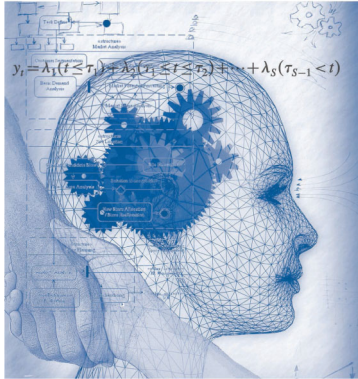


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A VSA-SS Approach to Healthcare Service Systems The Triple Target of Efficiency, Effectiveness and Sustainability

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The main purpose of this paper is to highlight the new opportunities that the *Viable Systems Approach* (vSA) can provide for observing complex service systems and explaining social phenomena through general schemes of interpretation. At the same time, it explores methodological links with the *Service Science* (SS) approach in order to propose (vSA)'s contribution to moulding a unified vision of complex objects of analysis, and to evidence the many converging elements that emerge from the two perspectives as well as the benefits that derive from different interpretation schemes.

In particular, in our paper we analyze healthcare service complexity in a relational perspective, using a vSA-SS conceptual framework to interpret the emergent systems instability in the Italian Health Service. The application of principles and concepts proper to the (vSA) and the SS approaches to articulated service structures, such as healthcare, identifies critical features and interesting new "therapeutic" prospects for healthcare service systems in order to guarantee their viability.

The paper proposes an innovative methodological basis for evaluating the level of *appropriateness* of the healthcare service and, at the same time, evidences the need for achieving a balanced triple target of *efficiency*, *effectiveness* and *sustainability* (EES) in healthcare service systems governance. As a result, a new area of cross fertilization for collaborative research emerges.

Key words: Viable Systems Approach (vSA); Service Science (SS); healthcare; information variety; efficiency, effectiveness and sustainability (EES) triple target; appropriateness

History: Received Oct. 18, 2009; Received in revised form Jan. 10, 2010; Accepted Feb. 15, 2010; Online first publication Apr. 10, 2010

1. Introduction: Investigating Methodological Perspectives for the Governance of Complex Service Systems

The investigation of the links between the *Viable Systems Approach* (vSA) and *Service Science Management Engineering and Design* (SSMED), widely known as *Service Science* (SS), as well as the consideration of the related constructs of the *Service Dominant Logic* (SDL), can contribute to providing new methodological insights for observing and interpreting complex service systems and social phenomena through general schemes of interpretation.

Given the relevance of services in the global economy, there has been increased interest in this field of study, attracting a growing number of researchers. The challenge the SS community has launched seeks "to discover the underlying principles of complex service systems (and the value propositions that interlink them) [...] for building a widely accepted and coherent body of knowledge to support ongoing innovation in service systems" (IfM and IBM, 2008, 7). To achieve these aims, SS calls for the participation of individuals and organizations involved in the service society and its remits (academia, industry and governments). In particular, the dynamics of service systems in evolution needs to be understood in order to construe a service science that practices systematic service

innovation and finds “new ways that service systems can improve our economic and social well-being sustainably” (IfM and IBM, 2008, 5). In effect, restrained by natural resources, the main challenge for service systems is to achieve a triple target of *efficiency*, *effectiveness* and *sustainability* (Spohrer *et al.*, 2007, 75).

An extremely pertinent example of a sector demanding service innovation and one in which some of the most significant phenomena characterizing complex service systems can be observed, is Healthcare. With the ultimate aim of exploring the methodological links between (VSA) and (SS), we analyze healthcare service complexity in a relational perspective, using a VSA-SS conceptual framework to interpret the emergent instability in the Italian Health Service. In particular, we focus our attention on the governance approach on the part of National Health Service *providers* in terms of service organizations which aim at functioning as *service systems*, in order to analyse the effects of the relation with the *authority* on the relationship with the *client*. As a result, our study highlights the implications of a governance model that is strongly influenced by a managerial approach excessively focused on compliance targets related to *provider-authority* relations and that ends up neglecting relevant human, emotional and ethical aspects proper to *provider-client* relationship.

