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# The redefinition of offering systems in the Healthcare Industry: the role of networking

***Abstract***

In recent years, the dominant business models have been deeply influenced by the continuous process of innovation. It has characterized many areas where gaps and latent forces have radically redefined the competitive scenarios.

In this economic and social context, companies need to rethink their business models in order to rediscover the strategic variables in order to cope with the extreme complexity of a changing demand. The ability to exploit these new opportunities enables more market-oriented companies to identify new forms of organisation and to build new competitive advantages.

The focus is indeed shifting from products with functional dimensions to solutions that integrate tangible and intangible components, mixing the industrial approach with a new service dominant logic (Vargo, Lush, 2004; Gronroos, 2006; Gummesson, 2007). The transition from the product to a "bundle of benefits" highlights the crucial role of intangibles and is related to the changes on the side of the demand.

This evolution requires companies to access external resources (Lam 1997), because of the shortage of internal knowledge and skills (Ford et al., 2003). In order to achieve a sustainable competitive advantage and to create complex solutions able to meet the new complex customers needs, companies have to develop relationships with players who do not only belong to the same sector, but that also operate in heterogeneous contexts with different competences and capabilities.

The main aim of this paper is to investigate the characteristics of new offering systems based on shared resources and combined competences, considering that resources and competences belong to different actors. In this perspective, our attention is focused on networking, considered as a process of action and re-action among different actors to share resources and to combine competences.

In particular, we investigate the Healthcare industry, where companies are forced to adopt a proactive approach in order to redefine the business they operate in and to innovate their business models and organisational structures. In this perspective networking seems to play an enabling role in combining competences and develop value propositions that are more suitable to the evolution of the demand. In this paper, we present two case studies consisting of projects developed in the new “Hybrid” sectors of Telemedicine-Telehealth, in which tele-services are generated by the process of convergence among Medicine, Computer Science, and Telecommunications (Nora and Minc, 1978). We empirically investigated the networks of relationships among the main actors involved in the projects, analysing the resources generated by their interactions.

**Keywords:** co-evolution, hybrid sector, network of firms, relationships, resources, health industry, wellness, complex needs

**Table of contents:** 1.Introduction- 2."Competencies combining" through the development of networking – 3. Purpose of the paper and methodology – 4. The birth of Wellness hybrid sector: the enabling role of networking - 5. Telemedicine and telehealth- 5.1 The rehabilitation project of Villa Beretta: teleconsult and telemonitoring - 5.2 The Home Integrated and Technological Assistance project of ISMB: the telemonitoring service - 6. Conclusions and managerial implications

## 1. Introduction

The ongoing discussion in strategic management and the debate about the evolution of business models has concerned more and more the discontinuities, the latent forces and the emerging phenomena. They're playing a crucial role in redefining the competitive scenarios and in frustrating the attempts to apply the traditional systems to achieve a competitive advantage (D'Aveni, 1994; Hamel, Prahalad, 1996; Patel, Pavitt, 1997; Davis, Meyer, 1998). Companies are forced to rethink their present performances and to renovate their business structure in order to operate in new contexts. The growing complexity of the strategic scenario and the rapid growth of new business areas have been of great interest to many academics and practitioners due to their increasing importance to find new paths leading to success on the marketplace. Companies are operating in different ways in order to adapt to a complex environment characterized by high levels of variety, variability and uncertainty: the outcome is in many cases a competitive context where organisations seek to formulate new value propositions, producing hybridization between the material and the immaterial production, between a good-centered and a service-centered logic (Vargo, Lush, 2004; Gronroos, 2006; Gummesson, 2007).

One of the main assumptions of our work is represented by the key-role played by the customer and his relationship with the supplier in this process of evolution of traditional businesses: there exists a relationship between the evolutionary process along the trajectories of complexity that interest the economic system, and the intervening modifications in customer and consumption outcome. The privileged viewpoint of the consumer allows us to verify how the market-demand becomes, at the same time, both the answer and the determining factor of the complexity and how the appearance of complex needs clusters (Valdani, Ancarani, Castaldo, 2001) contributes in generating a new market perspective.

We are thinking about a particularly eclectic customer, who doesn't distinguish between his being and his consumption acts, and thinks of himself in a rather holistic perspective, in which material and intangible aspects melt in a process that involves him completely.

Consumption becomes an immaterial process where the transmission of symbolic meanings exercises a determinant role in respect to the product/service itself (Pine and Gilmore 1999;

Schmitt 1999): the value of the exchange in the chain comes to depend on the experience that the process of acquisition and consumption helps to accomplish (Addis, Holbrook 2001). Even if most considerations about the role of "experience" were developed by previous literature taking into account B2C relationships, we think that the main results arising from this research area can also be extended to B2B contexts.

Starting from the first seminal work by Hoolbrook and Hirschman (Holbrook, Hirschman, 1982; Hirschman, Holbrook, 1982), underlining the symbolic, aesthetic and hedonistic meanings underneath the satisfaction of needs, over the years a flurry of streams of research has been pointing out the "experiences production" as a strategy to succeed in the market. The *total customer experience* management using both functional (rational) and emotional clues, allows companies to achieve tenable competitive advantages (Berry, Carbone, Haeckel, 2002; Haeckel, Carbone, Berry, 2003; Prahalad, Ramaswamy, 2003; Zaltman, 2003). The rediscovery of the centrality of the customer as a subject immersed in a framework and in places where communities and collective identities are formed, becomes a fundamental element of the consumer experience (Maffesoli, 1990; Cova, 1997; Cova, Cova 2002). Moreover, according to the CCT (Consumer Culture Theory) exponents Arnould and Thompson (2005: 868), we should better talk about a "customizing consumer", that builds his own personalized experience by acquiring some elements from different suppliers and recombining them according to his preferences.

The management of the subsequent complexity must therefore immerse each individual in a circuit of new meanings, ideas, immaterial values: and so it is on symbolic differentiation of the offered products and services that a company has to play in order to keep a competitive advantage (Prahalad, Ramaswamy, 2003).

Some managerial issues emerge from this picture, since researchers and managers wonder how this new context - where customers take on a new proactive role in the value setting along the chain -, affects the behaviour of companies. In particular, a research question inheres what strategies can be adopted by companies in order to gain a competitive advantage in such a demand-driven complexity.

There is little doubt that the necessity to satisfy clusters of complex needs (Ancarani, Costabile, 2005) requires continuous knowledge and the capacity to innovate the management of the offer's details, i.e. that which makes the offer interesting and rewarding to the customer. Hence, the problem is not to eliminate the complexity but to turn it to one's own advantage. companies need to try to maximise customer care, package a global service, a bundle of benefits that exalts wide and flexible offers, favour a direct relationship between supplier and

customer according to a logic of partnership and continuous consultation. In a customer based perspective, which focuses on obtained benefits rather than on the specific product through which the value is transmitted, it is no longer possible to clearly distinguish between goods and services, or product developed in a specific industry or in another one. In this context, new “hybrid” business models are those which best manage to profit from the winning elements deriving from different industries (Wind, Mahajan, 2002).

