Advances in Service Research for the understanding and the management of service in healthcare networks

Forum Session "Value Co-creation – healthcare"

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Abstract[7]

Purpose: Healthcare needs to be organized more functionally compared to the users' needs the availability of resources offered by actors involved in the provision of related services. This is a historically rooted and long-lasting issue to be addressed, affecting almost all national realities at territorial, political, technological and economic level. Hence sustainable solutions ought to be pursued, in search of models and methods capable of being replicable, scalable and versatile in different contexts. Today there are several initiatives to improve the conditions of hospitalization of patients, technical advancement in equipments and the progress of the structures responsible. Many actors are involved in various capacities in this field, everyone has priorities, strategies and procedure often different; their interaction reflects differences in each type of information, in terms of language, of purposes, of operations. It seems therefore still missing a concrete method of understanding that is also truly unifying. This work aims to highlight the role of the relationships within several organizations operating within a modern National Healthcare System (NHS) and involved in the value co-creation process linked to the healthcare service provision. Some themes just like service, service-system, eco-system, smart-system are deepened, in order to foster new original reflections about the NHS functions, design and governance.

Design and Methodology: Starting from the deepening of healthcare networks logic, intended as sets of entities working together, an attempt to interpret the different relations between under a systems point of view was done.

Findings: It was interesting to deepen the match between the cooperation logic of healthcare networks and the systems view of the nowadays organizations' behavior within the modern NHS. So many connections were found and a number of mutual effects come out from different entities relationships.

Originality: The interpretation of the NHS as a complex service eco-system, in which many actors (consciously or not) operate for the same value proposition, it is an interesting point of view, useful for the correct understanding of any phenomenon investigated.

Research and practical implications: The possibility to relate the system and the service logic for new strategies within the NHS help us to better plan the operations of the organizations involved; new model can be developed for the governance of those organizations. This sounds good for managerial implications also.

Paper type: conceptual paper

Keywords: Healthcare service eco-system, smart service systems, healthcare networks, systems approach, value co-creation.

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Introduction

We live in a service era, we have developed over time a spirit of service in all the relations we want to foster, we provide service in most of the relations for subordination, we promote a service culture in each sphere of social actions, we follow increasingly a service logic in entrepreneurial activities. The presence of the prefix/suffix of service in our daily life make an evidence of the relevance applied (Polese, 2012). From an operational point of view every day organizational activity is attributable to a logic of service. So this, the service logic deserve to be deepened, currently, both from the academic world and the organizational realities, industrial or not.

Despite the path towards a unifying terminology does not seem finished yet, you can define more generally a service as an activity performed by an individual or a group, that benefit other people. It is therefore a type of activity that provides assistance and experience for the usefulness of all parties involved in a particular exchange, before, during and after it. The service offered by modern organizations, regardless of their sector, must meet the requirements of dynamism, adaptability, efficiency, in order to address and solve the growing levels of complexity and turbulence of the global market, which are constantly evolving style and quality of life, levels of technology, purchasing behaviors.

It is apparent, therefore, the raising of the service core of many organizations that are increasingly taking into account the possibility of expanding its offering in terms of services, looking for more interaction with the reference context (Grönroos, 2006), in attempt to reach a defensible market position over time.
The service-oriented culture therefore implies the recognition of the service as the key to the success of all organizations. This culture creates and promotes actions and behaviors aimed at meeting the expectations of all stakeholders. The service orientation is reflected, for the organization, in the adoption of a long-term policy supporting the business attitudes for excellence proposal and delivery. As far as the healthcare organizations, the service that they are required to provide, in favor of the collective health and its sustainability, it becomes a real corporate vision on the basis of the various stakeholders interactions, in order to improve the average level of quality produced/perceived. The service represents a goal, at the base of a significant change in the organization of all firms (Asif, Sargeant, 2000). Ultimately, the growing importance of services and service culture involves a reorganization of productive structures visible, but also the diffusion of innovative technologies and new business logic.

In last years the service logic was soon linked to the concept of system, if it is intended as an organization of elements interacting with each other to provide a service, leading new interesting studies to the systems view of organizations' behaviors. Everything that exists is configurable as a system, or as a component of a system. The systems are in nature, in society, in science, in information technology, in economics, are in the human mind, in organizations, etc. Studies on the characteristics of the system are useful for understanding and after trying to manage and govern the complex phenomena of any kind, such as those relating to the service. A system is an entity that emerges from a specific structure within an active object observed (Golinelli, 2005; Barile, 2008; Barile, Saviano, 2008), as such, the fundamental unit of analysis is a system consisting of many parts or structures (Parsons, 1971).

From the systems point of view, each system to a certain level is in relation with other related supra-systems and sub-systems. The former are hierarchically ordered according to their more or less critical and influential to the system, the latter should be directly managed by the system, in order to contribute to the achievement of its purpose (Barile, 2008; 2009).

In the healthcare so many systems can be found, a number of systemic connections and effects may be investigated for the study of organizations strategies and operations.

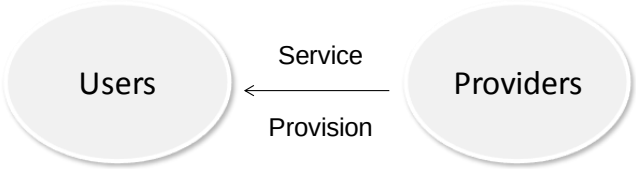
1. Recent advances in Service Research

1.1. New service concept

The shift in service has been the subject of a long and significant interpretative evolution at the international level, which is still in place; many definitions have occurred over time in an attempt to consolidate its concept and applicability.

Already in the late 80's it becomes appreciable the review process of interpretation that involves the product on the one hand and on the other the service. As part of the more general idea, the service starts to become increasingly important (Bertini, 1997), up to the interpretation of the final product as a mere component of a larger system of which the service is part in a same relevance (Rispoli, Tamma, 1992). According to this view, the service is not a sort of substitute for good or complements of it, in this sense it isn't a dualism anymore (Gummesson, 1995; Rullani, 1997; Normann, 1997). At first the relations between producer and user were characterized by a one-direction type of transaction, in which the first-one provides a an activity for the second, as follow.

