelligence applications, CAD – Computer Aided Design, PLM - Product Lifecycle Management - systems); and (iii) system integrators that customize and integrate software applications provided by software vendors for company users (e.g., Microsoft, SAP, Oracle).

With regard to the second category, quantitative data and figures on the size of the IT market targeted by IT suppliers are available mainly through research companies.

Given the growing strategic role of IT suppliers in supporting SMEs' innovation processes, our research focuses on IT suppliers' characteristics in order to help SMEs to select the best partner from among them.

As we have shown, the existing literature is extensive but fragmented and usually does not focus on SMEs. Nor do studies focus on important issues such as strategies, core competencies and organization of IT suppliers. The results of these studies are also relatively obsolete because they do not consider the most recent developments and trends in the IT channel, such as M&As and partnerships. In addition, there are no models in the literature for the classification of IT suppliers' specific competencies.

3. The Methodology of the empirical analysis

Our research aim is to gain a better understanding IT suppliers' nature by classifying their business models, understanding how they are evolving, and studying their specific competencies. On the one hand it could help companies, especially SMEs, to choose the best IT suppliers and, on the other hand, it could also be useful to IT suppliers' managers to help them understand how to organize their structures and competencies to better serve a particular area of the market.

The present research is based on case studies, which are defined by Yin [41] as "empirical inquiries that investigate a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident." Case study methodology seems appropriate for two reasons: i) case studies provide both qualitative and quantitative results by combining several data collection methods (e.g. interviews, questionnaires, archives) [42]; ii) the case study method is well-suited to describe IT suppliers.

When using the case study methodology, at least two different decisions must be made: first, how many studies to carry out (one or more) and, second, the type of case study (e.g. explanatory, descriptive, exploratory). Despite their complexity, multiple exploratory case studies seem to be most appropriate for the purpose of describing a phenomenon that is poorly analyzed in the literature and data for statistical analysis is inappropriate, unavailable or too expensive to collect [43].

The analysis is divided into the following sections:

- research design;
- case study implementation;
- analysis of data and interpretation of case study evidence;
- assessment of research quality.

3.1. Research design

As suggested by Yin [41], the study questions are identified first. In accordance with the research objectives, these questions are as follows:

- What is the strategic positioning of the IT sales and distribution channel? In other words, what products and services do the various companies acting in the IT sales and distribution channel offer and what is their target market?
- What are the most relevant competencies related to different strategic positions?
- What are the main strategic trends affecting European IT suppliers?

Because attention must be paid to different subunits within a company, we use embedded case studies or multiple unit of analysis, which include the following units of analysis: IT suppliers' strategic

directors (e.g. CEO, managing director), managers of sales and marketing, and managers of technical areas.

3.2. Case study implementation

The concept of population is important because the population defines the set of entities from which the research sample is drawn [42]. A total of 53 semi-standardized interviews were conducted with European IT suppliers. A formally structured interview schedule consisting of the sections presented in Table 1 was used.

Table 1. Interview Sections

General company information (e.g. trends in turnover in recent years, number of employees, location)
Commercial offer (e.g. IT products and services offered, turnover among the different kinds of products and services)
Internal organisation and competencies (e.g. organisational units, number of employees in each organisational unit, employees' areas of specialisation)
Market scope (e.g. target industries, size of target companies, location of target market, customer concentration)
Competitive landscape (e.g. main competitors, competitive positioning, competitive advantages)
External trends (e.g. main economic, technological, legal and institutional trends affecting business)
Strategic goals for the future

In addition, questions that fit the main research aims were generated, developed and adapted because a dearth of information on IT suppliers made it impossible to determine all the relevant questions in advance. In this way, we benefitted from the advantages of both standardized and non-standardized interviews.

We did not select the cases randomly because, as noted by Pettigrew [44], only a limited number of cases can usually be studied and it therefore makes sense to choose specific cases in which the process of interest is "transparently observable." Cases were selected because they conformed to the main requirements of the study, while demonstrating both the similarities and differences considered to be important for the data analysis.

To find the most relevant European IT suppliers, three main sources of information were considered:

- Politecnico di Milano School of Management's database, which contains approximately 200 IT suppliers;
- the databases of IT sales partners provided by the main IT vendors in Europe (e.g., HP, IBM, Acer, EMC2, Microsoft, SAP, Oracle); and
- commercial databases (e.g., Kompass).