Starting from the broader theme of *ethics and economics*, we shift our focus from an *ethical/economic* to an *emotional/rational* dichotomy, evidencing the need for reconciling the different rationales that guide decision making and behavior in healthcare service systems, in order to guarantee the viability of the system. As will be evidenced in our study, “health care provides a setting that juxtaposes emotion and rationality, the individual and the body corporate, the formal and the deeply personal, the public and the private, all of which must be understood better if changes in expectations and delivery are to remain coherent” (Mark, 2005, 277). In particular, what is needed is an in-depth study of the role of customer emotions in organizations (McCull-Kennedy and Smith, 2006).

In business management, debate has focused attention on the *ethics/economics* dichotomy and basically, two currents of thought have emerged: on the one hand, the view of those who consider that ethics necessarily has to be an intrinsic part of the economy, on the other, that of those for whom ethical aspects are irreconcilable with the economic aims of business. To date, prevailing views recognize that a merging of ethics and economic rationality is necessary for the survival of a business (Carroll, 1991; Sciarrelli, 2003; Barile, 1994). But what really lies behind ethical and rational behavior? Amartya Sen goes straight to the heart of the issue, arguing that “economics has had two rather different origins, both related to politics, but related in rather different ways, concerned respectively with ‘ethics’, on the one hand, and with what may be called ‘engineering’, on the other” (Sen, 1987, 2-3). This separation has resulted in two clear-cut approaches in the art of governance.

In our view, it goes without saying that both approaches are necessary rather than alternative, for the survival of any organization: *engineering* concerns the *functioning* of a system through its structure while *ethics* concerns its aims, motivations and values. In other words, profits, productivity, resource saving, efficiency etc. (viz., *economic rationality*) refer to the functioning of an *operative structure* as a means of achieving the aims of a given *system* (*effectiveness*). In practice, a sharp divide between ethic and economic rationale effectively emerges rendering ethics and economics apparently irreconcilable. However, the gap depends mainly on the *perspective* from which the phenomenon is observed: economists look at the question of ethics from an economic viewpoint; philosophers, sociologists and theologians consider the question of economy from a socio-ethical viewpoint, whereas the most significant contributions have come from researchers capable of integrating the diverse perspectives. It is worth noting that rendering explicit the ethics behind economic action demands specific instruments and skills that are not only economic, but also philosophical (Rusconi, 1997) and psychological (Kahneman and Tversky, 1979).

Our hypothesis is that in healthcare systems, rational decision-making inspired by managerial mindsets and schemes has become an established praxis since the introduction of a managerial culture into the healthcare sector (“managed healthcare” – Kogstvedt, 2001). With the progressive shift towards a technical approach, as strategy to reduce spending, healthcare managers are increasingly required to obtain targets of *efficiency* by adopting cost saving solutions. In fact, the way in which managers seek to achieve these targets seems to be based mainly on reducing healthcare utilization. At the same time, the fundamental assessment of the *appropriateness* of service seems to be focused mainly on cost-effectiveness considerations, i.e., with reference to the setting in which care is provided, rather than on the assessment of the *effectiveness* of the service. As a consequence of this trend, the healthcare service delivery process is progressively veering away from the original *doctor-patient* relational approach centered on human values and needs with the result that client evaluation of effectiveness is undermined. However, in a general context of scarce resources and a growing demand for healthcare, another risk of systems instability emerges, recalling, in this case, the extremely relevant target of *sustainability*, that demands neither political, nor ideological, but rather *ethical* solutions. Accordingly, our discussion will focus on the need to balance the *Efficiency, Effectiveness and Sustainability (EES) Triple Target* in healthcare system governance, in compliance with the view that – especially in an organization aimed at functioning as a service system – *sustainability is now the key driver for innovation* (Nidumolu *et al.*, 2009).

