The Evolution of Business Nets and Capabilities - A Longitudinal Study in the ICT Sector

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A Competitive Paper submitted to the IMP2003-conference in Lugano

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Introduction

This study examines two current "hot topics": the emergence of a new Internet driven business group, and its construction through a series of intentionally developed strategic alliances and strategic nets. This is a highly relevant topic from a number of perspectives. First, relatively little academic research into so-called e-business has been published, in spite of its huge impact of our economy (Amit and Schott, 2001). Empowered by the digital media, network organizations are expected by many scholars to take the leading role in economic and social innovations in the world of increasing globalization, connectivity, and knowledge intensity (Castells, 1996; Grabher, 1993; Jarillo, 1993; Parolini, 1999; Thompson et al., 1994). Second, in spite of the few seminal studies (Alajoutsijärvi et al., 1999, Lundgren, 1991; Håkansson and Lundgren, 1995; Håkansson and Waluszewski, 2002) we have no more than a rather scant understanding of the dynamics of the emergence of business networks, and especially about the role of individual actors in this process.

Our paper is based on a longitudinal case study in the ICT sector, and it takes the viewpoint of a core company. We look at how new breakthrough technologies (i.e. xDSL, multimedia, mobile technology, Internet) and the combination of formerly separate technologies and businesses are transformed into a viable business – the so-called *Home Commerce* business group – during the time period of 1990-2001. Home Commerce refers to a set of Internet-based services targeted for consumers and accessible at home via different terminals.

Our primary aim is to examine how the case company tries intentionally to construct this new business group by developing of a series of interlinked strategic alliances and nets of organizations. Using the insights gained during this process we try to identify the capabilities that the firm develops, giving particular attention to network capabilities.

The study of network capabilities is a rapidly growing area of research which combines aspects of Industrial Network Theory, strategic management, and the dynamic capability view

of the firm. The basic idea is that companies must develop specific organizational capabilities, which we call network capabilities, in order to operate and survive in a network context (Möller et al., 2003; Möller and Svahn, 2003). This view is supported by the work of Gemunden and Ritter, who speak of network competence (Gemunden and Ritter, 1997; Ritter, 1999).

The paper is organized as follows. We start by discussing the conceptual background for the study. The methodological solutions are then described and arguments for them are presented. The fourth section of the paper is our case analysis. We first provide a periodized description of the emergence of the Home Commerce business group (HCB). The types of alliances and nets that are considered to be critical in this emergence are discussed, with special attention being paid to identifying the network capabilities, which the core company created. The role played by these network capabilities is analyzed. A discussion of the theoretical and managerial conclusions and suggestions for future research conclude the paper.

Theoretical Background

Academic interest in different forms of inter-organizational collaboration has increased considerably during the last decade. We have adopted three theoretical approaches in our empirical study: Industrial Network Theory, so-called value-net approach based on strategy research, and the resource-based vied of the firm, in particular its extensions into dynamic capabilities and learning. As our emphasis is on the empirical analysis, only a brief discussion of these approaches is provided.

<u>Industrial Network Theory</u>

Industrial Network Theory provides the basic conceptual tools, the actors who carry out value-activities through the resources and capabilities they command (Håkansson and Snehota, 1995). The proposition that networks represent a complex system in which actors' interdependencies and reciprocal exchange processes, characterized by both competition and co-

operation, continuously constitute and reconstitute business fields (Alajoutsijärvi et al., 1999; Halinen et al., 1999; Halinen and Törnroos, 1998; Håkansson and Waluszewski, 2002) offers a perspective that is of obvious value for our study.

Another relevant aspect is provided by the concept of embeddedness, which refers to an organization's relations with and dependence on the different types of networks (institutional and political networks, technological systems and institutions) which form an organization's "environment". These simultaneously condition the organization's actions, its potential rela-tionships, and the outcomes it may achieve (Halinen and Törnroos 1998; Lundgren 1991). In other words, actors in a network should been viewed as important change agents and not only as passive adaptors to a faceless, changing environment.

Value net approach

When Industrial Network Theory primarily focuses on the general characteristics of organi-cally-evolved networks, i.e. on their structure and development processes (Möller and Halinen, 1999), the emerging value net or strategic net approach is primarily interested in the creation and management of intentionally-formed network organizations featuring a specific set of actors (Jarillo 1993, Normann and Ramirez 1993, Parolini 1999). Möller and his col-leagues (Möller et al., 2003; Möller and Svahn, 2003) have recently suggested that different types of strategic nets can be classified into three ideal types (stable, well-defined nets; in-cremental innovation nets; radical innovation nets) based on their goals (current value produc-tion, incremental improvements, future business creation) and the extent to which their under-lying value-systems are determined. They contend that the management of a strategic net is conditioned by the characteristics of the value-system employed, and suggest that the task of managing a radically evolving business network requires network visioning, agenda setting, and mobilizing capabilities. In this paper, we pursue this contingency view and examine the validity of the capability propositions made.