IT suppliers were selected for analysis using the following criteria: i) total turnover above €4 million; ii) number of references collected from 1,000 SMEs analyzed by Politecnico di Milano School of Management's Observatory dealing with "IT in SMEs"; iii) broad coverage of all possible business models (in the selection phase, the IT suppliers' business models were only analyzed through secondary sources such as websites and company documents); and iv) availability to participate in the research project.

Fifty-three European IT suppliers were selected using these criteria (see Table 2).

Table 2. The selected IT suppliers

IT operator	*Turnover (€ millions)*	*Employees*
Company 1	400,00	2800
Company 2	122,00	464
Company 3	120,00	2500
Company 4	100,00	1000
Company 5	82,00	920
Company 6	60,65	500
Company 7	60,00	200
Company 8	60,00	NA
Company 9	56,00	400
Company 10	55,00	22
Company 11	52,10	730
Company 12	52,00	120
Company 13	50,00	650
Company 14	42,50	250
Company 15	40,00	300
Company 16	38,00	70
Company 17	37,00	400
Company 18	30,00	250
Company 19	25,00	55
Company 20	20,00	200
Company 21	20,00	160
Company 22	18,00	220
Company 23	17,00	57
Company 24	15,00	50
Company 25	14,75	55
Company 26	12,59	NA
Company 27	12,50	23
Company 28	12,00	140
Company 29	11,00	70
Company 30	11,00	130
Company 31	10,80	114
Company 32	10,00	25
Company 33	9,70	88
Company 34	9,00	75
Company 35	8,50	70
Company 36	8,50	90
Company 37	8,12	60

Company 38	7,10	100
Company 39	6,60	26
Company 40	6,50	18
Company 41	6,40	69
Company 42	6,30	21
Company 43	6,20	25
Company 44	6,00	78
Company 45	6,00	48
IT operator	***Turnover (€ millions)***	***Employees***
Company 46	5,50	30
Company 47	5,00	14
Company 48	5,00	60
Company 49	4,90	70
Company 50	4,60	44
Company 51	4,40	32
Company 52	4,28	15
Company 53	11	60

Before undertaking the interviews, a pilot test was conducted with practitioners. As a result, the wording of some of the questions was changed to make them easier to understand. All the interviews were conducted in the same way in order to obtain comparable results (i.e. we offered each subject the same stimulus). The respondents successfully answered all the questions. The telephone interviews, which lasted one hour on average, were recorded and transcribed. The transcriptions were subsequently reviewed and approved by the interviewees.

3.3. Data analysis and interpretation of the case study evidence

The responses from interviewees were summarized, interpreted and tabulated, using the transcripts, according to the themes of the research questions. More detailed data were encoded in two files: the central database (a simple Excel spreadsheet) and a Word document containing a full summary of each of the interviews. If any information remained unclear and/or more data were needed, interviewees were later contacted with additional questions. The data analysis was conducted using two complementary approaches; a within-case and a cross-case analysis. The first approach seeks to generate insight [44], while the second enables between-case comparisons to highlight similarities and differences between responses.

3.4 Assessment of research quality

The validity and reliability of case studies rests heavily on the accuracy of the information provided by the interviewees and can be validated by using multiple sources or by looking at data in multiple ways [41, 42]. We exploited multiple sources of evidence (e.g. interviews, questionnaires, archives), the reports were reviewed by the interviewees, and a protocol was written.

4. The IT suppliers classification framework

The aim of this section is to present a classification framework to characterize IT suppliers' strategic positioning based on the results of the empirical analysis.

The classification framework uses the following traditional strategic variables: Market scope and Portfolio scope. Market scope refers to the size of the companies in the target market (e.g. number of employees). According to the European Union classification, there are four main market scope categories: micro-companies (1-9 employees) or consumers, small companies (10-49 employees), medium companies (50-249 employees) and large companies (more than 250 employees). Portfolio scope refers to products and services offered by the IT suppliers. Five main portfolio scope categories were identified: i) hardware and software infrastructure (e.g., network systems, desktop computers, laptops, servers, storage systems, printers, operating systems, office automation software); ii) advanced IT services (e.g., planning, design and implementation of complex IT infrastructure, such as voice over IP systems, high-end servers, storage systems); iii) management software (e.g., company resource management systems, customer relationship management applications, business intelligence applications); iv) system integration services (e.g., customization and integration of software applications developed by third parties); and v) business consulting (e.g., consultancy services focused on business process re-engineering/re-organization before the launch and adoption of critical IT applications). Given the two strategic variables, nine different strategic positions were identified (see Figure 1), which are described in the following sections.