In methodological terms, we highlight the need to integrate the various perspectives underpinned by a common theoretical basis. In this respect, we are fully in agreement with the SS view underlining that “the key to understanding service systems is not just to examine one aspect of service but rather to consider service as a system (a whole) made up of interacting parts. As service systems become more complex, our ability to understand them is hampered by the fragmenting of different disciplines. The hard work of creating an integrated theory that spans many disciplines has not been done” (IfM and IBM, 2008, 9). In other words, in order to build a science of service systems it is necessary to go beyond the limits of an *analytical-reductionist* perspective towards a more *holistic* approach (Christopher, 2007). In our opinion, this is where the *Viable Systems Approach* (Golinelli, 2010) can make a fundamental contribution to the *Service Science* challenge “to abstract” a service science from the study of service systems (Katzan, 2008; Maglio *et al.*, 2009), by starting from the common roots in system thinking (von Bertalanffy, 1968) and also by taking into account relative *Service Dominant Logic* theoretical constructs. As a *third* methodological pathway halfway between *reductionism* and *holism*, (vSA) suggests shifting emphasis *from the parts to the whole* (Capra, 1996) through focusing on *structural relations* and on *systems interaction*. Furthermore, it clarifies the need to distinguish features and issues regarding the *structure* of the system (the static dimension) from properties and mechanisms emerging in the functioning of a the *system* (the dynamic dimension) – as evidenced in the *structure-system* paradigm (Barile and Saviano, 2008). Moreover, it aims at observing and interpreting complex business systems with an open frame of mind towards different disciplines (Barile, 2000, 2008 and 2009). Consequently, (vSA) finds in SS an innovative multidisciplinary research field with interesting opportunities for cross fertilization, enabling the potential building of a common bridge to link the different disciplines involved in the service system scenario.

Therefore, with the aim of highlighting the emerging synergies between vSA and SS, our conceptual framework is proposed as a lens through which to study healthcare as a complex service system, where the dichotomy between *ethical/emotional* and *economic rationale* acts in orienting decision makers towards the targets of *efficiency, effectiveness* and *sustainability*.

2. Theoretical Background

The contribution of literature on the topics discussed in this paper comes from various fields of study. In relation to the main purpose of the paper, our theoretical background is based on the studies of the *Viable Systems Approach* (Golinelli, 2000, 2002, 2005, 2008 and 2010; Barile, 2000, 2008 and 2009) and *Services Science Management and Engineering* (Spohrer *et al.*, 2007; Spohrer and Kwan 2008; Maglio, 2008; Spohrer and Maglio, 2009). This multidisciplinary stance is an innovative way of looking at economic production and business organization and moves away from the traditional logics of business processes characterized by what Vargo and Lusch call *Goods Dominant Logic* in the direction of a *Service Dominant Logic* (Lusch and Vargo, 2006; Vargo and Lusch, 2008; Spohrer *et al.*, 2008; Barile and Polese, 2009).

Our focus is on the definition of service as “a provider/client relationship that creates and captures value” and considers such relationship “a kind of interaction between particular categories/entities aimed at specific value co-creation outcomes (win-win)” (Spohrer *et al.*, 2008, 5). In this new dimension, service is the crucial element, and can be conceived as an application of *viable system* know-how, benefiting other *information varieties* in a given system (Barile, 2009). In other words, the *government* of the system (Golinelli, 2010) should not focalize on the economic portfolio of service offers, but rather on how to meet needs and to resolve relational issues affecting the viability of the system. This means that new solutions and innovative methods to satisfy stakeholders have to be considered. As will be illustrated, in order to do so, in the first place, *government* has to recognize other relevant entities in the context and the fundamental characteristics of their *categorical values* and *interpretation schemes* (Barile, 2009) have to be analyzed. The next step is to consider the output of a system as a solution, i.e., as a resource that can be used to satisfy clients and their specific needs.

We embrace the idea that systems value should be measured in terms of client service including *categorical values* and *interpretation schemes*, concepts basically ignored in the past. In other words, more attention has to be paid to client identification, ethics of context and hedonic involvement, with a focus on how emotions affect information processing in client decision making (McColl-Kennedy and Smith, 2006).