Dynamic capabilities view and organizational learning

The main thrust in the discussion of dynamic capabilities has been how firms integrate, re-configure, renew and transfer their own resources and the resources they control. This internal emphasis is logical because the capability perspective originates from the resource-based view of the firm (RBV), which considers strategic capabilities to be a pool of the internal resources important for the creation of competitive advantage (Penrose, 1959; Rumelt, 1974; Werner-felt, 1984; Barney, 1991; Zollo and Winter, 2002). Although the relevance of exploiting "external resources" (Teece et al., 1997), the importance of "alliance and acquisition routines that bring new resources into the firm from external sources" (Eisenhardt and Martin, 2000, p. 1108), and the "ability to integrate efforts of different actors" (Grant, 1996) have been mentioned, the challenges involved in operating in a complex network remain fairly unarticulated (Kenis and Knoke, 2002; Park, 1996). In their recent conceptual work, Möller and Svahn (2003) apply the dynamic-capabilities view to strategic nets by postulating, as already mentioned, a set of network-management capabilities. We pursue this further and attempt to extend our knowledge in a field, which is characterized by radical change.

In the construction of a new business group – which is often based on the ability to combine several technologies and coordinate the resources and capabilities of various actors coming from different fields – both knowledge and learning can be expected to play core roles. We draw on studies of "knowledge management" (Larsson, Bengtsson, Henriksson, and Sparks 1998; Nonaka, Toyama and Konno 2001) which suggest that inter-organizational relationships allow possibilities for collaboration, knowledge transfer, knowledge combination and knowledge exploitation. For a more in depth discussion of inter-organizational learning, see Holmqvist (2003); and for a discussion of the role of knowledge and learning in different types of strategic nets, see Möller and Svahn (2003).

Research Setting and Methodology

The goals of this paper, i.e. to identify, describe and analyze how a new business group is constructed in an environment of dynamic change, exert a strong influence on our choices of methodology. In order to capture the construction dynamics, we require a longitudinal study in a field that is characterized by technological and commercial change and uncertainty (Huber and Van de Ven, 1995). Development of the Home Commerce business (HCB) in Finland matches these requirements. It is based on several emerging technologies and its commercial development has been influenced both by the "e-hype" period of the late 1990's and the bursting of this "bubble" in the early 2000.

Furthermore, as we wish to examine the interaction between a core actor and the networks in which it is embedded, we need an approach that enables us to capture how events unfold in a specific context: this requirement is matched by the strong aspects of a longitudinal case study (Pettigrew 1997; Van de Ven and Poole 1990). As examining change in a longitudinal study is very intensive, we decided that the focal actor in this study should be a single organization, Elisa (the 2nd largest teleoperator in Finland, see *www.elisa.com*), and more specifically one of its business groups *the Home Commerce business group* (HCB). This decision was also guided by the good access to all the information and Elisa's cooperative attitude shown towards the study. The case company, Elisa Corporation, is a nationwide telecommunications group whose core business areas are ElisaCom, Elisa Mobile, Elisa Networks in Finland, and Elisa Kommunikation in Germany. HCB is part of ElisaCom. The business services HCB provides, as well as the technologies used, differ from those used earlier in the case company, and the processes, functions, activities, business requirements, and marketing and business strategies were seen to be different to those of traditional telecommunication business (i.e. fixed line telephone business). HCB has integrated several technologies, capabilities and resources from a number of actors in different industries to create services for consumers and communities, (e.g. Kotiportti™ which consists of various subscriber connec-

tions and community services (see e.g. Kaasinen, 2001, 51); household monitoring and security systems; Efodi -learning space: IS-services for publishers, schools, groups, students and teachers). The development process during the years 1990-2001 is explored and evaluated, and an attempt is made to understand the factors and events affecting the development of business nets and the capabilities required to do this.

 Research documentation in this case study consists of both information about the telecommunication industry and the case company and its development during the period under study. 30 persons representing various business units and subsidiaries of Elisa were interviewed during the period of 1999-2003 (see reference list). Data gathered consists of articles, project documents, e-mails between members of the projects, customer satisfaction surveys (1998-2001), memorandums concerning strategy and business plans and annual reports from the years 1990-2001. As the development of the Home Commerce primarily took place through inter-organizational projects the documents used in the case were arranged in chronological order by project.