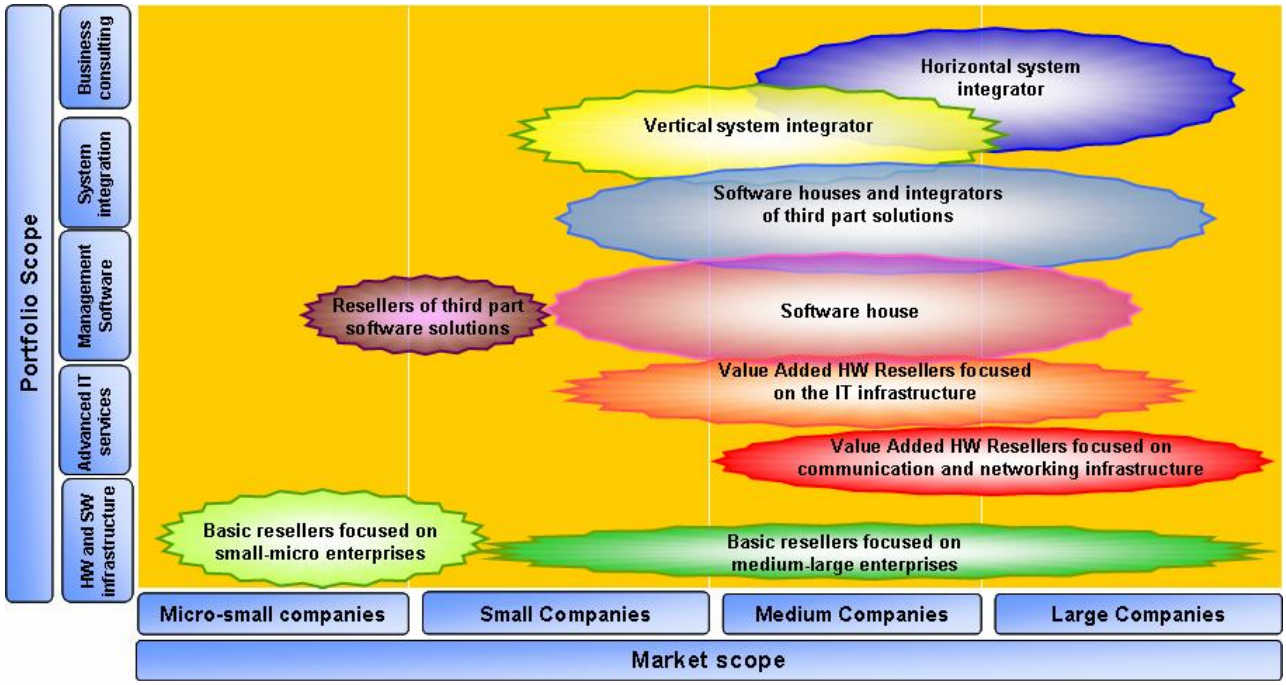

Figure 1. The strategic positioning of the IT suppliers

4.1. Basic resellers

Basic resellers offer simple IT products (e.g., LANs, desktop computers, laptops, notebooks, printers, mono-processor servers) to micro/small companies, or even to consumers in some cases. In addition, basic resellers often supply basic software applications (e.g., office automation applications, operating systems, simple security systems) and basic IT services (e.g., set-up and maintenance of small local networks, PCs, mono-processor servers).

Basic resellers can be grouped into two main categories based on their target market.

Basic resellers focused on micro-companies: These are small resellers that mainly target micro- or small companies in the same geographical area (e.g., an industrial district). Sometimes, these resellers target consumers through their stores.

Basic resellers focused on medium to large companies, also called "corporate resellers": These are larger resellers that target their products and services to medium/large companies or public sector authorities.

4.2. Value-Added Hardware Resellers

Value-added hardware resellers offer complex hardware products (e.g., high-level servers, storage systems, complex communication technologies) and advanced IT services (e.g., design, planning, and maintenance of complex IT infrastructures), as well as basic hardware and software products. These resellers mainly target their products and services to medium and large companies that require such advanced products and services and exploit smaller companies to supply them with basic hardware and software products.

The empirical analysis shows that Value-added hardware resellers can be grouped into two categories according to the function of the products and services in their portfolio:

Value-added hardware resellers focused on the IT infrastructure: These players supply hardware and high-level implementation, installation and maintenance of complex IT infrastructure (e.g., multi-processor servers, storage systems, complex security systems).

Value-added hardware resellers focused on communication and networking infrastructure, such as complex networking systems and voice over IP systems.