In relation to the broader theme of *ethics and economics*, the scientific community, from Adam Smith onwards, has focused debate on this relevant issue, attracting academics and researchers from all over the world. In the Italian tradition, management studies confirm that ethics have an important role in reconciling economics and socio-ethic dimensions (Coda, 1989; Miolo Vitali, 1993; Caselli, 1998, 2003; Di Toro, 1993; Sciarelli, 2003; Baccarani, 2008; Borgonovi and Rusconi, 2008). Scholars have clear ideas regarding theory but still seem skeptical on the practical

side. Theoretical and general convergence towards the need to develop a socio-ethical dimension in business management does not correspond, however, to consolidated practice company-wise. Companies do not dedicate much space to values, apart from market values, such as efficiency and profit; for this reason ethics in the field does not really act as a decisive compass (Giaretta, 2008).

In theory, conceptual interpretation has to be integrated with the use of appropriate models and methods (Taylor, 2001) and not restricted merely to a simple transposition of ethical and moral principles to the company context. Effective lines of action for an approach which can be considered ethically responsible with regard to company benefits need to be identified (Caselli 1998; Barile, 1994). It should be considered that a company is an institution in which legitimacy and social responsibility find a meeting point, and ethics is intrinsic to economic rationality (Caselli, 1998).

As specifically concerns healthcare, our analysis considers theoretical studies on provider-client relationships (Kongstvedt, 2001; Prahalad, C.K. and Ramaswamy V., 2002), on value co-creation (McColl-Kennedy *et al.*, 2009), on the role of trust in medical care (Mechanic and Meyer, 2000), and on shared decision making (Kaplan and Frosch, 2005). Based on the relational perspective, our conceptual framework also considers the theoretical constructs of *Relational Marketing* (Fiocca, 1991; Ferrero, 1992; Grandinetti, 1993; Gronroos, 1996; Costabile, 2001; Miceli *et al.* 2007; Gummesson, 2008) and network governance issues (Lorenzoni, 1992) interpreted in (vSA) terms (Gatti, 2000; Golinelli *et al.*, 2002; Piciocchi, 2003; Saviano, 2003; Bassano, 2008; Barile, 2009; Barile and Polese, 2009; Piciocchi *et al.*, 2009; Polese, 2009). From this perspective, interesting convergences of interpretation can emerge with respect to the conception of *Many to Many Marketing* (Gummesson, 2006).

3. The (vSA) Conceptual Framework

On the basis of the *Viable System Model* (Beer, 1985), as mentioned earlier, (vSA) proposes a new scheme of interpretation in terms of the nature and functioning of complex systems, facilitating the comprehension of governance issues. The approach, observing business and, more generally, social phenomena, explains complexity through general interpretation schemes. It enables us both in theoretical and operative terms, to address issues of business management and general social organization which define the intra and inter-systems relationship of the organization. In sum, (vSA) provides reliable grounds both for studying inter-systems relationship and for clarifying the relations between organizations as viable systems and their external context.

The notion of a firm or organization as a viable system can be traced back to Beer (1972). (vSA) goes a step further by conceiving an organization as characterized by two areas: one for decision-making where the top decision making entity (*government*) is responsible for the survival of the system and contextually determines its aims, rules and constraints; the other for decision-implementing through an operative structure. Government ensures the system's survival in a given context by developing conditions of *consonance* and *resonance* with the other entities (*suprasystems*) involved in the basic dynamics of the system (Golinelli, 2010).