Figure 1: Traditional Service relations

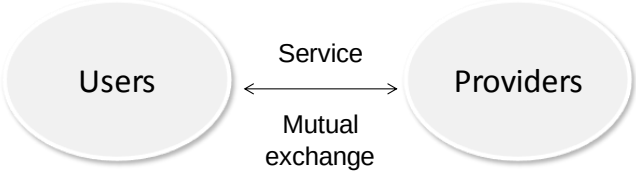


Source: Authors' elaboration

According to Service Dominant logic (S-D Logic), service is defined as the use of specialised competences (operant resources—knowledge and skills), through actions, processes, and performance for the benefit of another entity or the entity itself (Vargo, Lusch, 2004; 2006; 2008; 2010). According to Service Science, Management, Engineering and Design (SSMED), service is considered a system of interacting and interdependent parts involving people, technologies and business activities that are constantly connected to the outside; these components are used to harness the firm's own distinctive characteristics and to achieve and maintain sustainable competitive advantage (Maglio, Srinivasan, Kreulen, Spohrer, 2006; Maglio, Spohrer, 2008a; 2008b; Demirkan, Spohrer, Krishna, 2011a; 2011b).

While the focus of research moves from the side of service, by which competitive advantages do not seem to be sufficient to produce a fine product and placing it on the market successfully, but rather only to offer to consumers a structured set of services (Renoldi, 1997). Then it is necessary to meet the expectations of a customer who actively participates in the creation of value as it affects the quality and usefulness of the final output (Rispoli, Tamma, 1996). So, within the exchange of their resources producer and consumer show the ability to contribute to the process of value creation, because of their common interest related to the improving performances (Vicari, Troilo, 1999; Grönroos, 1990, 1999, 2000; Gummesson, 1998). As a consequence it seems appropriate to interpret any organization behavior operating in networks due to resources sharing (represented also by information and skills), by expanding its relational capabilities within the network itself (Rullani, 2003; 2004). Thus, according to the studies and reflections of the Service Research, the value of the final output (tangible or intangible product that is) is also defined by its users and resides in their ability to use them. This derives from a sort of service mutual exchange between provider-user, forcing e new kind of relations, as you can see in figure.

Figure 2: New Service relations



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In general, "services are intangible activities customized to the individual request of known clients" (Pine and Gilmore, 2000); the related customizations lead to co-productive relationships, and interactions

with clients as participants in the service process represent the real key characteristic that differentiates a service system model from the traditional economic transactional one.

Services can also be defined as a series of activities in which resources (employees, physical resources, goods, systems of service providers) are used in interaction with the customer to find a solution (Grönroos, 2008); from this perspective, service involves both a provider and a client seeking and providing solutions, and their relationship can be viewed as a system of parts that interact when a service is provided, trying to re-interpret the concept of service and value, in the belief that the service-centered paradigm can dominate the logic of production and the market, reinforcing the concepts of *servisation* (conceptual evolution of the dominance of the service), *servicescape* ("the environment surrounding the Service"), and *Service Age* (the era in which we live).

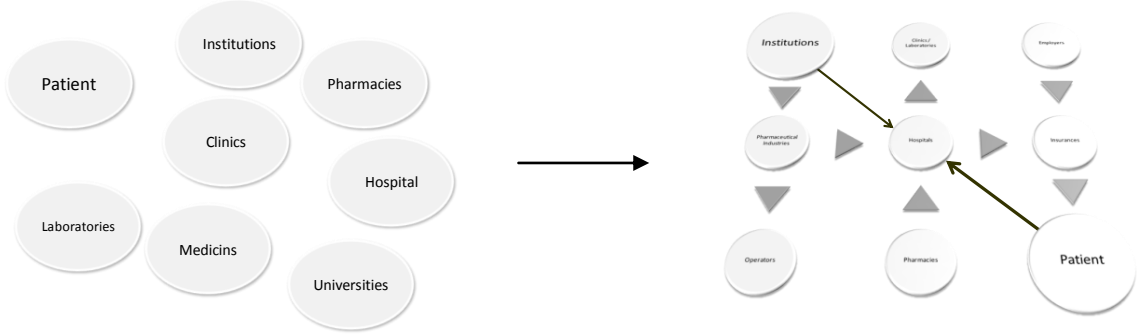
Based on previous interpretations, service can be represented as "a kind of interaction between entities in a reticular system, finalized to improve value co-creation outcomes under a win-win logic inside interrelated processes" (Polese, Russo, Carrubbo, 2009).

1.2. Service Systems and Smart Service Systems

Defined the role of the service and its well-known importance, the conceptualization of space within which it is developed, implemented, delivered and received in time has undergone continuous changes that have led to numerous interpretations of so-called service systems. A service system is primarily related to interactions supplier/customer and therefore is seen as an open system (Golinelli, 2010), able to strengthen their state of equilibrium through the acquisition, sharing and the provision of resources.

According to IBM researchers, the smallest service system is considered to be a single person, the bigger the global economy as a whole. The service systems, according to the first real definition of the Service Science, represent configurations of people, technology, value propositions and shared information can co-create value, such as language, laws, measures and methods (Spohrer, Maglio, Bailey, Gruhl, 2007). Each service system is then at the same time a supplier and user of services, structured according to the need as a value chain, a value network, a value system (Vargo, Maglio, Akaka, 2008). The service system can be simply a software application, a business unit within an organization, can result from a workgroup, a company department and can be a business, an institution, a government agency, a city, a nation can be a composition of several online collaborative service systems inter- and intra- organization (Qiu, Fang, Shen, Yu, 2007). A service system can then act to supplement resources, interpretable in terms of the set of elements belonging to a single work system (Spohrer, Anderson, Pass, Ager, 2008), able to promote the specialization of skills, whether they are operating, such as knowledge, skills, know-how, people, products, materials, finances (Vargo, Lusch, 2006). The service systems are defined as work systems where the service providers and consumers share knowledge and information within a specific dynamic networked supply chain value (Alter, 2008). Starting from a set of entities (as follow) we can image the service system as a strong configuration including links and relations within.

Figure 3: Service Systems configuration and design



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The service systems can interact more or less formally, informal interactions acquire significance through implicit or explicit commitments and respecting social norms for public governance, the formal interactions are related to official statements that establish rules for contracts, licenses, and rights are protected and guaranteed by the presence of a recognized authority (Spohrer, Andersson, Pass, Ager, 2008). Suppliers and customers participate in a complex service systems that lead actions in the market in order to get expected results as solutions and experiences (Mele, Polese, 2011; Mele, Pels, Polese, 2010). The service systems are able to foster connections and interactions between the various actors involved in an exchange process following different channels of communication between businesses, consumers and various stakeholders (Gummesson, Polese, 2009).

The progressive evolution of the Service Research has proposed the development of a study focusing on modern service systems, intelligent, smart, driven in particular by the progress made at international level in ICT. The idea is based on the need to consider more organizations better able to deal with changing conditions in the context of a more responsive, adaptive, proactive, dynamic.

Progressively, the new technologies have to be increasingly able to reconfigure themselves and systems, including businesses, will be able to reformulate and reorganize all of their assets in order to maintain a balance stable and sustainable over time. In the future everything will be in fact related, interconnected, and for this reason, arising the attention to learning processes, innovative processes, technological progress. Among the most direct consequences of course we include the participation of the various actors in the process of value creation, customization of products/services produced, the increased ability to react in real time, to improve the current level of high quality service, expectations, behaviors, needs, development of new systems.