4.3. Resellers of third-party software solutions

Resellers of third-party software solutions offer simple software applications (e.g., software to manage accounting, production and warehousing) developed by

software vendors that are easy to install at the customer's site. The target market is micro/small companies and professionals (e.g., lawyers and accountants).

4.4. Software houses

Software houses develop and customize management software applications for companies in various industries. Several types of software applications are developed, including web applications (e.g., corporate websites, eCommerce websites, intranet applications and extranet applications), ERP systems, CRM applications, business intelligence applications and mobile and wireless applications. The target market is medium or large companies. Software houses also supply complex industry-specific software applications to larger companies (e.g., applications for the financial, banking or telecommunication industries).

Software houses and integrators of third-party solutions supply integration and customization of management software applications developed by well-known software vendors (e.g. Microsoft, SAP and IBM) in addition to offering self-developed software applications.

4.5. Vertical system integrators

The core business of vertical system integrators is the integration of specific and unique software applications developed by a software vendor. This specialization results in a close partnership with the software vendor that develops the software application. Sometimes, vertical system integrators develop industry-specific "vertical" software applications based on the standard release of the software, which are subsequently promoted by the software vendor. The target market is mainly medium-sized companies that are often in industries for which the system integrator has developed the "vertical" software applications.

4.6. Horizontal system integrators

Horizontal system integrators are focused on the integration and customization of various software applications developed by third-party software vendors. Horizontal system integrators are called horizontal because they remain independent of third-party software vendors. The horizontal system integrators' target market is large companies.

The empirical analysis shows that several IT suppliers combine competitive positions. For instance, some software houses or system integrators that supply large volumes of hardware products also assume the role of value-added hardware resellers.

5. The IT suppliers competencies

The most important internal competencies were analyzed for each competitive position. Six main competencies were identified through the empirical analysis and the literature review (Figure 2):

1. logistics competencies concerning supply and management/integration with suppliers, warehousing, dispatching and shipping of merchandise, as well as pre-sales and customer care services;
2. basic IT infrastructure services supplying basic IT services dealing with the configuration, installation and maintenance of simple IT infrastructure;
3. advanced IT infrastructure services including the design, planning and implementation of complex IT infrastructure;
4. software development competencies focused on requirement analyses, design, implementation, integration and testing of applications developed in programming languages (e.g., Java, Cobol, C++, Visual Basic);
5. system integration competencies in the customization and implementation of software applications (e.g., ERP systems, CRM applications, business intelligence applications) developed by software vendors (e.g., SAP, Microsoft, IBM); and
6. business consulting competencies focused on organizational analysis and business process reengineering.

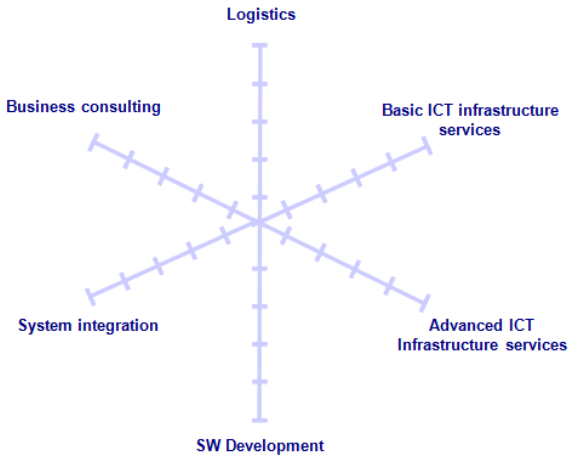

Figure 2. The competences mapping scheme

Based on the results of the empirical analysis, the most common competence-profile for each competitive position was defined and is presented in Figure 3.