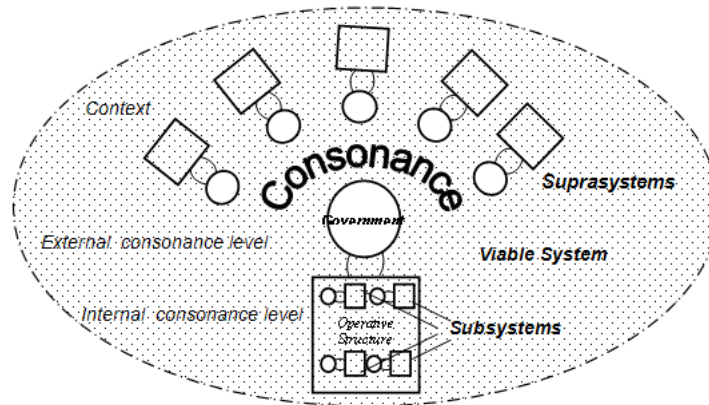
Consonance refers to the degree of integration within structures, i.e., potential structural compatibility for exchange resources or the ability to relate to the outside world in order to facilitate exchange of resources. *Resonance* on the contrary, is a form of systems interaction capable of generating harmony between parts, bringing about a higher level of synthesis than that manifested by individual systems entities; in other words, the realization of potential compatibility between parts (consonance) through operative collaboration in order to achieve common goals or convergent aims (Bassano, 2008). In short, the viability of the system depends on the ability of government to develop conditions of *consonance* and *resonance* with the *suprasystems* perceived as *relevant* (Figure 1).

From a (vSA) viewpoint, the classification of contextual systems entities and considerations on their dynamics – identifying *relevance*, with its attributes of critical bearing of resources and influence, as the determining factor for assessing the potential role of such entities for viable organization systems – enables the setting up of a suitable model for guiding government in decision making with respect to inter-systems relationships (Golinelli, 2010).

In this respect, the viable system is not an isolate, independent system, but a system subject to numerous influences, made up in part of constraints and in part deriving from regulations imposed by other interacting viable systems or even promoted by the company itself in order to achieve conditions of consonance.

The interest of our approach lies in the system's ability to satisfy the expectations of the relevant suprasystems, (taking into account the structure's capacities and expectations) and represents, in a systems perspective, its capability for creating value.

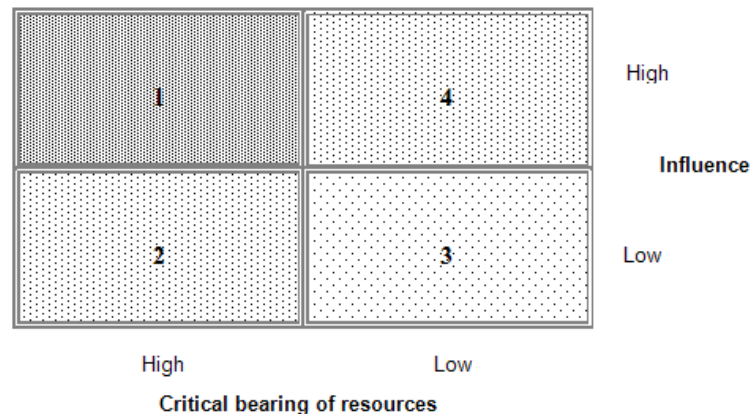
Figure 1 The (vSA) Consonance Model



A straightforward model illustrates the course of action government should pursue, bearing in mind that: a) the next highest level system does not simply play a passive role in bringing about influences over the lower level system, but triggers off a series of incentives and sanction mechanisms directed at regulating the actions of the sub-system; b) the influences emanating from the suprasystems are interpreted by the system through two criteria: *critical bearing of resources* and *influence*.

The combination of the two distinguishing features, critical bearing of resources and influence, defining the *relevance* of the higher range system as shown in the matrix (Figure 2) together with the sanctions that the system itself can impose, enables us to delineate different options as concerns the context of systems entity (Golinelli, 2010).

Figure 2 Selection Matrix of Inter-systems Relationships



Source: Golinelli, G.M. 2010. *Viable Systems Approach (VSA). Governing Business Dynamics*. Kluwer, CEDAM, Padova, p. 181.