Emerging Elisa *Home Commerce* (HCB) business nets:
Development process during 1990-2001

We first provide an overall view of the development process of Elisa's *Home Commerce* Business Group (HCB) through the period 1990-2001. The types of nets through which HCB mobilized this development are then examined together with a discussion of the capabilities required and created during this emergence process.

The Period of Innovating 1990 - 1998

European telecommunication networks of the 1980s and early 1990s were constructed under monopoly conditions (Beardsley, Bray and van Rooijen 1995, 157). During the first years of this study period, the main drivers of change were technology (e.g. broadband, multimedia) and the deregulation and globalization of the telecommunication market. Once the economic

recession of the early 1990s in Finland was over, the case company began investing in new
R&D projects which led eventually to organization of the MuMe-team (this was the Multime-
dia team which later became HCB). This team participated in R&D, technology assessments
and multimedia-, Internet-, mobile- and xDSL-based pilot projects. Figure 1 is a broad view
of the whole process and the main projects. During this phase, development was strongly
guided by the early vision of a single core individual in HCB (located in HTC, Helsinki Tele-
phone Company, later Elisa). The capabilities acquired during this phase were technology-and
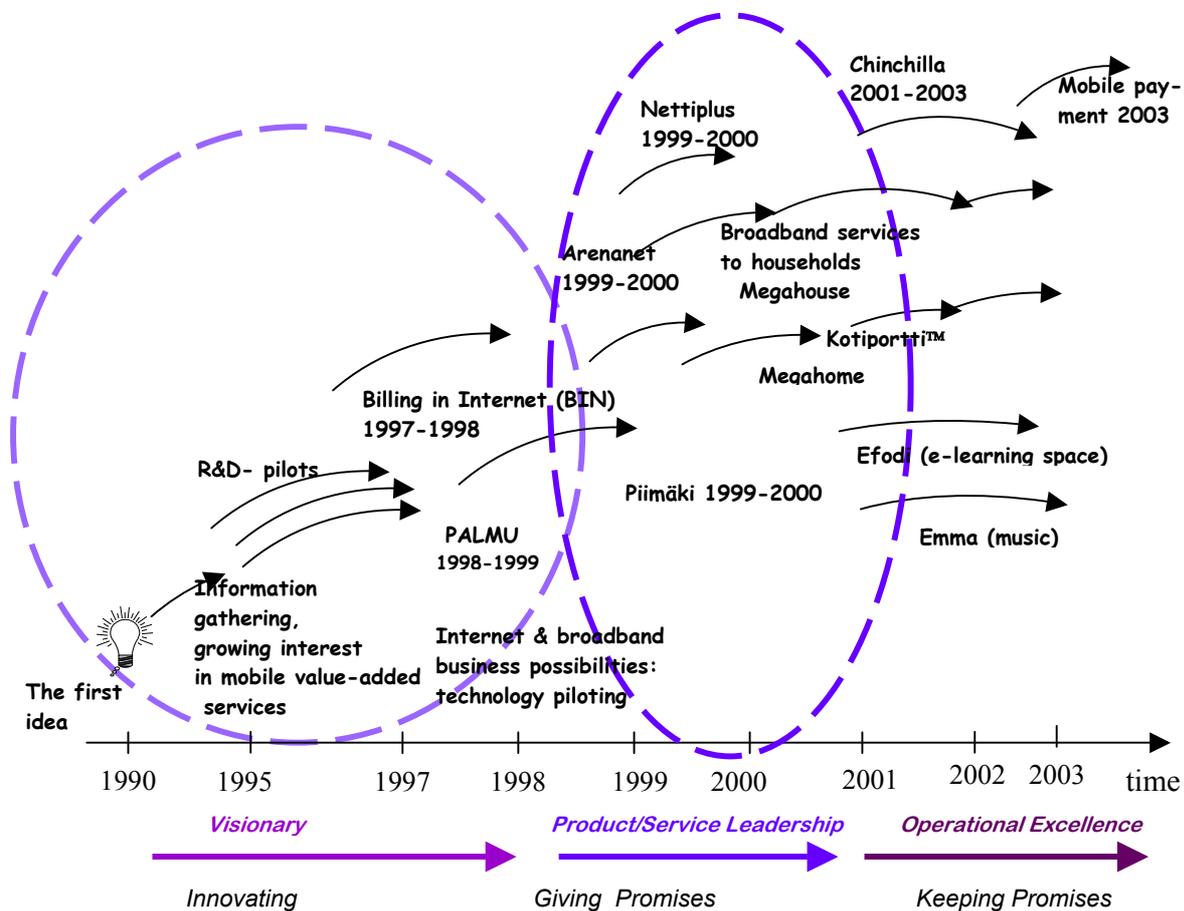project-related.

Figure 1. The development process and main projects during the years 1990-2001.