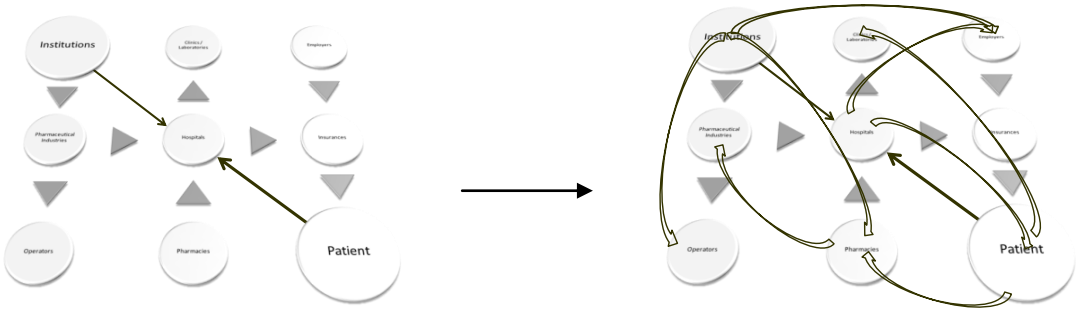
2. Service Research interpretations about relational dynamics

2.1. Inter-organization and intra-organization relationships

A lot of Scholars have deepened the study of relationships. Currently, the global market changes and the emergence of new approaches (including the logic of service) require a reassessment of the role of relationships in terms of competitiveness and survival of organizations. In modern service systems, in particular, relations are fundamental parts of a system (Polese, Carrubbo, Russo, 2009).

Relationships exist if there is a network, and this seems particularly significant in service context whenever co-creation experiences take place. However we can note that networks perform if the relations are organized. Recalling the relational approach, each organization can be conceived as dynamic resource interactions involved in a many-to-many relationships (Prahalad, Ramaswamy, 2000; 2004; Lovelock, Gummesson, 2004; Achrol, Kotler, 2006; Gummesson, 1993, 2008a, 2008b). These relations determine the adoption of strategies, policies and corporate behavior aimed at the satisfaction and efficiency of performance both inside and outside the organization (Womack, Jones, 2007; Lusch, Vargo, O'Brien, 2007). It is interesting to highlight the number, the frequency and the role of existing relationships.

Figure 4: Service Systems relations within



Source: Authors' elaboration

According to networks theories, organizations are not autonomous entities, but dependent on the relationships that exist between them (Vicari, 1991). Just as individuals within a company regularly interacts in accordance with commonly accepted norms of behavior, in the same way corporate networks adopt social patterns and cultural attitudes in their interactions with other parties in order to create and maintain a shared determination to improve the co-creation processes (Polese, Moretta Tartaglione, 2007; Polese, 2009). This requires the continuous improvement of interactions between the elements of a network, in order to optimize the allocation of resources, the benefits of collaboration and cooperative strategies (Castells, 1996; Gulati, 1998; Capra, 2002), in which the relations are characterized by the exchange of information, commitment and trust (Richardson, 1972; Hakansson, Ostberg, 1975).

The network theory attempts to analyze the phenomena of resources and objectives sharing in terms of organizational constructs (Polese, Di Nauta, 2012) - including "nodes", "connections", "forces of aggregation", "central control", "dynamic equilibrium" and "structural variability" (Richardson, 1972; Jarrillo, 1988), used to explain the multiple contributions to the value creation within the observed systems (Polese, 2004; Polese, Russo, Carrubbo, 2009). In summary, the networks theory argues that modern organizations can be understood as best of service systems, where there are strong functional interdependencies between the various actors, aimed at success.

2.2. Systems view of business networks in service contexts

Contact, create, participate in! A given system in order to survive tends to absorb energy from both supra-systems that sub-systems (components) in order to help in developing of the eco-system in which it operates (Barile, 2008; Barile, Gatti, 2007). Each system is characterized by a dynamic evolution in (a set of individual elements with assigned roles, activities, responsibilities and tasks to be performed in compliance with specific shared norms and constraints), in constant relation with external systems relevant to it (Golinelli, Pastore, Gatti, Massaroni, Vagnani, 2002). Nevertheless, every system is different from others. Considering also the same person who carries out operations iterate, the comparison over time of a similar situation involving the same subject observed, it is clear, however, that the characteristics and the systemic effects of those benefits will certainly vary. If we talk about a system must always take into consideration the experience, improving knowledge, previous mental constructions, new abilities, different personal skills, the development of tacit or codified procedures, specific intentions of doing things.

A system can be designed so that the border can be drawn around it, in order to distinguish between internal and external elements and to identify inputs and outputs. These considerations point out that in general the structure can be studied (What's this? How is it made?), While the system should be interpreted (How does it work and what logic does it follow?) (Barile, 2008).

The systems theories are based on various scientific bases and their mainstream theory is continuously developing. Systems theory analyzes a phenomenon seen as a whole and not as a simple sum of elementary parts of which it is composed. The focus is on the interactions and relationships between the parties in order to understand the organization of the entities, their operation and the possible results.

Bringing the discourse of business economy, the competitive behavior is thus closely correlated with the ability to identify the appropriate relations, the right channels of communication, the proper organization of information flows sufficient to harmonize the internal business development with the evolution of the surrounding sides (Christopher, 2007). No business is an island (Håkansson, Snehota, 1995), and therefore, to survive, organizations have ti relate to their own subjective framework, and to respect the constraints and rules of the objective environment over-determined. For a given system, the environment is therefore the set of objects of exchange whose characteristics influence and are influenced by the behavior of a system (Hall, Fagen, 1956).

The service systems may also have a distinct type of modeling for the problem solutions (Thomas, Griffin, 1996; Dietrich, Harrison, 2006), allowing the proposition of analysis and statistical methods of learning to be applied, such as: statistical control theory, game theory, theory and design of evaluation mechanisms.

Given that, two identical systems are not possible, each one is distinguished by the characteristic elements of "structural", and also (in the case of a same structure) for the presence of improvements in knowledge (technicalities), operational experience (practicalities), skills (abilities) that over time can mature, it is important to understand what leverages can be considered to facilitate the development and implementation of a synergy.