In this perspective the hypothesis of our research is that new hybrid business models require, and are generated by, a process of action and re-action among actors characterized by different resources and competences. The development of relationships among these actors allows sharing of resources and combined competences that support the settlement of complex solutions to satisfy complex customers' needs.

Our research investigates the aforementioned evolution focusing on the offering system in Health Industry. Recently, the health industry has been characterized by a process of transformation, driven by a new “holistic approach” involving the very concept of health and the entire business.

Therefore, in this contribution we considered both the need of “well-being” regarding the demand side and, on the supply side, we considered the wellness promotion area that has to be redefined in terms of planning and content, also considering the benefits of new technologies and, above all, the development of relationships among actors characterized by different core competences (Niero, 2001.

Therefore, in this contribution we considered the need of “well-being” (on the demand side) and its implications on wellness promotion (on the supply side). This one has been redefined considering the convergence of different areas that have generated innovative services.

The paper is articulated into two parts. The first one, based on a literature review, is dedicated to depicting sector trends; the second part is an empirical section based on the analysis of two telemedicine-telehealth projects. As we will see, teleservices allow remote access to services by patients, and require the development of relationships among different actors. Case elaboration is based on semi-structured interviews to key informants involved in the projects. The main aims of the interviews were to identify the actors involved in the project, and to describe the shared and realised physical and social resources (relationships).

## 2. "Combining competences" through the development of networking

The changes pointed out above concern the important elements which directly influence the processes, the relations and the interconnections between the different actors in the economic system. The necessity to satisfy clusters of complex needs (Valdani, Ancarani, Castaldo, 2001) that arises from this overview, requires continuous updated knowledge and capabilities to innovate the management of the offer's details, i.e. that which makes the offer interesting and rewarding to the customer.

In many cases, companies don't have all the resources at their disposal and have to look for them outside their organisations. Fast changes require a large and dynamic portfolio of resources and competences. As theorized in the 90's, it can't be dominated by a single company, relying only on its own standard competences: the organisation, able to manage the thousand facets of this new scenario, is now understanding the fundamental role played by the constant process of attraction, renovation and recombination of internal and external resources, in particular of knowledge (Teece, Pisano, Shuen, 1997; Nonaka, 1994).

In this framework, the process of convergence (Collins, Bane, Bradley,1997; Prahalad, Hamel, 1994) can help us to understand the new reconfigurations of business models driven by changes that are generated in the demand side. After the first study phase about the subject of convergence concentrated primarily on causes generating convergence of the technological sort ("digital convergence"; Yoffie, 1997) and the competitive sort (Hamel, Prahalad, 1996; Wirtz, 2001), some more recent contributions have instead underlined the role played by demand in the creation of these kinds of phenomena (Wind, Mahajan 2002): in order to respond to an increasing demand for complex value propositions which cross the traditional boundaries of distinct sectors, companies are encouraged to offer bundles of benefits, combining tangible with intangible resources, giving life to new trans-sectoral ventures, such as edutainment and nutriceutical (Ancarani, Costabile 2005).

Homogeneities which may reside in the technologies used or in companies' behaviour cannot really point out whether and how two products are really interchangeable and subsequently belong to converging markets. Instead, it's the homogeneity of the satisfied needs, or rather the capacity to satisfy "complex needs clusters" that constitutes a significant convergence indicator. The phenomenon of convergence empties the relevance of conventional concepts, such as sector and market, and replaces them with the wider perspective of the meta-market. In this perspective, convergence describes a process through which sectors and markets that were previously separated became part of a single meta-market, characterised by less well-defined borders and a dynamical process constantly reconfiguring itself. In this case the

companies tend to converge through a process which brings them to progressively enlarge the product, attempting to consider it in a complex dimension of a bundle of benefits, which integrates products and complementary services and enhances the relationship with the customer. Customer takes an active role in relationships considering that companies have to consider new customer needs in order to realize articulated solutions that satisfy these needs.

This requires companies to access to new resources and competences; in this way relationships become a device to share resources and combine competences. The co-operative approach has increased its importance. Co-operation supports companies to reach innovation and a better performance, and to access global markets. In addition, co-operation supports the development of activities between small and medium enterprises.

Companies, such as islands of coordination immersed in a dense sea of cooperation (Richardson, 1972), cooperate in order to access the heterogeneous capabilities. The companies, as a bundle of capabilities, are able to coordinate expertise, supporting the creation of new knowledge (Loasby, 1998; Kay, 1997).

The companies will then decide which capabilities maintain in their business model, and which external capabilities recourse for the chain management (Belussi, Pilotti, 2006).

The development of internal capabilities depends on the development of suppliers' capabilities in the dyadic mutual adjustment (Dyer and Singh, 1998; Asanuma, 1989). In this perspective dynamic capabilities assume a key role. They are considered as organisational capabilities to integrate, build, and reconfigure companies resources and expertise in response to rapid environmental change, reflecting the ability of an organisation to acquire new forms of competitive advantage (Eisenhardt & Martin, 2000).

Fast changes require companies to develop processes of identification, development and enrichment of competencies, that allow eventual lasting economic growth. The latter is based on developing a collaborative approach. The inter-relationships that are so regarded support the ability of adaptation to change in demand. This ability, which is based on the sharing of resources, can be read in two approaches integrating each other. Any inter-relationship cannot be considered in isolation but it is part of a whole based on interdependent relationships that set the network.

Network becomes a governance instrument (Belussi, 2007) to manage cooperation among companies characterized by different capabilities and diversity of resources (interconnection). In addition to this, the network becomes a model of governance for learning process, supporting relationships between actors characterized by complementary resources (Belussi e Pilotti, 2006; Zucchella, 2006). The network can be referred to horizontal cooperation among

companies that belong to the same stage of value chain. An agreement focused on a single stage of the value chain, can be realized for example in order to exploit economies of scale or reach the critical mass of resources necessary to ensure a particular function. It outlines instead a vertical collaboration among companies that belong to different stages of the value chain. In this case, companies can reach quality improvement and flexibility through integration of internal and external competencies to access into new markets. The objectives pursued in this case relate to e.g. improving the quality and flexibility, or to overcome barriers to the development of new products or access to new markets, through greater integration of internal and external.

These collaborations are complemented by a horizontal collaboration among companies of different types, namely that "among suppliers to the same group of complementary and interdependent customers or products that are a subset of the finished product (e.g. reach an agreement to produce a coordinated and collaborative piece requested by the customer). " The development of such relations is a prerequisite for the emergence of relationships between players with different core competencies and core activity.

In this perspective a key role is taken by co-evolution process that generates a co-opetition approach (based on competitive and co-operative actions), to stimulate the integration of resources and asymmetrical or complementary capabilities integrations to develop new services. In a context characterized by a high level of change, companies need to develop interconnection in order to realize activity. The interdependence between actors and their actions, also produce non-linear effects that amplify the potential ability of individual companies. Asymmetric capabilities can be combined, supporting the co-generation of learning and new opportunities. In a context of globalization systemic businesses ensure, in this perspective, the satisfaction of complex needs through an interconnected value chain. Co-evolutive forms develop network among activities and stimulate cooperation.

In this perspective, cooperative efforts have become a key factor for creating a sustainable advantage, based on the constant rejuvenation of complex value propositions. In order to satisfy articulated customer needs, companies share information, knowledge and technology, and other critical resources for new solutions, developing relationships with actors that are characterized by different core activities.