The central MuMe-team worked closely with Comptel, a company owned by the case cor-
poration, which was its former IT-department. Cooperation with Comptel was essential when
learning to integrate new services and products into existing architecture and platforms and
also in product maintenance (i.e. on-going rationalizations of products, services and IS/IT

solutions). Benefits of this strategic dyad relationship (see Figure 2, Picture 1) were that both parties learnt and acquired new information and knowledge about the daily changes taking place and innovations being made inside the case company.   Comptel was also able to use the knowledge gathered from this relationship in its other projects, including international ones, and this benefited the whole organization. When other resources or capabilities were required to development new services and products, external partners were engaged solely on temporary, project-based contracts. Towards the end of this period, in addition to its close cooperation with Comptel and related partners, HCB also became an active member of national and global cooperative forums in which the competing and collaborating companies from ICT-sector participated, developing new standards and assessing the possibilities offered by new technologies. In this network, the case company was an equal partner with the other participants (see Figure 2, Picture 2). The primary goal was to find a way of creating efficient web-based services and payment methods in the new network environment (Isomäki - Jäntere 1998, Palmu 1999).

Both technological and business visions drove this kind of R&D technology-cooperation and technology piloting. In the "e-hype" years of 1997-98, the general assumption was that a large part of the fixed-line network would be replaced by broadband access technology in the following five years. The Internet had also shown its potential as a platform for telecommunication, telephone and other web-based services.

One important step was PALMU, a technology project funded by TEKES (The Finnish Technology Agency) which focused on creating secure billing via the Internet (Hölttä 1998a, 1998b, Palmu-projektisuunnitelma, Palmu-kokousmuistio). A user-friendly and secure method of e-payment was a prerequisite for new ways of selling goods in web-based markets. It was expected that flexible payment methods and well-functioning customer interfaces would encourage rapid adoption of e-services by customers. The possibility of differentiating

and integrating services in new ways would open opportunities to introduce self-service and the provision of services on demand (HPY Research 1998).

The results of this wider research into enabling technologies were transferred into the more business-oriented strategic dyad with Comptel, and its surrounding net, for further development. HCB´s relationship with Comptel was very useful as each actor was a specialist and had its own support net, while there was sufficient common ground and mutual experience to co-create new solutions (Figure 2, Picture 3). As an IS/IT provider, Comptel maintained a portfolio of relationships from its business point of view while HCB initiated relationships from its perspective of starting to develop the first ADSL-based services while maintaining the vision of new Home Commerce business. Both actors could, at the same time, have the roles of a product developer and an IS/IT provider. During this period, Comptel, having gained significant knowledge in providing mediator-software services, embarked on rapid global growth.

The Period of Product/Service Development 1998-2000

Developments in 1990-98 resulted in the creation of a technological platform of enabling Internet and broadband technologies which could be used in a more business-oriented development of the home-commerce area. In Finland, this coincided with the deregulation of the telecommunication sector in 1998. During the period 1998-2000, the IT boom and rapid changes in competitive environment caused organizational changes, while new business and related projects received a higher proportion of resources and investments than they had before. R&D projects completed in 1990-2000 provided insight and direction suggesting the types of new knowledge, resources and capabilities required when constructing architecture based on the new enabling solutions.

In the case company, it was clearly understood that gaining competitive advantage in the new Internet- and multimedia-driven business required additional technology, business and managerial capabilities. This capability gap was perceived to be growing wider until Elisa's

top management decided in 1998 to start building capabilities by establishing a product/service-oriented business unit called 4G (4G/the Next Generation Services) and provided funding for further network projects.