Today, networks are related to an increase in connections (tacit or express) between the entities, which are characterized by exchanges of information, and by continuity in relationships resulting from ongoing commitment, trust and collaboration (Richardson, 1972; Hakansson, Ostberg, 1975). Various terms have been used to describe these ties volunteers from other economic Actors, including "heterarchy" (Hedlund, 1986) and "polycentric" (Forsgren, Holm, Johanson, 1991), however, the term "Network" is generally the most widely accepted to describe this emergent entities (Bartlet, Ghoshal, 1990). According to systems thinking, an organization that operates effectively, it needs to be focused on the management of the structure and coordination of autonomous nodes, the centralized control, the concept of dynamic equilibrium, examining structural variability, network strategies, achievement of objectives and sharing of common resources (Jarrillo, 1988). Each system is the result of the joint effort of its active elements, the allocation and distribution of resources, the benefits of collaboration and the importance of alliances, net of roles and rules, and cooperative strategies, all contribute to the conceptualization a service value networks (Allee, 2000), in which the activation of relations between the elements and the system of government can improve interactions, transforming the static network into a dynamic system, strengthening its ability to compete, to obtain the advantages of the system and, finally, to survive.

The activation of the relational model supports the realization of a "system" (as defined by VSA). To facilitate this development, each element in this stage must operate synergistically in order to provide stability and balance to all involved (internal or external) and especially to the system as a whole. Consequently, a system service, as defined above, can be really understood as a value network, as well as a network can be interpreted as a real system in which the functional interdependencies allow you to deal with the complexity of the environment (Barile, Saviano, 2010; Barile, Polese, 2011; Barile, Montella, Saviano, 2011).

For the decision-making processes following logical interpretation to reduce the complexity, we encourage new architectures for information sharing and new infrastructures to strengthen organizations, calculation and system performance (Demirkan, Gaul, 2006), allowing a better management of complexity. The variety and variability of information, about possible connections within service systems and service value networks, promote new forms of co-operation, interpreted as relational interaction between the actors cognitively aligned. At the same time, the opportunity to explore the processes of creation in a network context, as well as the structure of a dynamic system, as well as the expectations of users, identify the "complexity of the ecosystem" (Basole, Rouse, 2008) within which everything is collected, identified and active; such complexity does not only depend on the number of actors, but also by the conditional probability that these actors are involved in the provision of services (Barile, Polese, 2010b). The system in this regard is made viable by the behavior assumed (including the perspective of value creation), more strategic, more responsive, more adaptive, more intelligent. The characterization and optimization of the relations, the redesign of organizational configurations, the management of complexity, are therefore all elements that identify a successful system; in addition, given the perspective of the modern work service oriented, a service system, whose leverages are synergies reticular and co-creation advantages can be considered as smart, really able to survive within an ecosystem so complex. Considering environmental contingencies (Contingency Theory), organizations are able to survive in a particular context only if they improve their ability to evolve and make their operations adhering to external changes. Indeed, the study of openi systems (service systems for SSMED and S-D Logic, service value networks for network theories, viable systems to the VSA), involves an homeostatically dynamic adaptation to external changes and their survival is directly related to ability to seek and promote dynamic and satisfactory evolution (equifinality). As the world is becoming smarter (we're talking often about smarter planet, Spohrer, 2010), to adapt the systems must be people-centric, information-driven, e-oriented, and mutual satisfaction and community should encourage and

cultivate people to collaborate and innovate (Qiu, Fang, Shen, Yu, 2007). The viable systems are therefore complex adaptive systems in continuous evolution, a form of 'system of systems', which contains the service systems (interior) smaller total included in a service system wider, able to interact with other service systems (external) through value propositions, designed to form stable relationships within value chains or extended service networks (service network).

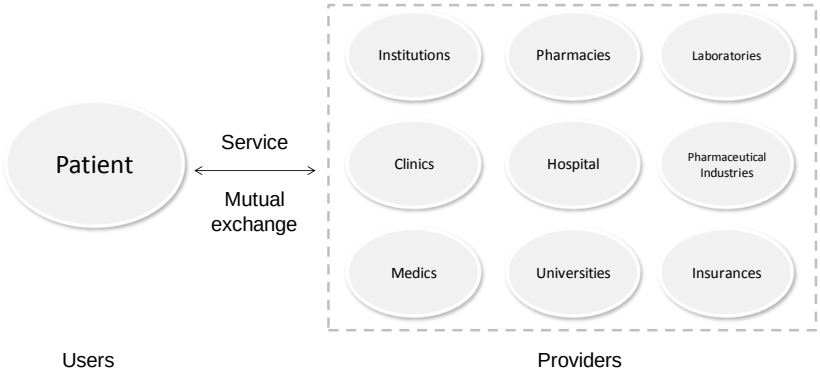
2.3. Some implication on stage: The Healthcare

Within Service Research, the changing role of interconnections, the facilitators, measures, quality standards, procedures represent the main theoretical evidence of the progress; the smart grids, energy metering, intelligent transport, communication supply chains, manufacturing productivity, instead represent the real application in practice of systems able to better serve customers (Barile, Polese, 2010a). Interested then is try to understand what really are the main features of a service that today would be possible to consider within intelligent systems in a hypothetical overview.

In order to deepen the new reflections on the concept of smart (the reference is English acronym "specific, measurable, agreed, realistic and timely"), researchers of Science Service have in recent years investigate all potential service applications, defined as "on stage", referring to the practice of evidence something truly iterative, interactive, interconnected, intelligent, and that is representative of a smarter planet. Considering a real overview, we wanted to understand how to achieve the sustainable development of a complex system, characterized by many actors (workers, citizens, producers, suppliers, authorities, consumers, users, boarders, etc.) and many facilitators (for retail sales, roads, networks, agriculture, financial services, healthcare, government), which are fundamental for the improvement of management capacity and implementation of collaborative strategies. In this sense, the smart service systems not derived from intuition or chance, but by systematic methods, continuous learning, timely data collection, rational innovation, social responsibility and governance network. Applying an intelligent service, practices smart, inserted in smart cities, with intelligent organizations, through intelligent operations, for intelligent results, there may be some major changes in our daily lives.

With regard to healthcare organizations, the service that they are required to provide, or in favor of collective health and its sustainability, becomes a true corporate vision on the basis of health care companies and the various stakeholders interact with the social context, government agencies, instances ethical and legal issues in order to improve the average level of quality proposed/perceived. The system as whole (as NHS) can provide a single global service to the users (as patients) in terms of mutual exchange in which each actor can contribute to the proposition and the fruition of the healthcare service.