A crucial factor, connected with this process, is that every relationship between two organisations depends also on what happens in the wider network of relationships in which they are not directly involved (Hakansson, Ford, 2002): in this way, companies move from dyadic relationships to network relationships, adding more complexity to their horizon of

interactions, and also attract new opportunities to build value propositions, stemming from linkages never even imagined before, among different suppliers' value systems. The relationship can't be considered as a single entity, but it is necessary to consider it as a part of a "whole"(Hakansson, Snehota, 1995: 3). The relationship is *embedded* in, and its development is affected by, other relationships. The network is generated by a process through which activities are repeated through company interaction over time (Capaldo, 2004).

When analysing relationships, the primary function consists in the effects of interaction in a focal dyadic relationship of the two partner companies. The secondary function (network function) captures the indirect effects of a relationship; it is directly or indirectly connected to other relationships. The primary function of the relationships is referred to interlinking activities, creative leveraging of resources and mutuality based of the self interest of the actors (Anderson, Hakansson, Johnson, 1994).

Secondary or network functions, are generated by connections between relationships and concern chains of activities involving more than two companies, constellations of resources controlled and network perceptions shared by more than two companies. Relationships are dyads, but the existence of the secondary functions means that they are also part of networks (Anderson, Hakansson, Johnson, 1994).

The development is a first step toward network extension or consolidation (Cook, 1982).

Companies become a bundle of commitments to technology, human resources, and processes based on knowledge. The coordination of this bundle by entrepreneurs and managers allows organisations to be heterogeneous and differentiated (Alvarez, Busenitz, 2001). Socially complex resources, in fact, may be difficult to imitate as they are hard to be managed and they are systematically influenced (Barney, 1995).

Through networking, different companies work together in a process to adjust/compare and to consolidate/create activity. Companies can support the network but cannot control it (Ford et al., 2003: 27). In a first (external) approach, the relationship becomes an important asset, through which companies can develop their resource potentialities and access resources belonging to other actors. (Ford, Hakansson, Johnson, 2001).

In a second (internal) approach, the networking allows companies to operate within an active and flexible logic and to provide innovative responses to complex and articulated needs. Relationships allow knowledge sharing, which is the crucial asset (Rullani, 2003; Lipparini, 2002). In order to reach a competitive advantage, the process of resource sharing is ever more based on relationships that companies develop with actors, characterized by different core activities. The bundling and combination of different resources and competences allows

companies to realize differentiated solutions. In this perspective, the process of convergence takes place.

## 3. Purpose of the paper and methodology

The purpose of this research is to highlight the development of new business models and their progressive hybridisation, in connection with the evolution of customer needs. In particular our attention is focused on the re-definition of the offering system based on a co-operative approach that allows companies to access to external resources.

One of the key purposes of this research is to describe the stages of this process, pointing out the relationship between the need to define new value propositions - in order to accomplish customer needs - and the recourse to networking.

The framework of convergence and co-evolution can help us to better focus the crucial role of different actors along this path, considering that co-evolution develops networks of the value of assets in evolutionary stages.

The new convergent business models, in fact, could be based on networking through which companies develop activities that are embedded in their interactions. These actors can belong to different sectors and, in this way, they have no borders, not in a geographical meaning, nor in a sector's perspective. The convergence process is characterised by crossing border dynamics moving to co-evolution dynamics. In the first one (crossing border) we can consider different sectors in a convergent area. In the second one (co-evolution) we can consider the interaction between different "species" and the interaction of their evolutionary trajectory.

On the other side, networking becomes the "enabling factor" for the redefinition of effective companies' value propositions, when operating in complex contexts generated by both customer's determinants and competitive features. In most cases, the company can't develop on its own a complex value proposition, because of the scarceness of competences, that are not heterogeneous enough to face the continuous changing of contexts and needs.

The variety of actors involved in the complex value proposition and organised in network could lead, as so often happens, to a convergent way of redefining the competitive edge.

In this perspective, the research questions of the present study are the following:

How the increasing complexity of customer needs are affecting the way companies develop new value propositions in their offering systems?

How relevant is the recourse to heterogeneous capabilities developed by different actors while approaching businesses where customer are progressively looking for solution to complex bundle of needs?

Can we interpret networking as an enabling means to support the sharing of knowledge, underlying the reconfiguration of value propositions?

The research investigates the redefinition process of value proposition within Health Industry, that has been characterized by transformation process focusing on new holistic health approach.

Due to the new interpretation of the Health Industry that we develop in this paper and the different kind of actors we assume as being part of the convergence process in this sector, we will refer to this sector as the "Wellness Industry", considering the increasing demand of well-being in demand side.

On the other hand, the health organisations has been influenced by the evolution of new technologies that support the evolution of tele-services.

According to Nora and Minc (1978), the convergence of Medicine, Computer Science, and Telecommunications, has created Health Telematics, that generate Telemedicine-Telehealth relationships. In this case new technologies support the development of "remote" relationships between a doctor (in a hospital) and a patient (at home), but also between different organisations (telehealth) belonging to healthcare context and technology areas.

The Telemedicine-Telehealth area has been characterized over the last decade by relevant initiatives that have utilized a networking approach in order to define new value propositions.

The research uses a case study approach to analyze the redefinition of value propositions within the service context, focusing on telemedicine-telehealth area. Case study research is well suited to the examination of why and how contemporary, real-life phenomena occur and when the boundaries between the phenomenon and its context are not clear cut, or multiple sources of evidence are used (Yin, 1994). Case study method, particularly useful to study networked structures (Jarillo 1993), allows to capture the dynamics of phenomenon (Halinen and Törnross 2004, Easton 1995).

This could allows us to better understand the hybridization processes among different traditional business model and the role of networking in an empirical perspective.

In this context we adopt the ARA Model (Actors Resources Activities) (Hakansson, 1987) to go more in depth in our hypothesis on the linkage between evolution of business models and networking, also recognizing the nature of networks in terms of activities, actors and resources and their connections in this process.

The ARA Model has been elaborated in the Industrial/International Marketing and Purchasing (IMP) approach, that is referred to complex and articulated market that present peculiarities referred to dimension, number of actors, type of demand, type of order…and specially to

customer's active role. In the environment "enacted", created by the firm through the choice of the territory, the customer and the providers develop interactions that create relationships. Every relationship is embedded with other relationships, developed by, and with, other actors. The network is made up of knots (actors, organisations) that are linked by relationships and connections (Wellman, Berkovitz 1988). The knots are the organisations that communicate with other systems in order to exchange value and information. Connection or relationships are unidirectional, or two-way, links between knots that allow the transmission of the artefact (physic, intellectual or informative) produced by each knot. The governance of relationships is based on coordination through influence, cooperation and negotiation.

In order to know what happens in the network we have to analyse the knots (actors) and the links developed to share resources and realize activity. Resources can be identified as means through which actors develop their activity (Hakansson, 1987); the activities are processes developed in order to transform resources that are created during the interaction. We can recognize physical resources (product and production facilities) and social resources (organisational units and relational units) (Hakansson, Waluszewski, 2002). The four types of resources are dependent one another. The products are created in direct and indirect interaction, that influence their property. The production facilities, that support a better use of resources and a cost decreasing, have latent features that can be activated only through interaction. The interdependence is multidimensional and is referred to links of activity, ties of resources and bonds of actors. Each actor, being member of a network, supports the access to resources controlled by other actors.