In summary:

- quadrant 1: government considers the available resources and the influence exerted by the system as critical factors in terms of the boundaries and regulations connected with their acquisition, use, reimbursement and potential redistribution. In this case, the viable system is obliged to invest considerable resources and to place great attention on governing the underlying relationships;
- quadrant 2: indicates resources as a critical factor, here government does not consider influence exerted by the related system that owns them and/or releases them, to be of any significance;
- quadrant 3: if resources have no critical factor and at the same time, the influence exerted by the system that owns the resources is weak, the relationship between the viable system and the suprasystem can be classified as marginal;


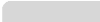








– quadrant 4: indicates suprasystems capable of exerting significant influence regardless of any connection with supply resources.

In governing relationships with suprasystems perceived as more relevant than others, the government of the system aims at achieving high levels of *consonance*.

In order to evaluate conditions of consonance, recent insights made in vSA (Barile, 2009) prospect a formal interpretation of emerging processes of interaction in an intra and inter-systems context, based on the conception of viable systems as forms of *information variety*, i.e., intrinsic knowledge individuals or organizations are endowed with. Processes of interaction determine reciprocal variation of such information variety. The effect depends on the influence of what Barile calls the three dimensions of information variety: *categorical values*, *interpretation schemes* and *information units*.

In general, *categorical values* and *interpretation schemes* reduce and simplify the extensive variety of the context, which otherwise would be perceived as a chaotic flux of information units, thus rendering the viable system more consonant with the context (Table 1). In particular, categorical values, which represent the strong beliefs of a viable system, usually control rejection or acceptance of information variety input. Categorical values are strongly linked to the decision maker’s *emotional* level and qualify instinctive or intuitive states which tell us if something is “good” or “bad.” They establish the ethics of context (Barile, 1994) and enable us to evaluate facts and events. Categorical values are deeply rooted within individual and organizational value systems and tend to be shared by people belonging to the same social group (Capra, 1996; Barile, 2009).

Table 1 Dimensions of (vSA) Information Variety in Various Contexts of Decision-making

Information variety Problematical area	Categorical values	Information schemes	Information units
Certainty			
Complication			
Complexity			
Chaos			

Source: Barile, S. 2009. *Management sistemico vitale*, Giappichelli, Torino, p.32.

As Barile underlines in the *information variety consonance model*, categorical values are characterized by a certain reluctance to change and by the fact that their influence on the level of consonance is more significant than that of rational interpretation schemes. *The highest degree of consonance is the outcome of shared categorical values.*

In short, the effects of the dynamics of interaction between *viable systems as information varieties* depend on *consonance* and *resonance*. The former represents the major or minor potential that information varieties have for their relative aligning. The latter modifies the level of consonance and makes alignment possible. The ways in which information variety is transformed in different contexts represent the degree of sensibility shown towards suprasystems.

4. The provider-client relationship in healthcare service systems: towards a vSA-SS integrated approach

The proposed methodological approach delineates a conceptual framework for analyzing and developing conditions of consonance in healthcare *provider-client* interaction processes, highlighting the need for recovering a harmonious

relationship between *ethical/emotional* and *economic rationale* in healthcare system governance (Saviano *et al.* 2009). In particular, we use the relational key of (vSA) as a general conceptual framework for applying the *information variety* model to analyze the nature and the dynamics of healthcare *provider-client relationship*, pinpointing evident links with SS theoretical constructs.

In Italy the public Health Service – the National Health Service (NHS) – (established with the Law 833/1978) is based on principles of universalism and comprehensiveness and funded by general taxation (Torbica and Fattore, 2005). Just as occurs in a complex *system of systems* (IfM and IBM, 2008, 19) decision making power is distributed between central Government and the Regions. The Government defines the set of services to be guaranteed by the public sector (*Essential Assistance Levels* – Livelli Essenziali di Assistenza, LEAs) while the Regions are accountable for delivery. The LEAs framework is the result of what could be considered a *service level agreement* (Katzan, 2008, 3) in the Italian Health Service.