Figure 5: New Service relations in Healthcare



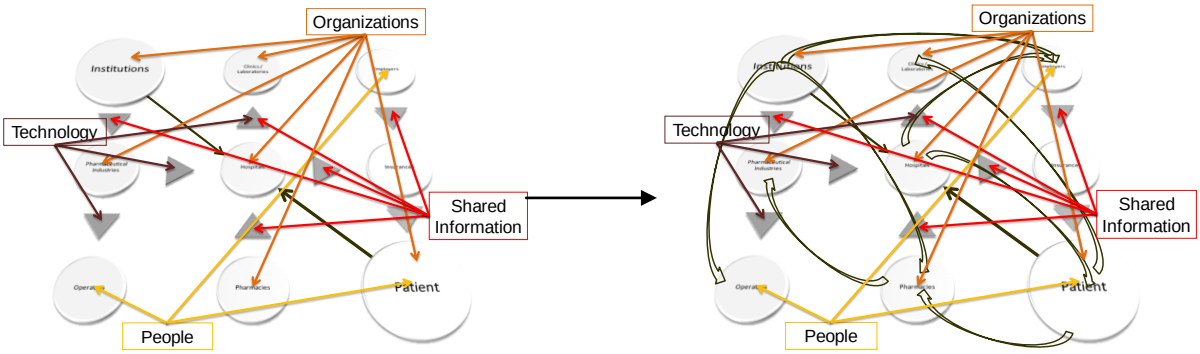
Source: Authors' elaboration

We can see that today's decisions are strongly influenced by the data, highlighting the important role in developing of new content and analysis of feedback, because the managers (by the public or private sector) are able to make more decisions "informed". Within a society in which the population is growing continuously and this requires efficient infrastructure and services (such as transport, health, education, the

organization of traffic and public safety), we necessarily have to implement the services useful to simplify the management of public programs promoting "green" affordable housing, and a new use of ICT for the development of a government "citizen-centric". The role of networks, the implementation of energy interests and their potential applications may contribute to the growing importance of smart grids. Connectivity, real-time assessment, standard metrics and meta-dating produce effects very useful in this regard, through telecommunications smarter. Finally in healthcare will lead to safer diagnosis, clinical knowledge has increased, hospitals can then be more efficient and can really help to improve the collective well-being sustainable.

The structure of service systems for this purpose is therefore characterized by sustainable interactions and mutual influences in the work of all the actors involved. The behaviors and decisions have therefore place in a complex environment, which deserves to be analyzed, and which requires all organizations to modify or re-invent their own strategies and policies, in a manner designed to achieve their specific goal, in the advantage of the service eco-system. As follow, starting from known configuration of a defined service system it is evident the connection between the actors specifically involved.

Figure 6: Service Systems design and relations in Healthcare



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2.4. Actors-to-Actors Relationships and win-win logic

The collective participation in the process of supply and use of a service seems to respect the logic of win-win, co-creation, sustainability, at all levels. Observing strategies, promotions, conventions and attitudes of modern organizations seems really generalized respect for the fundamentals of Service Research in practice which realization of the basic concepts is resulting from the fusion of systemic theories and service.

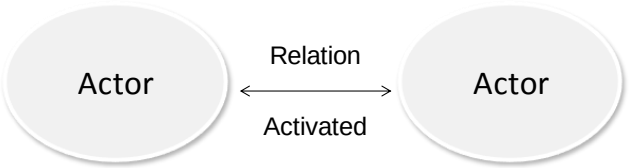
Through strategic behavior of aggregation type, integrative, cooperative, you can actually perform services in more efficient and effective ways and to achieve the objectives with greater satisfaction, especially overall. The setting service promotes global governance, that enhances resources and relationships, promotes synergies essential for the survival of a system, especially if analyzed within a complex eco-system of reference.

Recent developments in Service Research have led to a common point of view in perspective of service, several researchers have agreed on the logic of mutual benefit and mutual satisfaction as key leverages for harmonic development of a successful proposition, especially if referred to the provision (but also to the production) of a given service.

The value co-creation logic is defined in such a sense of win-win, considering the interaction between different entities represented by various Service Systems and the desire to gain a collective mutual satisfaction, in which the active contribution is multiple, integration is maximum, complementarity is essential. The "win-win" interactions develop only through the promotion and maintenance of relationships with stakeholders or through a common wants to encourage the process of co-creation (not-opportunistic behavior, long-term relationships and shared values), observing that "life consists of a network of relations within which it interacts" (Capra, 1997), and confirming that "life is a network of relationships, and as is the business" (Gummesson, 2005).

From this point of view it does not matter to qualify the operators involved, the distinction between supplier, customer or user becomes irrelevant. Counts instead to highlight the role of relationships and common interests that promote collaboration and the achievement of a higher level of satisfaction policy. This means overcoming the logic B2B or B2C or C2C and analyze more carefully the characteristics and advantages of the connections, some recent advances in Service Research have led to a different interpretation of the inter-organizational relationships, defining all relations as Actors-to-Actors (A2A), as recently proposed by also Vargo and Lusch, in an attempt to point out that most of the qualification of a specific Actor operating in the build process under study, it is necessary to dwell on the relationship that binds to other Actor of the same service system, with which it shares the ultimate goal, some resources and information. Only deepening the role and the value of these relations, without dwelling too much on who the Actor concerned, you can try to reinforce the logic of win-win cooperation.

Figure 7: Actors' relationship



Source: Authors' elaboration

Who has not come across in search of a medical information and had to self-organize and solve the relative problems? In a technologically interconnected world this is an obvious anomaly, solvable by a few targeted interventions and the pooling of valuable information for the patient. Services for the health of the citizens need to be organized in a more functional compared to the many different needs of users and the actual availability of the resources of the actors involved. The versatility, applicability and scalability of e-health solutions for smart type for instance should be supportive in this regard and therefore deserve to be properly engineered and tested.

According to System Thinking (and in particular to VSA), very appropriate within the context of healthcare, since the systems vision recognizes the principle of interdependence that characterizes the operation of systems and makes circular cause-effect relationships between events/phenomena. The viable interests of public health, through a three-dimensional model, focuses on three key variables:

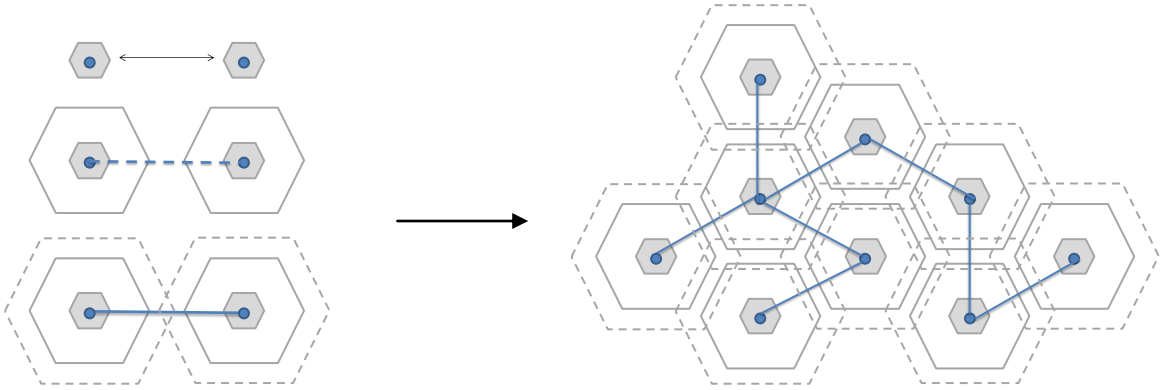
- "WHO?" Affecting the specific health care needs.
- "WHAT YOU ASK?" What are the health care functions of interest for the application.
- "OFFERED AS?" Supplying a real service product.