The ARA Model is referred to long term relationships that naturally exit ; these relationships are not characterized by artificiality. ARA Model helps us to better understand what happens in a network and which are the virtuous mechanisms that, in the perspective of this paper, enable the convergence processes. ARA Model suggests that what happens in a network depends on the behaviour of actors who bring their intentions and interpretations upon which they act. In this sense, the actor's capability to interact is influenced by bonds. Companies and individuals, as actors in business networks, are bounded in their perceptions, knowledge and capabilities. In order to perform certain activities there is need of resource combination that can only be accomplished if several individuals join or are persuaded to join a network. Actors' bonds can be useful in company development, as they can be utilized to learn and to develop a company's capabilities and to mobilize external resources (Hakansson, Snehota 1995: 204). In this sense, perceived bonds affect opportunities to develop new bonds and open

the way to learn and to develop: bonds help companies to overcome their limits, while orientating resources and activities towards specific objects.

## 4. The birth of the Wellness hybrid sector: the enabling role of networking

The Health Industry represents one of the most interesting business areas in evolution, wherein we decided to empirically analyse some of the research questions about business models and networking explained above. In this work, we use the term of “Wellness Industry” to represent the wider answer offered by the supply side in the health sector to the complex and heterogeneous need of “well-being”, expressed by the demand.

As is evident from the same transversality of the concept of well-being, from which this meta-market is originated, the competitive landscape becomes very wide: it happens because, in a modern economical perspective, well-being has always been considered in terms of wealth, that of course represents, in the customer's perspective, only a narrow way to interpret well-being. To grasp the real sense of the demand for well-being, we have to shift to a wider extent that can be summarized with the logic of “feeling well”. "Feeling well" contains in itself many complex meanings, that in a first approximation we find in between the scope of health and the realization of the individual's free time expectations: an extremely heterogeneous social demand of well-being that refers to both public systems and private operators. The central and non-univocal definition of the boundaries of this bundle is coherent with the idea of the converging meta-market (Valdani, Ancarani, Costabile, 2001). In any case it's already at this point noteworthy that the use of these goods, services and contexts linked to well-being, do not end in the simple spectrum of activities connected to leisure or traditional health, and that the impact of their diffusion and the extreme transversality of these “wellness worlds” are such that wellness is constantly present in our daily life. In the “health sector”, the importance of a dynamic approach constantly putting the accent on the interaction of biological, psychological and social factors, gets therefore underlined, against the acknowledged limit of the concept of illness considered as a consequence of a specific physical cause (Ferrari, 2001). The revaluation of the subjective perception of the health situation moves to focus the attention also on the concept of quality of life. QoL is defined by the World Health Organization (WHO, 1995) as “the subjective perception that an individual has of his own life position in a cultural context and in a whole of values in which he lives, even in relation to his goals, expectations, anxieties”.

This concept is coherent with the transformations affecting our society such as the slowdown of the population growth and the ageing population as well as the changes in lifestyle. These

dynamics have required new strategies in order to manage the evolution of the health industry. In recent years, many health operators underwent a process of huge transformation, affecting both the meaning of health they adopt and their business models. More and more the network configuration has been spreading wider in order to face new sophisticated patients' needs.

The consumption model linked to health and well-being services and goods has become much more complex: the search for psychological well-being and the perfect physical form by a growing number of the population is an expression of a new vision of health, intended not as a prevention or cure of disease, (related to the Health system in strict sense), but as the development of the individual's potential and the achievement of inner peace, which better combines with the concept of "an integrated self cure". We must necessarily extend our horizons to include all those who nowadays offer a possibility of "proactive well-being" to the consumer, involving sport, food, the ethical-moral existence within the social and environmental framework.

It is therefore becoming more difficult to relate wellness to only one well-defined scope: the definition according to traditional points of view based on intersectoral homogeneity of the supply does not really manage to grasp the true dimensions of this sector, where demand and the customer lead specific aggregations of products and services. The different sectors which offer "wellness products" need therefore to be seen as parts of a single industry and market, which can now be identified only starting from the characteristics of the demand and no longer of supply.

It is this demand for healthy needs, expressed by the population in recent years, that has lead to the emergence of new innovative operators both profit and non-profit, that have entered into this void left by public organisations of traditional welfare and offered integrated wellness services in the tourist sector, such as the new thermal spas.

Wellness, so defined, is reflected in the values of a wider pursuit of happiness and quality of life, and in a context of radical redefinition of consumer behaviour in the sense of innovative and personal exploitation of free time: practises reconstructed around a multi- functionality of locations dedicated to taking care of oneself, of society and recreation. In this sense, the different traditional sectors which offer "wellness products" need therefore to be seen as parts of a single industry and market, which can now be identified only starting from the characteristics of the demand and no longer of supply: the definition according to traditional points of view based on intersectoral homogeneity of the supply does not really manage to

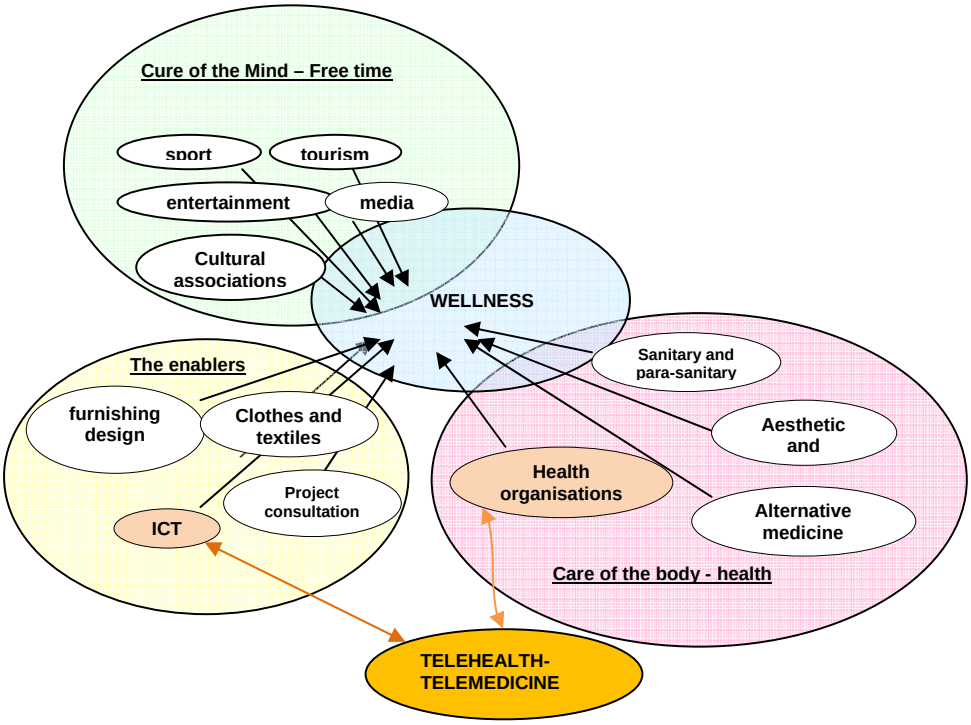
grasp the true dimensions of this sector, where demand and the customer lead specific aggregations of products and services.