The first 'real' business net aimed at new multimedia-technology-based business was Arenanet (A-net) (see Figure 2, Picture 4). The driving vision behind Arenanet, a coalition of culture and technology triggered by the City of Helsinki, European Cultural City of 2000 project, was to offer broadband-based services to every single home in Finland (Lehmus 1999). The ambitious objectives of "Helsinki Arena 2000" were: to create a virtual Helsinki, a next generation multimedia net environment for Finland's capital city, to provide a forum for citizens, and a place where culture and business could meet (Salmi 1999; Tenhovuori 1996). By joining this network, HCB was aiming to create competitive advantage in this area of e-business, to strengthen both its role and its image, and to expand its customer base. It was a deliberate strategic move to combine HCB's technological knowledge with new business development.
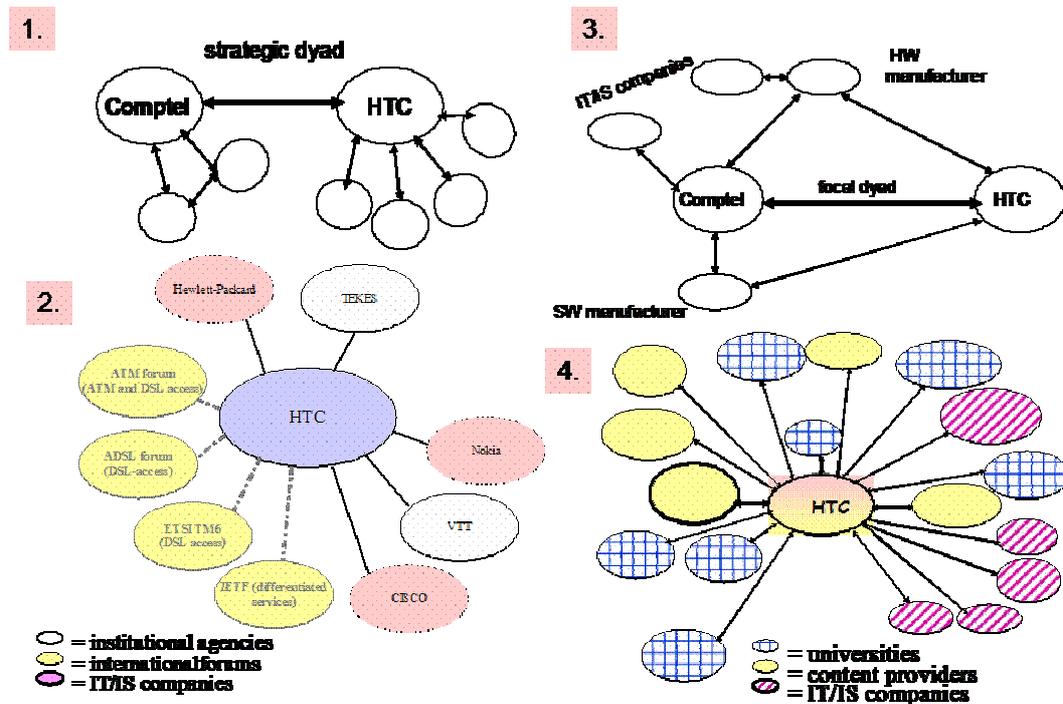

Figure 2. *Picture 1:* The strategic dyad during the years 1990-1997;and *Picture 2:* Equal partners in a network, (PALMU): Technology project –net with cooperation with competitors and institutions and international forums; *Picture 3*: focal dyad with links to same actors of the network; *Picture 4*: Arenanet (A-net) – a coalition of technology and culture.

Actors in Arenanet (A-net) were chosen primarily for the purposes of creating a broad-ranging service and information base for an "information age city." Relationships in this net were controlled and coordinated by the A-net project group in the case company, and this group later became part of HCB. A-net also initiated a change from the strong emphasis on the relationship with Comptel towards increased networking with other businesses. According to customer surveys in 1998-2001 carried out by Comptel and by the Information Management of the case company in 1999-2001, a growing mismatch between the case organization's demands and Comptel's supply of IS-solutions was observed (i.e. case company was developing IT-, multimedia- and web-based businesses whereas Comptel was mainly supporting Elisa's core IS/IT-architecture. This change in relationship was also influenced by a lack of resources, and in a more pronounced manner by Comptel's rapid international growth in its own business area (e.g. mediator-software services). A-net was a complex, temporary business net attempting to combine the knowledge and capabilities of several actors, but there was no clear view on how to manage net relationships or how to maintain the actors' interest in the cooperation. HCB itself lacked a clear vision of where this business development might lead, and especially whether and how it could be made profitable.

Our exploration shows that rather than being a real business net, A-net was still more akin to R&D, a project for gaining experience of how to be in the multimedia- and Internet-based business. On the other hand, A-net proved invaluable as a means of learning and establishing relationships. The hub company gained important knowledge of this type of networking and cooperation, which involves issues such as the types of resource and capability required, how to continue in the multimedia- and Internet-based business, and determining the types of service that would interest consumers. The A-net experience helped HCB realize that a net is an entity to be taken care of, and that in business nets, there are different actors and different roles.

One important realization was that the primary reason for some actors' participation in the net was to gain knowledge and experience which they could use in their own projects and in creating competitive services. Although a management board to control and coordinate the development of A-net existed, it did not effectively manage the roles of actors involved and the net's future development. A-net was also the first project in which actors from several different industries were involved and doing business together with HCB. The net was closed down in the end of 2000.