This kind of systems organization results as really integrated, in which every actor cannot operate in isolation, as we can see there in figure each node can have a specific connection with others, allowing a more strong relations useful to cooperate for a global competitiveness, not considering the qualification of the single entities but highlighting the relevance and the role of the relationships with them.

We distinguish a number of steps for this integration process, considering the single nodes firstly and after the specific relations with each other, going towards their visible usefulness for the reciprocal interests; finally by adding the total of these kind of connections, we can define the integrated system as a whole.

As follow, we can see that the consonance between actors may develop in a resonant dynamic interactions useful for each of them; this implies a real resources sharing and the timely diffusion of information, both for technical strategies planned and for practical operations made up.

Figure 8: Systems Actors' integration



Source: Authors' elaboration

Then the systems approach is used in the development of synergistic interactions between the different components and at different levels of the health system structure, integrating and enhancing the use of resources, reducing costly redundancies and directing the actors to adopt an approach of active participation and perspective and shared responsibility for prevention.

3. The modern healthcare service eco-system

3.1. A systems approach for new value co-creation processes

The health agencies do not produce a tangible asset but a service: collective health and its sustainability. The work they perform is not aimed at producing a simple product, but the affirmation of a collective orientation which health care as a public value. This approach necessarily imply the involvement, empowerment and awareness of all, by the industries, patients, citizens.

If expectancy and quality of life are increasing, it is thanks to the continuous evolution of care, possible only when there is actual interaction between the various stages of research (from the scientific to the clinic) aimed at the generation of collective health. Therefore, it is necessary that all stakeholders involved in the process of generation to be involved in the debate and decision-making related to search. There are several actors in the health sector. Among them are:

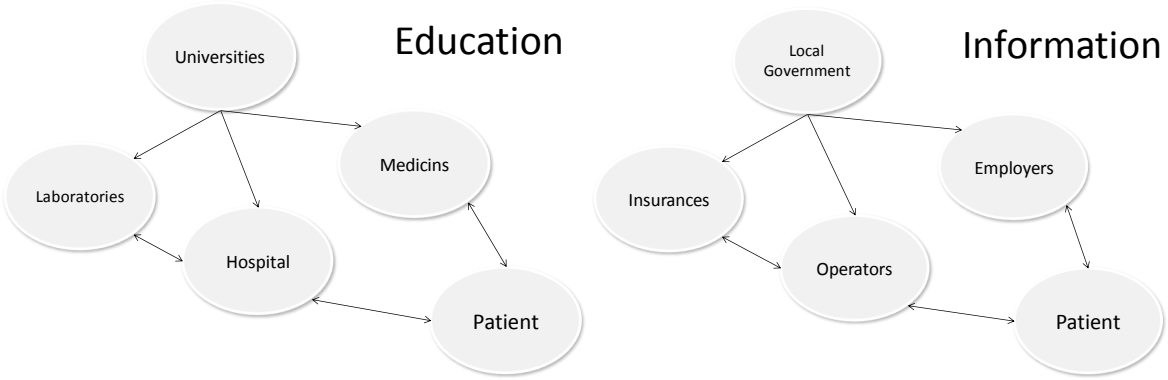
- Institutional actors (local health authorities, hospitals, districts, nursing homes, municipalities, volunteer associations) which is entrusted with the care and delivery of services;
- Other national and local planning and control (Region, State, Local Government): collaborate assistance and the provision of services;
- Actors which is currently in charge of the medical and scientific training (Regions and Autonomous Provinces, professional associations, scientific societies, trade unions associations and universities);
- Citizens;
- Suppliers of goods and services of Healthcare Companies.

In a National system, as seen, there are so many laws to respect and follow, there are a number of strategic guidelines to be known for the organization of every type of service provision, especially for the healthcare one.

There are many aspects we have to take into account for the organization of this kind of system and its functions, just like the education, information, procedures and operations, involving several actors with different role and connections for specific flows that deserve to be deepened.

From the education side ant National Healthcare System (NHS) has to improve a flow of connections between many entities involved, just like universities (ad leader in this sense), labs, hospitals, medics, in order to foster and implement the service provided by the system as a whole for the end users (patient). In the same way the information flow (affecting rules, constraints, standards, limits) enhance the relationships between the individuals operating and served.

Figure 9: Healthcare type of connections (education and information)

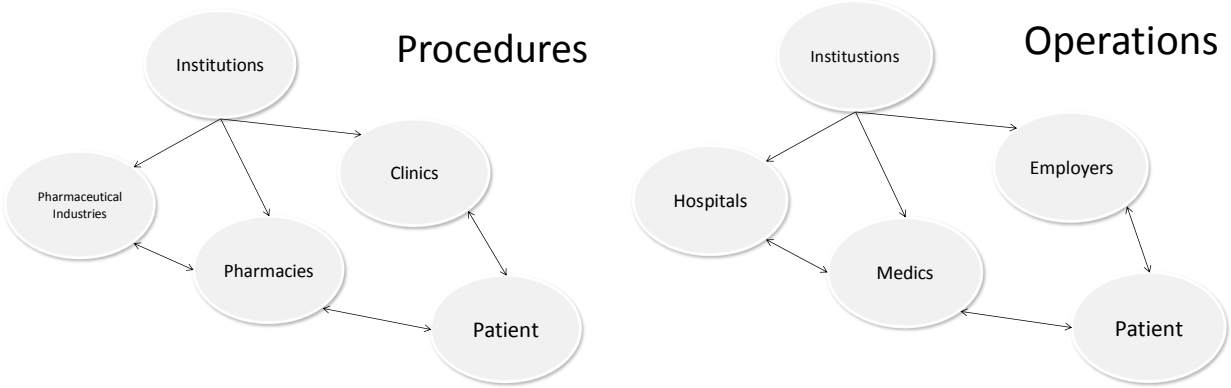


Source: Authors' elaboration

We move, then, from the concept of the health care system that provides care to the community that contributes to this process taking responsibility. In other words, in the last decades saw the passage by the provision of services to its coproduction, shared between different health care providers and between them and the users, changing the paradigm of the "medicine of waiting" in " medicine initiative oriented" or "active health promotion". In this context, it is essential to build a "common sense" of medicine, which allows all individuals to take control of an issue that has implications and aspects relevant in their daily lives and, therefore, requires extensive testing and acceptance.