Starting from the perspective of the customer, as a first attempt to define the wellness competitive field, we have therefore tried to identify the different sectors traditionally present in wellness, on the basis of homogeneity of needs to which they respond, rather than on homogeneity of companies' competences, as shown in figure 1.

We identified three primary areas in which the complex demand of wellness is met:

- *Rediscover care for the body*: wellness means, primarily, being in good health and caring for one's own physical state. The sanitary sector and its various departments deals with this area. The companies' focus inside this area was traditionally connected with the moment of sickness: new theories which also run through hospitals encourage the idea that good physical health aid and improve recovery. The health system must therefore increase its scope, offering an integrated service, during, but also before and after the period of illness. Curing illnesses becomes even in the social sense of "cure the body and mind" at the same time, filling the gap between the traditional welfare services and a comprehensive programme which integrate the hospitalisation with other products and services. We can therefore see in the health market a continuous cycle of cure and prevention, integrating other cures such as homeopathy and acupuncture, but also the choice of food (i.e. "natural selection") and cosmetic and aesthetic activities, no longer focused solely on beauty but on treatment directed towards physical recovery.
- *Free time enjoyment*: well-being also means satisfying the needs of appreciation of the individual in his social life and cultural and leisure activities. In this field we find entertainment, media and cultural association companies which no longer imply merely recreation, but activities to satisfy the need to live well "caring for our mind and spirit". Sports, holidays and relaxing activities in general are becoming a moment for regeneration balanced between mind and body together.
- *Contextualise the wellness experience (the enablers)*: many operators, often far from the two areas mentioned previously (free time and health), have contributed to the completion of the perception of good living: in every product and service the consumer wants to see his vision of wellness. In this way operators, typically in the field of furnishing and of clothing and of public and private space, start to contribute in a way which is essential to the complete experience of well being, precipitated by the consumer

Figure 1 – The new wellness industry framework




Source: our elaboration

Each of the original sectors and the companies included in them, have in their own way defined the widest concept of wellness, sometimes maintaining the original business or creating new and original ones so as to respond with maximum effectiveness to the new model of consumption. In this sense, it's emerging as one of the most crucial aspects for companies, the ability to enlarge their values propositions trying to create a complex response to customers.

We are able to identify some sub-sectors within the wider wellness world which existed before this new aggregate appeared on the scenario and that had their own distinctive identities. While the complexity of the social and economic scenario started to grow, many of these sub-sectors started to show signs of a deep crisis that was related to the interpretation of the dynamics of demand and supply that were no longer up-to-date or, in any case, inadequate. Internal competences of companies belonging to wellness meta-market are in many cases still very focused on their traditional business: this is partially because of the fragmentation of many of the traditional sectors included in wellness and because of the companies' small dimensions on average too. It's clear how managing this new complex customer can be dominated only referring to the competences developed inside the same sector or company: companies need to face this challenge, accelerating mechanisms of

integration among operators traditionally very far from each other. It's a global transformation that is affecting all the wellness areas identified above.

Among these, an area is object of a specific focus in our paper: telehealth-telemedicine.

According to our model, it comes from a redefinition of value propositions of operators traditionally included in the vast world of the "cure of the body- health". The path to enlarge the original positioning in the market of telehealth operators has brought them to identify possible fields of collaborations to enhance their value propositions through networking with other operators coming from "the enablers area" (see again figure 1).

## 5. Telemedicine and telehealth

The increasing attention to health is also recognized by the evolution of the healthcare interpretation, connected with the critical role of ICT evolution and of new organisational strategy. In the health sector, the concept of health, as equilibrium between physical and psychical well-being, swept in last years. As mentioned above, it relates to a broader spectrum of concepts, that also includes social relationships and interactions with personal specific environmental context (Niero, 2001: 33).

At the same time, the introduction of ICT in health context allowed the transformation of services in tele-services, also considering the chance of remote accesses. The health context, that is based on a network structure made of interconnections among and between different actors (characterized by different core activities), turns in a *telenetwork*, thanks to the new technologies support.

The Italian NHS (National Health System) is based on a net model. The local health assistance (LHA) manages the healthcare on the territory through structures like districts, laboratories, semi-residential structure. The degree of complexity is determined by the dimension of the served territory, by the presence of directly managed hospitals and by the presence on the territory of autonomous hospital structures: in fact, in each Italian region, LHA hospitals are also flanked by IRCCS, private but state equalized structures (aid qualified institutes, research institutes) and accredited private clinics (Borgonovi, Camussone, Occhini, 2004: 16), while the emergency and live aid performances remain a peculiarity of the public health hospital service. Healthcare staff has a main role in the NHS. The staff includes General Medicine Doctors (GMD), Free Willing Paediatricians who, though not being dependent by the HNS, represent a strategic resource for health institutes.

This network structure requires specific IT supplies, to grant integration and coordination with the surrounding territory.

In this context, the *telemedicine* network concerns relationships between doctor and patient, or his/her caregiver, mediated by new technologies. It also affects the relationship between organisations and patients, in order to satisfy, through ICT, their health needs: for instance, a doctor carries out a remote control of patients through the transmission, by the Net, of biological data (telepressure, telecardiology, teledyalisis...); meanwhile a patient interacts with general doctors, specialist ones, health organisation personnel. Moreover, patients interact with providers of biomedical tools and social associations that support the satisfaction of health needs, using new technologies.

*Telehealth***,** otherwise, concerns relationships among organisations in order to improve their processes. For instance, an hospital, through e-procurement, can optimize the relationship with ICT providers or biomedical support providers. A general centre can create a digital health portal with social associations in order to increase the offer of health services. New technologies can also support the relationship between an health organisation and its personnel, supplying professional training courses via eLearning, or improving organisational processes such as internal communication, logistics and so on. Telemedicine applications can be synthesized in:

- telecardiology, the electronic transmission of radiological images from one location to another in order to interpret and have consults;
- teleradiology: the creation of image archives used for research and education causes. A system transmits images over a distance, using leased or switched transmission lines (i.e. PACS and RIS);
- telediabetes: a system supporting the data survey with a pen pad and a computer ;
- teledialysis: a remote centre monitoring parameters improves the control of a dialysis session;
- teleanalysis: a telematic system supporting analysis of biological drawings realized in peripheral sites;
- telediagnosis, teleconsult: systems allowing distance imaging and heart-blood parameters transmission to support second opinions. Patients can access to specialists' knowledge;
- telemonitoring, teleassistance, telesurveillance: interventions helping patients to receive assistance at home or in decentralized structured;
- telerescue: instruments allowing aid calls in emergency conditions, through portable transmitters that supports continuous communication to users;

- telerehabilitation: rehabilitation services over telecommunication networks and Internet. Fields of rehabilitation practice are neuropsichology, speech-language pathology, audiology, occupational therapy, and physical therapy.