Even if the A-net was not a success from the business point of view, there was a consensus that networking is essential when dealing with multiple technologies and platforms within several industries. The experience confirmed that, in a context where knowledge is sophisticated, expanding and widely dispersed, the innovation and commercialization must be carried out through collaborative networks. Based on experience resulting from A-net, the case company initiated the *Megahouse* and *Megahome* development-project nets targeted at further development of the technology architecture and basic services, as well as new home commerce services. During 1999 – 2000, the new developing business group changed its name from 4G/Next Generation Services to Smart Home Business and then to Home Commerce. The development process of the business group is described generally in the figure 4.

In addition to the strong competence learning, as well as service technology and concept development, the 1998-2000 period can also be characterized as the top management team of the HCB 'giving promises' to the corporate management and other constituencies. This relates to the question of communicating the potential growth and profitability of multimedia- and Internet-based business. This intra-organizational agenda "selling" resulted in HCB being given the resources it required to participate and mobilize all the development nets, and resulted in HCB achieving leadership in ADSL connections and the leading position in smart-home/future-home solutions (e.g. Kotiportti™, household monitoring and home security systems, digital television services) in Finland.

The next few years will be crucial in terms of whether HCB can convert its current strong position into rapid growth. The detailed material available to us ended in 2001, but based on the less comprehensive information from 2001-2003, we label this era as "keeping promises". This assumption is based on the facts that there are several viable business nets, a clear business strategy and a strong vision.

Role of Networks in Creating a Business and Management Capabilities

The descriptive analysis of the construction of a radically-new business group highlights the relevance of networks and intentionally-created strategic nets in this process. It also provides insights into the building of dynamic network capabilities via networking. These two aspects are discussed with the help of figures 1, 2, 3, 4.   As figures 1 and 3 indicate, the nature and goals of networks and nets changed in a systematic manner as HCB developed.
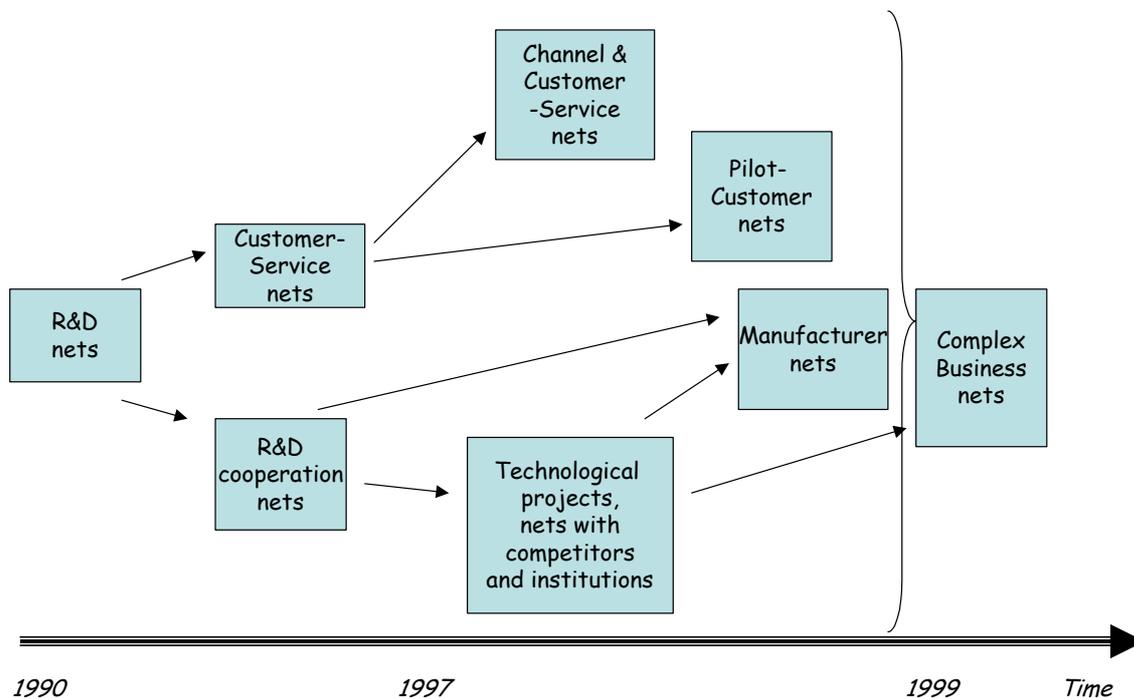

Figure 3.   The different types of networks during the years 1990-2001.