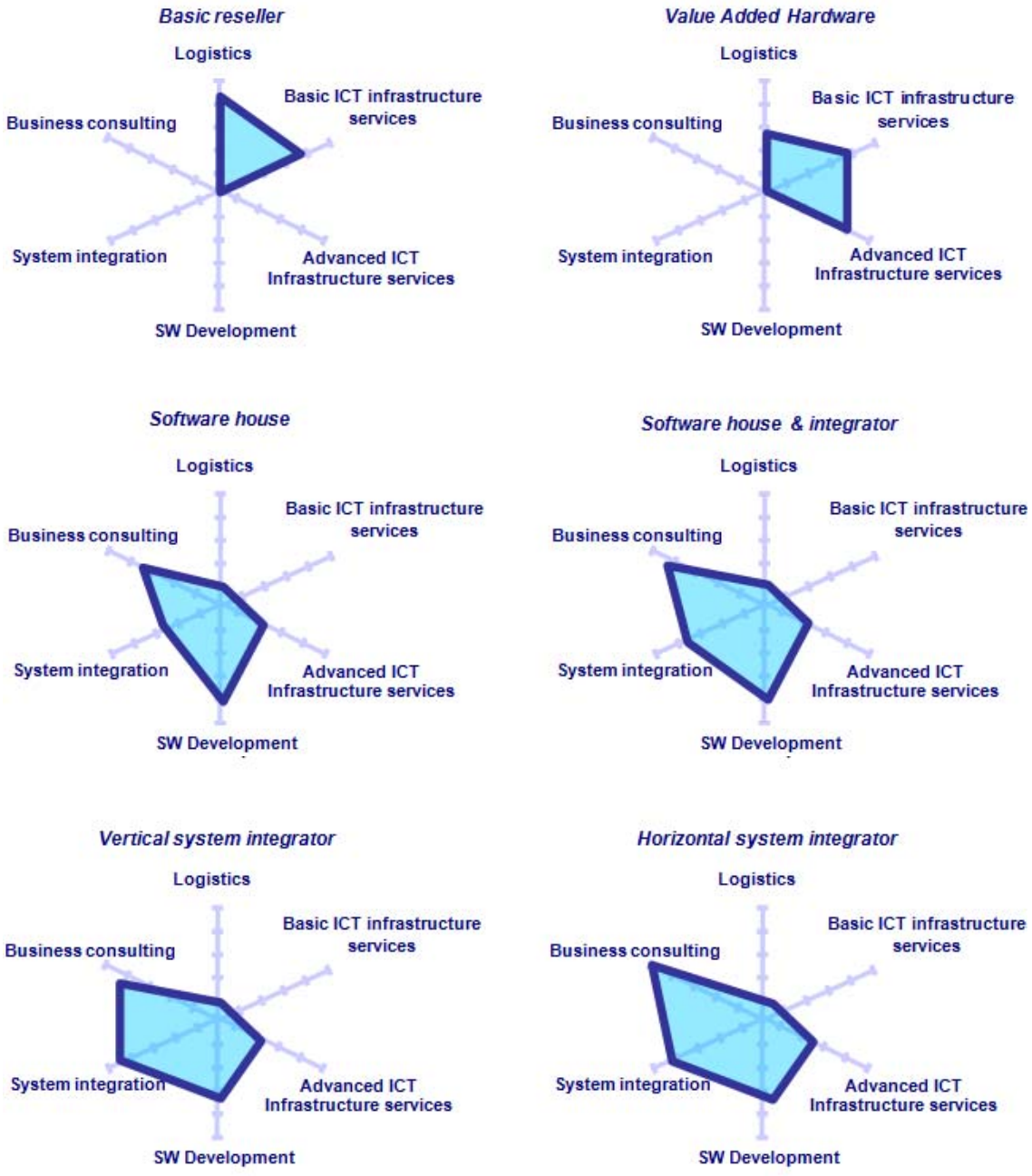

Figure 3. The competence profiles

In addition to these competencies, all the IT suppliers need commercial and marketing skills, the nature of which depends on their target market (i.e., small, medium or large companies). More precisely, a supplier that targets a substantial number of micro- or small companies needs marketing skills in analysis and

segmentation, direct marketing and telemarketing activities, and telesales. The need to reach many, geographically disparate, small companies has encouraged some software houses to develop their own sales channel made up of small software resellers. These software houses have developed skills in sales-channel management, including the recruitment and selection of resellers and training capabilities. However, a supplier focused on medium or large companies will need sales skills and technical and relationship-based skills in addition to the competencies related to market analysis and segmentation.

6. Conclusions

The empirical analysis shows that several business models other than traditional classifications can be described in the IT sales and distribution channel. For each business model different competencies are required in order to create competitive advantages.

Moreover, there are several strategic trends affecting the evolution of these companies in Europe, highlighting the struggle of many companies to develop sustainable business models in a competitive landscape. The results of the analysis can help IT suppliers to define strategic actions more effectively, they can help IT vendors that use IT suppliers to market their products and services to SMEs to recruit and select the most suitable sales channel partners, and they can help corporate IT decision makers (e.g., Chief Technology Officers, Chief Information Officers) to select the most effective external partner for their company by clarifying the competencies and products and services offered by different IT suppliers.

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