Focusing on the rehabilitation area, the introduction of new technologies has social, clinical and managerial implications. The incidence of vascular, traumatic, infective and degenerative events and the increase of the survival justify the positive trend of the number of people with disability in all age groups. In Italy the estimation of disabled people is more than 250.000 units, with a growth of about 50.000 units per year (+20%). If we consider the number of caregivers in rehabilitations, about 1.000.000 people are already involved in the system. This number rises systematically and exponentially every year (Politecnico, 2006).
A person's functioning and disability is conceived as a dynamic interaction between health conditions (diseases, disorders, injuries, traumas, etc.) and contextual factors, including personal and environmental ones. As a consequence, a relevant number of entities and different know-how are continuously involved in a complex but well-integrated rehabilitative network. Thus, in this context it is necessary to provide well organized, coordinated, multidisciplinary rehabilitation services, coming from new managerial approaches that consider different organisational contexts, different goals and complex structures. In the rehabilitation area, as we can see in the cases described below, developed through the ARA model, telemedicine supports the effectiveness of treatment controls and the development of diagnostic and technical parameters in order to satisfy patient's needs. Besides, tele- and home-assistance services are continuously increasing their importance, considering the central role of safety (first aid action) and security. These services development can't disregard networking with different specialized actors.

### 5.1 The rehabilitation project of Villa Beretta: teleconsult and temonitoring

The "Second Opinion" service of Villa Beretta (Valduce Hospital) supports the sharing of medical reports and specialist opinions. Through this system, doctors can share the imaging and information. TeleConsult service supports the development of relationships between Villa Beretta and Hospital in Il Cairo, Moss Rehabilitation Hospital (Usa), Hospital in Catania (Italy) and a social health organisation in Mortara (Italy). Due to this collaboration, in Egypt patients are visited by doctors who can continuously consult colleagues in Italy. Technology supports the learning (e-learning) and the creation of rehabilitation centres across national and international borders.

In addition to this, telemonitoring project of Villa Beretta provides patients' control in their home. The project involves the cooperation within eWorks, Rizzoli Institute, Cariplo Foundation, CNR, UILDM Como, Valduce Hospital and other organisations (Figure 2).

***Actors***

The development of the teleconsult project included different kinds of actors and required the sharing of different resources in order to create an innovative solution. The development of project engaged several actors:

- Villa Beretta (Costamasnaga). The centre "Villa Beretta" is a detached ward of Valduce Hospital (Italy). The centre is specialized in rehabilitation services;
- Valduce (Como) Hospital. The hospital, located in Como, offers confinement ward and outpatient services. The hospital guarantees high-quality, medical care and rehabilitation for individuals with physical disabilities. The hospital treats many types of physical disorders, with special programs for traumatic brain injuries, spinal cord injuries, strokes, neuromuscular diseases;
- Valduce Foundation. The foundation supports the research from an economical point of view and also grants researches;
- UILDM Como. Unione Italiana Lotta alla Distrofia Muscolare was founded in '60 in order to foster scientific researches, health information and social integration;
- Cariplo Foundation. Its main aim is to support, in a no-profit perspective, the fulfilment of public interests in different sectors, from art to culture, from education to scientific research;
- TMR- Rizzoli Institute supports the development of different applications, from Telemedicine to tele-didactics in order to ensure scientific and health knowledge of the Ortopedici Rizzoli Institute and of other specialized centres of excellence;
- CNR. National Research Centre, is a public institution that supports the diffusion and sharing of knowledge in scientific, economic and social development;
- Eworks is specialized in the development of software for real time videocommunication. The firm develops worldwide videocomunication using a technological platform.

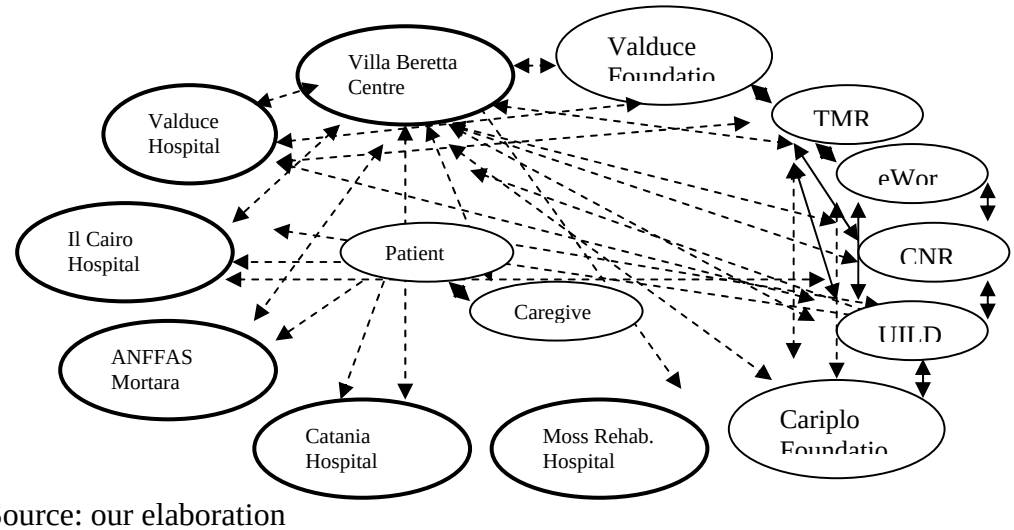
***Relationships for competencies combining***

The Villa Beretta Centre is a ward in which there are located analysis laboratories that use devices such as the electrode and camcorder. Doctors carry out analyses that investigate both the clinic area and functional area. This supports rehabilitative procedures and the choice of therapies. In addition to this, aneuropsicology laboratory is available too.

The Electrodiagnostic Center of Valduce Hospital combines the latest advances in clinical neurophysiology with computer technology to measure a patient's brain activity and to assess peripheral nerve and muscle function.

In the web project the technology is easy to use and advantageous; it can grant a professional service to aid the patient. The patient through software can access to services, and use the technology that requires limited cost. In this area it is possible to find microphone, web cam, tv, modem (ISDN-ADSL). Through the direct contact, the operators can control the patient status in his/her home. The development of R&D is deployed in different areas of rehabilitation services, considering teleconsult among a team of doctors and telemonitoring of patients. The rehabilitative staff cooperates with the patient and caregiver to support deficit in memory, attention, motorial ability. In this context the organisation offers guidelines in different area (individual care and hygiene, communication ability, use of devoices…).