The connections among the entities operating in the NHS lead the links related to the procedures stated by institutions that each Actor (clinics, pharmacies, industries) has to respect, as well as in practice we see in the operation side every day.

Figure 10: Healthcare type of connections (procedures and operations)



Source: Authors' elaboration

In conclusion, the health organization framed with the systems framework of relations, can also be defined as a system (Golinelli, 2000; 2005; 2010), part of a context wide that opens its borders to the external environment (Barile et al., 2012a; 2012c) by tightening relations with various actors who work there (Golinelli et al., 2002; Barile, 2008). The real and effective interaction between various operators, companies, communities necessarily involves the participation of different actors mentioned within the process of co-creation of sustainable value for the benefit of all. This value, possible through the generation of synergies, makes the system a health service system (Saviano, 2007; Saviano, Bassano, Calabrese, 2010).

3.2. How does it works an Healthcare service eco-system today?

The health system is an organizational machine that produces and consumes health services to create health (Mapelli, 2012). Generally, the care organizers can be based on two different models: the one-privatized social security (of U.S. origin) or the universal (of European origin). In the first case, the access to

health services is related to the disposable income of individuals who resort to forms of social security coverage (health insurance). In the second, health is a fundamental right of all citizens, and each of them has the right, in fact, to take advantage of all the services included in the essential levels of assistance (LEA) established at national level.

For instance, the Italian National Health System, founded in 1978, is a system that provides universal free health care to all citizens. The NHS is based on the following three levels:

- National level: focuses on: a) the address, control and coordination of health policies; b) oversight, direction and control of the activities of clinical and scientific research in health care. It consists of: i) the relevant ministries (Ministry of Health), ii) Centralized: Board of Health, National Institute of Health, National Institute for Occupational Safety and Prevention (ISPESL), Agency of the drug;
- Regional level is the most significant since the regions are responsible organization structures for health service provision and are directly involved to ensure the essential levels of assistance (LEA). The health agencies, public and private respond to the Regional Health Directorate, instead relations with the private structures are controlled by a mechanism of "accreditation".
- Employment level established by the Local Health. Local health authorities have legal personality and public organizational, administrative, financial, accounting, managerial and technical. Provide health care to organize in its own territory and to deliver its power through a public or accredited private. The ASL (approximately 190 to date) ensure the performance of essential levels of assistance.

The NHS is funded mainly through the system of national taxation. Each year the funds are transferred from the government to the regional and then reallocated between different local authorities, responsible for funding health care spending for their patients. The primary care lies with the practitioners (GPs), paid by local authorities based on the number of borrowed. Moving from the resources requested the provision of services, the services offered by the NHS include:

- Disease prevention: the task is to determine the risk for the individual and for the community. Although various diseases can be effectively prevented, commitment to their control and, where possible, for their elimination and eradication must be constant;
- Food safety, laboratory tests involving basically the following product categories: meat products, products derived from fishing;
- Primary care and continuity of care: there is reshaping the care supply, both in terms of quantity expansion with the opening hours of clinics, both in qualitative terms with how to facilitate the access, dissemination of integrated home care, to respond the new health needs of citizens for 24 hours and 7 days per week;
- Emergency and urgency: The health emergency system is one of the most critical areas NHS, as the main responsible for the quick response to the need for health care by the population. The activation of the emergency network-urgency in Italy, as well as outlined by the Presidential Decree issued in 1992, has certainly led to the improvement of the public health response in emergency-urgency;
- Hospital care: the Entente sanctioned between State and Regions, with the adoption of the Pact for Health 2010-2012, defines the types of intervention to ensure greater control over health care spending and, as regards the supply hospital, the Regions undertake to adopt measures aimed at the reduction of the standard of hospital beds, in all respects to load the Regional Health Service or credited. The standard and set to 4 beds per 1,000 inhabitants, including 0.7 beds for post-acute rehabilitation and long-term care;
- Rehabilitation: The aim of rehabilitation and "health gain", a view that sees the person with disabilities and limiting participation not as "sick", but as "person having rights";
- Pharmaceutical care: This medication is a tool in constant evolution. The therapeutic efficacy of the same and strongly influenced by the constant changes in technology and science. It assists in the development of approaches designed to target specific patient (gender medicine) and fragile

populations (pediatric and geriatric), to the study of areas in which past neglected, for example, those related to the treatment of diseases;

- Rare or unmet medical needs who are finding an effective response. In this, the substance will follow the needs and transformations of social and health services. In less than 70 years and passed from the use of natural products, through the first rudimentary research methods and random screening, combinatorial chemistry and computer design, up to an advanced biotechnological production (rDNA). This would not only be a priority for any national health service, requires the identification of an appropriate economic value and the identification of the most appropriate and responsible ways of using common resources;
- Care for the elderly: it is estimated that in absolute terms the elderly could reach 20.3 million by 2051. Grow also in substantially the number of the very old, so-called "grand old men" (conventionally, the individuals aged ≥ 85 years) who may in fact reach 4.8 million in 2051, 7.8% of the total . The community health system must therefore establishing suitable means of intervention both to the elderly who live a "healthy" old age, both in the approach to the elderly with disease;
- Other (transfusion services, mental health care, palliative care and pain therapy, vegetative states, support network for drug addiction and alcoholism).

Although the majority of these services is the responsibility of the institutions, some of them are paid as in the cases of detoxification from alcohol and drugs, or specific tests in the laboratory. In the NHS medical consultations are divided in the admission fee or not. Although the citizen have to choose, in most cases it is forced to opt for an admission fee. In fact, the long period of waiting lists and the quality is not always satisfactory service, drives many patients to resort to the private market of care, with implications for the entire health care system, even in terms of cost.

The actors described exchange goods and information. Examples are the information flows of control of the activities and reporting that The Hospital exchanges with the region and ASL. The same Hospital exchanges information with its suppliers for the purchase of goods and services (drugs, principals, equipment, and non-clinical services, other). Still, for the provision of the service the Hospital interacts with primary care physicians and the public. The ASL interacts with health organizations accredited and affiliated to the accreditation procedures and subsequently control. One of them could go on citing the collaboration between ministries and government agencies for the provision of benefits and new incentives, or even collaboration between health authorities and primary care physicians, with regard to the exchange of personal data files, data and personal histories of patients.

3.3. Multi-part contributions within healthcare service provision and fruition

As previously mentioned, there is heterogeneity of actors (patients, clinicians, administrators, authorities and others) that are part of the health system as stakeholders very different between them, which therefore provide resources to the system as different.