In an entirely logical manner, the early years (1990-1997) were characterized by participating in and mobilizing nets for the development of technological knowledge. The strategic

alliance with Comptel, the multimedia projects and R&D nets, and participation in the Finnish

Technology Agency (TEKES) financed e-payment project network were all of crucial impor-

tance in helping HCB to create the technological platform it needed to start offering Internet-

and broadband-based services to businesses and consumers. Via this networking, HCB's core

team learned, in addition to the specific technological capabilities, essential networking capa-

bilities such as partner evaluation and selection, multiparty-project participation and man-

agement (see Figure 4). Because of the number and continuity of these primarily project-

based nets (see Figure 1), HCB was able to build routines and a managerial infrastructure that

turned what were primarily people-embodied competencies into dynamic organizational ca-

pabilities. In conceptual terms, this process is captured by the experience accumulation and

knowledge articulation learning mechanisms suggested by Zollo and Winter (2002).

Participation in and the coordination of the A-net (the network coalition aimed at turning

Helsinki into an e-city) is a turning point where the emphasis in HCB's network mobilization

shifts from technology cooperation to business development. The A-net experience sensitized

the HCB management team to the necessity of developing a net management capability; the

careful selection of net members and the provision of comprehensible roles with specific re-

sponsibilities, direction and coordination. Development of these capabilities was carried out

in the large, multi-firm and multi-industry nets (*Megahouse* & *Megahome*), which further

emphasized aspects of net mobilization and management capability such as negotiating skills

and the creation of new forms of contracts.

Another major learning experience, one that was already perceived during late R&D project

nets but really accentuated by the disappointment of not achieving any direct business objec-

tives with the A-net, was the realization of the crucial role played by new business models in

home-centered, Internet- and broadband-enabled e-business. Without a clear and jointly-

agreed view about the earning modes and shares of each net member (e.g., operator, software

provider, content providers, portal owner) the net management function faced continuous con-

flicts and inefficiency. In brief, a good network mobilization and management capability was highly dependent on the hub firm's competence in designing effective and attractive business models.

What enables a management team to design a good business model in a fast developing business sector? Accumulated experience gained from several nets and from participation in industry-wide forums provided the HCB team with a visioning capability for the unfolding business sector. This allowed them to assess the business opportunities from the perspectives of potential network members, and led to viable and mutually attractive business models, (see Figure 4). This "framing capability", which makes it possible to create an overarching view of the architecture of a business group in which the value-systems of different business sectors merge, is very hard to achieve. On the basis of the case evidence, it appears that the HCB team was able to accomplish this.

The following figure 4 is a summary of capabilities acquired and developed during the years under study. In the left side of the figure 4 are the years 1990-1998 and in the right side: the years 1999-2003, and in the middle is the development of HCB. It started from R&D projects, which resulted the MuMe-team, and through several transformations of business units, it finally become a business group called *Home Commerce* in the ElisaCom –core-business area of the case company.
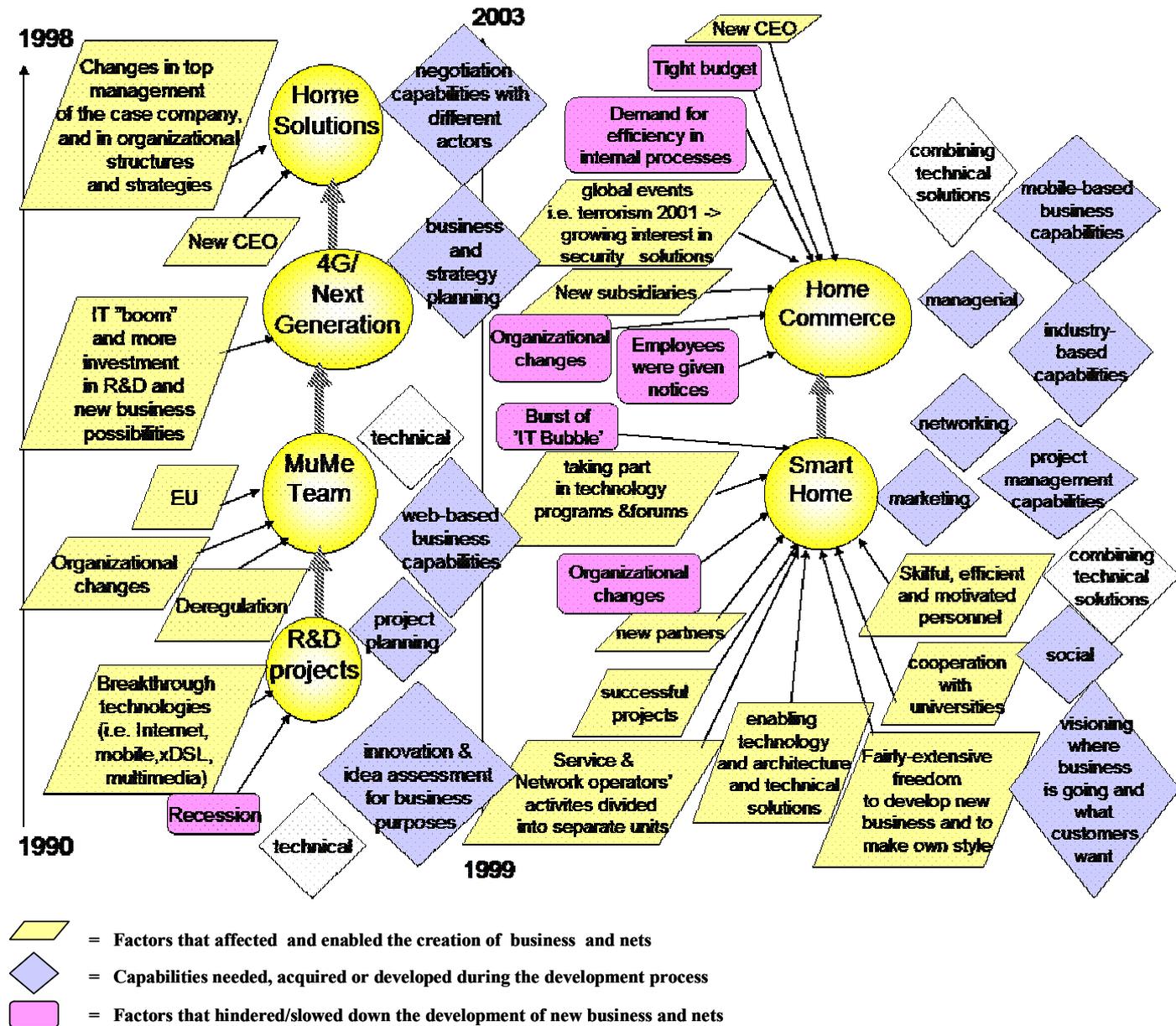
Figure 4.   Capabilities acquired and developed during the years under study.