Figure 2 - Network Teleconsult project



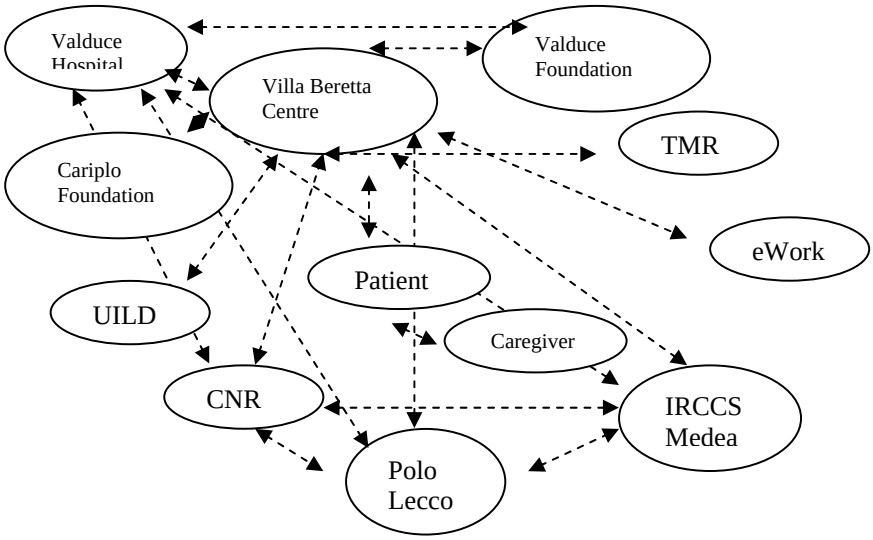

Source: our elaboration

Villa Beretta Institute has developed with Egypt an international collaboration over the last years. The patients are visited and monitored by specialists that work on Egypt territory, but this exhibit is then transmitted to Italy's specialists for a consult. Villa Beretta doctors also use technology for daily working with other colleagues all over the world: videoconferences with doctors localized in USA are normally taking places, and the linkages with colleagues from Catania Institute (in the south of Italy) are reinforced by the continuous interchange of knowledge and professional experience.

Through teleconsult Villa Beretta develop relationship with personnel of health organisations in a tele-health perspective.

In *telemonitoring* project Villa Beretta uses a camcorder monitoring patient from a follow up point of view. In telemedicine project the actors involved are eWorks, Istituto Rizzoli, Fondazione Cariplo, UILDM Como, Ospedale Valduce (Figure 3).
Web conference is integrated by a mail or chat communication through an audio and visual support.

Figure 3 - Telemonitoring Network




Source: our elaboration

The Institute uses a platform in order to delivery a service and therefore the patient supports only the cost of Internet use. The quality of service depends on video that allows doctor to realize the monitoring.
Before this project, EWorks, specialized in web conferencing, carried out project with Rizzoli Institute. From Shepherd Center, the first centre that implemented a telerehabilitation service for mielolesi patient, TMR realized a technology solution based on different needs. With the collaboration of Rehabilitation Center of Montecatone, there have been defined practices and activities that grant a better assistance to dismissed patient.
The development of project is articulated in different steps referred to regular meeting, time of state of art, study, experimentation. Telemedicine can increase service quality, reduce cost, and reaching efficiency and effectiveness goals.
In future, Villa Beretta will increase the development of videoconference and the integration among patient data. Villa Beretta will consider the integration among socialhealth services in order to reply to the emerging patient needs.

A structure can answer with its resources or realize complex solution through competences of other actors. In the perspective of doctor-patient relationship this interaction is very important to increase loyalty. About the complexity of telemonitoring systems, one of in-progress international research topic in biomedical technologies is about smart textiles, i.e. sensorized fabric for different applications, for example wearable computing and non-obtrusive telemonitoring. On this application the Politecnico di Milano has activated a research program that has already developed an important level of know-how both about Body Sensor Network – e.g. miniaturized electronic boards for distributed sensorized platforms and/or integrated in textile with wireless (or not) connection to a body gateway– and about smart textiles integrating conductive fibers structured as sensors network directly in the wearable garment, e.g. a common T-shirt. In the Health Innovation Network Technology project, a virtual Lab with Cnr, Irccs Medea, Politecnico di Milano and Valduce Hospital operate for a basket developped by Dipartimento di Bioingegneria (Politecnico di Milano) and Raggruppamento di riabilitazione funzionale (Istituto di Bosisio Parini).

### 5.2 The Home Integrated and Technological Assistance project of ISMB: the telemonitoring service

ADITECH (Home Integrated and Technological Assistance) project has the goal to create home tele-assistance solutions for patients.

Among the advantages for elders and families we focalise the attention on the higher level of active and passive safeness, the better life quality in terms of help to elders and care givers autonomy, the optimisation of assistance timing, the possibility of an higher personalisation in home and institute assistance services.

Among the advantages for social and health operators the most impressive elements are related to the operative help in taking charge of patients, to the higher level of integration among the professionals involved in the assistance, to a higher level of information and of possibility of sharing social and health data about the elder, to a motivation towards the identification of new assistance tracks in a social and health integration optic.

***Actors and relationships for competencies combining***

The realisation of the project involved ISMB (Upper Institute Mario Boella), CETAD (Centre of Excellence Technologies for Elders and Disabled people), two residence for elders in Asti and Turin (Italy). The purpose of the project is to test the telecontrol service through a mobile and wearable unit (a watch).

This last can find environmental and physiological parameters, generate emergency callings localise a moving unit, send a call for battery re-change and activate a system for emergency calls. In case of anomalous event, the system sends a signal to a telecontrol centre.

The innovation of this project is not only in the offered solution, but also in the service concept that is “tailor made”. Every technical aspect has been set up in the optic of social health operators. In addition to this, the system is customisable on user needs and the software operates in an intuitive way.

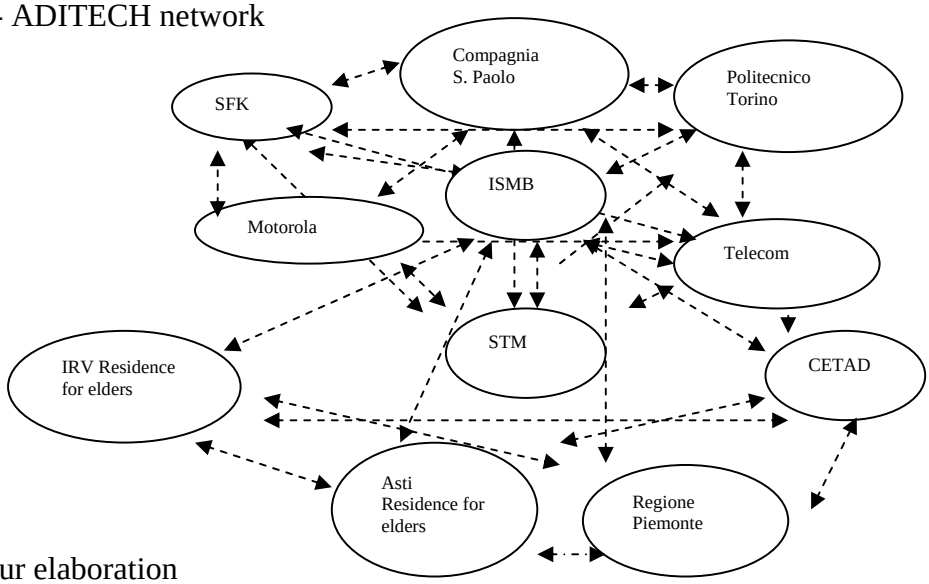
Its function is the continuous telemonitoring of some physiological aspects and of the personal movements, so to allow to build up, in time, an individual parameters model.

In case of anomalous events, identified by a proper cross-bench of parameters, the system is able to automatically send signals to a Telemonitoring centre, consisting in a remote workstation (PC) placed directly in the hospital or in a Service centre. The watch uses a radio communication system, so wireless, with the main station, avoiding any masonry intervention.