In recent years, health systems are the subject of a series of changes that are mutated principles, goals, objectives, and operating modes. In particular, the reorganization of health care systems is designed to put the citizen at the center of the system and of its programming, trying to make it not simply aware of the care process and the reasons for which business decisions are made, but participates in the process of value creation through a willingness to share information with other patients, collection and proper management of data and information relevant to the history and traceability of the diagnostic or therapeutic, self-medication, the medical check-ups and other preventive behaviors and activities proactive (patient empowerment).

More generally you are trying to provide the means by which citizens can communicate in the care process, promote the improvement goals. However, the effectiveness of this process is closely linked with the effective interaction and cooperation between the various actors and resources involved, only possible through the implementation of mechanisms for coordination of different order, or at management level, political, social, economic and information technology.

In conclusion, the way forward is a system in which the state, regions, universities, businesses and individuals to work together to strengthen the conditions necessary for the viability, sustainability, effectiveness and efficiency of health value in health systems (Barile et al., 2012b).

Ultimately, the modern process of use of the health service, it could be called a "cooperative game", aimed at the promotion, implementation and coordination of multi-actor. A Smarter healthcare has integrated technologies. So the systems can automatically capture and accurate data in real time and turn them into relevant information.

4. Implications in practice

4.1. About healthcare networks, and smart service systems

As mentioned, service research supplanted the traditional producer-consumer model with the latest model of value co-creation, where the final value is created through joint activities by all actors operating in the same network. Under S-D logic, the stakeholders of a system, such as health care, are identified as endogenous actors in the process of value creation. In this perspective, they are referred to operant resources or dynamic, active, sustainable sources of competitive advantage for the organization of health care and also for value creation and innovation for the NHS. Therefore, all the actors of a health system are regarded as supplements of resources; at the time their collaboration for the creation of a shared value just as public health, becomes inevitable. Thus, the healthcare business in an optic Service-Dominant, will operate according to the needs, expectations and pressures that the entire system exerts on it, necessarily embracing a relational orientation.

Even the service science, management, engineering and design (SSMED), you can point out which key evidence to a greater and deeper understanding of the complex health phenomena:

- The interactions in general, which are the basis of the processes of value creation that promote health and phenomena of co – creation in itself (SSMED FC.4 - Value co - creation interactions);
- The interaction between service systems, which is based on a reticular logic and encourages the development of systems aggregations in the network, ie Networks (SSMED FC.9 - Networks).

In other words, the service research leads to a concept of healthcare as a service system, in which multiple stakeholders (patients, providers of goods or services, health care organizations, authorities) participate in the exchange of value in a view that sees crucial for the success of the exchange, the establishment of a service logic.

4.2. About managerial implications for service business

The company in healthcare necessarily take into account the existence of many actors involved in various ways in the process of creating value health, including the patients themselves, and especially the entity with which their actions/interactions impact on company results .

Therefore, management control is not a purely accounting. An effective and efficient management of the care is not simply related to the statistical results, nor exclusively internal to the organization itself but also to the sustainable management of the service network.

Indeed, the strengthening of these relations requires a more and more significant involvement of stakeholders (defined empowerment), mutual recognition, continuity.

This implies, in terms of management, an ‘effort’ (1) economic, (2) interpersonal, and (3) cultural, since realize and promote the effective integration means investing time and capital (including human) in the re-education to a logic of mutual benefit and sustainable. However, this logic is, to date, the fundamental basis for the system enhances healthcare business in an efficient and profitable experiences and feelings held by the beneficiaries of the service we offer it (IBM, 2009). In conclusion, there is a diversity of actors (patients, doctors, nurses, hospitals, researchers) whose participation is required not only in the treatment but also in the prevention and control of the disease, in other words in the creation and sustainability of health. All this implies and requires, at a macro level, the coordination of government systems, managerial, social,

and therefore the introduction of strong mechanisms of integration, finally allowing to operate in a new logic, contemporary, but not more sequential exchange, interactive and collaborative.

4.3. About new strategies for the Healthcare service eco-system

Healthcare should be organized in a more functional, at the end of its usefulness to the different needs of users, from the availability of resources of the actors involved in the process of service delivery. This is a problem historically rooted and long-standing that affects almost all countries, who suffer the constraints territorial, political, economic, ethical, legal.

The solutions should be able to be replicable, scalable and versatile in many different contexts, to be useful. In fact, all innovations are capable of solving specific problems but never applicable to the health service as a whole. Many actors are involved in this complex eco-system, each of them has priorities and objectives, and organizations are often different. Their interaction is subject to the inevitable differences in language, purpose, operation. To contribute seriously to renew health service systems, as complex and articulated and really support the development of a new governance, sustainable, modern and efficient, complementary to the products that are already being implemented, it is possible to propose solutions to embrace all the actors involved along the supply chain, including the end user (the patient).

In particular, the problems that plague our health care system are too many: rising costs, limited access to information, difficulties in feedback, the slow development cycles of new treatments. Indeed, today, components, processes, and people who are part of the health care system, are not always coordinated. Duplication and errors are due to manual processes and data inaccessible. A smarter health begins with better communication, a more detailed and fast. This means the integration of data so that each actor involved in the system has access to this data and has access to a network collaborative care, reduce errors, and increase efficiency. A smart health company operates is a network of integrated technologies, in which the system can automatically detect the precise data, manage and transform in real time in relevant information (IBM, 2012). A smarter approach in the health sector uses the information to create a real knowledge for the assisted and a more efficient operation of equipment and tools available. The operators, researchers and all the actors in the system can work better thanks to a more detailed and comprehensive view of patient data. Then to create a health system more intelligent, the solutions have to be technological, interconnected and intelligent.

5. Conclusions

The analysis of the NHS as a service eco-system help us to understand and interpret the multi-part contribution of the several actor (including patients) involved within for the provision of the global healthcare service. The reciprocal influences, the side effects of network cooperation and the win-win logic (even activated, consciously or not) represent some of the evidence of this interpretation. The mutual exchange between service providers and service users forces the logic of value co-creation for the investigated processes, intending the health as the most important valuable element for a collectivity.

Today, the real involvement of patients inside the healthcare service provision represents the effective patient empowerment in practice and the solutions (organizational, technological, managerial, operational, educational, etc.) have to be smart enough to support it in an adequate manner, in order to adapt the functions of any service systems operating within to the evolving needs and constraints of the service eco-system as a whole.

In this sense the kind or the qualification of the actors involved lose their relevance, arising instead the role of relationships with them and the contribution coming from the relative interconnections and exchange; the development of long run relations help the NHS to better share and use the available resources and information, in order to improve the quality of the performance levels.

Seeing the NHS in this way can support the proposal of new organizational and managerial models, more closely to the systems approach, finalized to a logic of service, useful to better manage and coordinate the most important “business” activity for any individual, its health!

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