Conclusions

This study makes several contributions to the evolving theory of network management. It provides empirical evidence for the crucial roles played by different types of networks and nets in both the emergence of a radically-new business group and in learning the managerial capabilities required to not only survive in this context but also to create it. Different alliances, project nets, R&D forums, and large-scale project networks provided different types of learning experiences. In brief, they provided the case company with different resources and

knowledge, in other words, they fulfilled the different functional needs that evolved during the evolutionary process. We contend that a core management capability in this type of environment is the ability to utilize the available networks and mobilize one's own nets to meet the resource and learning needs that exist. This is not, however, an organizational capability which is inherent. It presumes two aspects – visioning, and networking resources and capabilities. Firstly, a comprehensive or "architectural" view of the field, which enables a company to envision its development at least a few steps ahead. Through visioning, an actor can anticipate the technologies and other capabilities it must develop. Visioning alone is not enough, the resources to carry out networking must also exist. In the phase where an actor wishes to mobilize its own strategic net, it must also be able to offer an attractive development agenda or business model if it is to engage partners with cutting-edge knowledge in their own areas of operation.

This "functionality" perspective on the role of networks and nets suggests that firms with an "architectural" vision and adequate resources can, through network relationships, purposefully attempt to create an extended pool of resources and capabilities that matches their current and foreseeable needs. If this attempt is successful, a success circle may result.

In addition to this functionality aspect of network collaboration and net management, the case analysis highlights the relevance of understanding the process-like nature of capability development. Only after exposure to a variety of continuing networking experiences was the management team of the case firm able to identify and systematically start developing network-management capabilities. This provides additional support to the experimental learning view of dynamic capabilities (Zollo and Winter, 2002). As seen in this case, the intelligence in a network structure is its ability to share, modify, create and distribute information, knowledge and resources between the different parties, and thus develop and create network capabilities which can change and dynamically develop during time (see also Möller et al., 2003; Möller and Svahn, 2003). Creating competitive advantage with the capabilities developed and

acquired, the case company succeeded in gaining the leading position in ADSL-services at the end of the 1990s which supports the earlier studies of creating competitive advantage (see e.g. Penrose, 1959; Rumelt, 1974; Wernerfelt, 1984; Barney, 1991). On the other hand, since network participation also has the character of an investment, as emphasized by the Industrial Network Theory (Håkansson and Snehota, 1995), creating a variety of resources and gaining the knowledge is never without an associated cost. Taken together, our findings provide support for and expand the extant discussion on network capabilities.

This report is part of a continuing study. In the next phase we will address the dynamics of the major business nets that HCB began to mobilize in 2001-2003. This will enable us to examine in greater depth the management capabilities required in complex networks containing many different types of actors who play various roles and have different industry or institutional backgrounds. Another theme is the question of how HCB is managing its roles and positions in the increasing number of nets and networks in which it is being involved: we presume that this requires special portfolio-management capabilities.

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