In the residential context, data are sent to a telemonitoring remote workstation (PC) in the health structure. The system is expected to integrate with the emergency call procedures of the structure. In a home context, on the other hand, data are sent to an external service centre via modem (analogic, GSM, GPRS, ADSL). The watch has been presented to the retired people home “Città di Asti”. The experimentation linked to this retired people home goes on with the handovering of the device to self-sufficient elders living alone or with their family.

As we can see in the figure above (Figure 4) the development of project is based on network relationships.

Figure 4 - ADITECH network




Source: our elaboration

The project is experimented also in Mondovì, in Cuneo province, with patients living in their homes. The two structures for elders represent an application context able to give us useful indications to improve the system. Thanks to the experimentation it has been possible to work in a higher safeness and presidio situation.

The experimentation works thanks to the collaboration of operators and elders. In the ambitus of elder people structures, the system gets integrated as safe base for social and health operators, with results in the optimization of the assistance quality for elders. The working method used during the experimentation is based on the elder, seen in the whole of his characteristics, needs and living habitat. Keeping into account all these aspects it is possible to improve functionality, efficiency, usability, comfort and safeness of the whole Telemonitoring system. The experimentation is brought on with the maximum respect for all involved agents: elders, operators and, indirectly, families and other actors, such as volunteers and administrative staff. The main goal of the experimentation is to make the system more widely accepted, useful, possible and pleasant.

Future initiatives include the industrialisation of the prototype and the widening of the number of people to assist (keeping into consideration different pathologies). A particular attention is given to the possible use of TV devices; a link between watch and TV is forecast for the future. Assistance centre shared information suitable for an answer activation will be shown on TV, with a window showing patient's name and message. Thanks to the diffusion of ground digital the system will become suitable for a patient home service too. The patient's parameters will be monitored through sensors and, therefore, an alarm system gets added to the structure. Up to now, the devices have been structured in an open frame, suitable for a future integration with other signals (i.e. Blood oxygenation).

## 6. Conclusions and managerial implications

In this paper we have analysed the re-definition of the offering system in response to new and complex customer needs. Our attention is focused on hybridisation of business models, investigating the process of action and re-action among companies, that supports sharing of resources and combining competences. As emerged from the empirical area of research, this process allows companies to reach a competitive advantage.

We have investigated the Health Industry characterized by a high level of dynamism, considering the complex needs of customers in a holistic health approach. The health shift from the need, that is the simple formulation on a biophysical basis, to the demand (a complex articulation on a cultural basis). Health is no more considered as a fact (passive utilisation),

but as something to preserve and conquer (active research). The awareness of health as a primary need has grown.

The change of the demand requires a change in supply as to realize complex solutions. In order to reach this aim, organisations develop relationships with actors characterized by different core competences. As seen investigating the telemedicine-telehealth projects, tele-services require the co-operation among actors that belong to the health area (hospitals), the technology area (ICT companies), and the social services areas In the first analysed case we found the main health competences in Valduce Hospital, Villa Beretta Centre, Il Cairo and Catania Hospital. Technological competences characterized eWorks, and social competences characterized the UILD association. In the second project analysed, we found social health competences in Asti Residence for the elderly, IRV Residence for the elderly. Unlike these, technological competences are referred to as Telecom and Motorola, and Research competences are referred to as ISMB.

As we can see, the introduction of new technologies in the health context determined the entry of new players and the diversification of the existing organisations. On the one hand new technology providers (hardware, software and solutions) develop their activity in the health area, the other develop new professional-functional services.

Technology supports the development of collaborative relationships among these actors, generating the transformation of the health network and the appearance of a telemedicine-telehealth network. The introduction of new technologies in the health context has also determined the improvement of existing relations. Through teleconsult, the system allows distance imaging and heart-blood parameters transmission to support second opinions. In the case analysed, TeleConsult service supports relationships between Villa Beretta and Hospital in Il Cairo, Moss Rehabilitation Hospital (Usa), Hospital in Catania (Italy) and a social health organisation in Mortara (Italy). In the first and in the second projects, Tele-monitoring allows patients to be monitored by doctors from a distance. Technology then, becomes increasingly an enabling factor for the co-evolution among organisations, which in this way develop new relationships or modify the existing ones.

From a managerial point of view, we have to highlight that the telemedicine-telehealth projects are based on solutions generated by the integration of different competences. In the telecontrol service analysed, the innovation is referred to the solution (a mobile and wearable unit, a watch), but also to a service concept of “customization”. Every technical aspect has also been set up in the optic of social health operators. In this perspective new technologies

support the process of networking and increase the level of complexity of the coordination tasks.

Focal organisations like ISMB and Villa Beretta Centre have to cope with the different actors involved in the project, that are characterized by different languages. It appears that one of their basic roles is to act like facilitators supporting the sharing of communication and information. It follows that their key managerial competences are to be accompanied by other critical skills, such as cooperative skills, that are of the utmost importance for building and sustaining trust, confident communication and smooth coordination. These skills are essential for facilitators in order to manage the mutual interdependence of the several units involved in the projects (Sividas, Dwyer, 2000: 33).

Trust and communication are the base to realize shared resources and to develop complex solutions. In a dynamic context a key resource is identified in the knowledge, that allows companies to anticipate changes. This requires investment not only in financial area but especially in knowledge area. The spread of technology can only happen if end users and other stakeholders are aware of the potential of new solutions.

Relationships become the base to share information, knowledge and technology, which are considered crucial resources. This also implies the involvement and collaboration between organisations and their reciprocal influences, as the most important means to increase effectiveness and efficiency in results, but also to reach a sustainable competitive position.

At the strategic level, networking allows companies both in terms of rationalizing the use of resources through economies of scale and scope, both in relation to more learning opportunities offered by the increased interaction with other structures (Cicchetti et al., 2005).

The "coordinated mobilization" is an expression of a form of coordination which typically occurs in the supply of health services, and that means that the establishment of inter-relations is not preordained.

As seen in empirical evidence, networking, considered as a process of companies' action and re-action, could become an enabling means to support the sharing of knowledge, underlying the reconfiguration of value propositions.

Moreover, an important trigger of convergence is the sectoral heterogeneity of the different actors taking part in the networks. Heterogeneity has an important managerial implication for companies involved in these businesses: differently from the past, the value creation in a complex environment seems to be strictly connected to the ability to be interlinked with other actors belonging to different sectors (as traditionally interpreted), able to push the innovation through the integration of different competences. The involvement and collaboration between

organisations and their reciprocal influences, as the most important mean to increase effectiveness and efficiency in results, but also to reach a sustainable competitive position.

In this context, on one side, complexity can't be reduced but it can be managed through networking; on the other side, networking can increase complexity as can be developed among different actors.

In addition to this, co-operation becomes a strategic approach to reach a competitive advantage, especially if developed with actors characterized by different core competences.

In this perspective co-evolution allows companies to access the new meta-market and to increase the level of efficiency and effectiveness in their area.

In order to better understand how this evolution towards a coordinated mobilization is being achieved, the next steps of our research will be focused on the extensions (both qualitative and quantitative) of our results in the same industry as well as in other convergent businesses.

In our next work we will also consider a new networking function: how companies can strengthen the logic of learning replication.

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