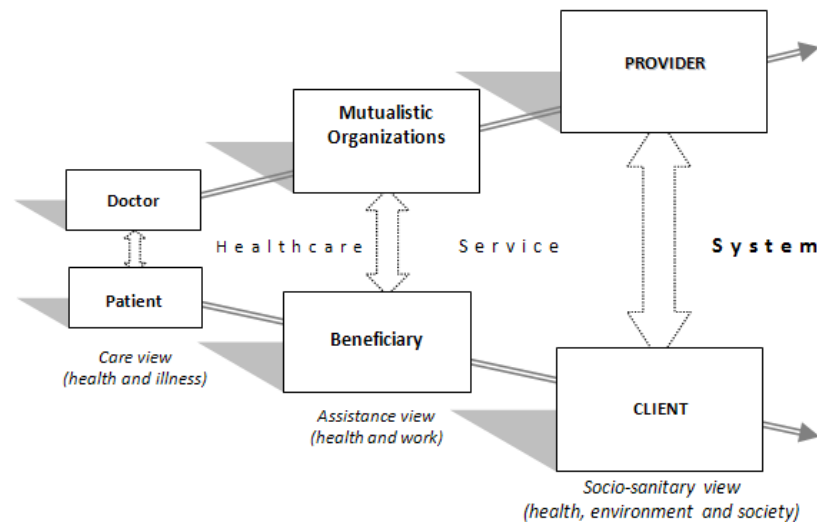
The current NHS service-offering (DPCM, 23rd April 2008) is grouped into three sectors:

1. collective prevention and public health services;
2. community care;
3. hospital care.

With the institution of the *Essential Assistance Levels*, the NHS basically became committed to providing essential assistance services addressed to safeguarding the values of human dignity, personal health, equal assistance and good health practices (Bernardi and Pegoraro, 2003). In addition to these fundamental aims, Italian legislation (Legislative Decree 502/1992; Legislative Decree 229/1999; Law 405/2001) subsequently imposed targets of efficiency besides those of effectiveness. In particular, with the concept of efficiency, a managerial culture was introduced into the healthcare sector (Zangrandi, 2000; Michelini, 2000) and rational decision-making, inspired by business management, became established practice. As a result, the system has tended towards a business-like configuration characterized by a technical managerial approach.

This trend has gradually changed the nature of relations in the Italian Health Service, with the shift from a paternalistic healthcare scheme whereby patients submitted to medical treatment in a passive manner, to a contractual assistance scheme in which the patient has become a demanding client. In this sense, there has been an evolution in structures, services, and needs, as demonstrated by the transition from the original *doctor-patient* relationship to the current *provider-client* relationship, centered on the principle of patient autonomy and a more qualitative customized service (Figure 3).

Figure 3 From a Doctor-patient to a Provider-client Relationship



This change in paradigm could have represented an opportunity for rethinking the entire governance approach in terms of a value *co-creation* logic. On the contrary, the gradual shift towards business logics and competitiveness has substantially oriented managers to reconcile efficiency with effectiveness (Kongstvedt, 2001). As a result, management has started using models, techniques and tools originally conceived for business organizations,

formalizing processes with codes, procedures and protocols, as in the case of the *Diagnosis Related Groups (DRG)* (Mayes, Rick, 2007), and determining an overbalance in favor of a technical approach.

The outcome (despite the business management approach and apart from a significant number of good practices) has been that the Italian Health Service often appears to veer away not only from a value *co-creation* model but even from effective value creation oriented management. Although the widespread waste of resources is commonly recognized, the NHS does not seem to have devised any effective policy to curb or sanction such waste. We are continually witnessing a crescendo of ‘inappropriate’ practices, often performed within the limits of legality, which offend the person on two counts: as a citizen – and even worse – as a patient.

Why is this the case?

Barile, in his recent (vSA) study (2009), offers a new key to interpreting the dynamics of the process which has conditioned decision-making and operative practices of management over time spawning a behavioral model studied and criticized by the scientific community (Ghoshal, 2005; Birkinshaw and Piramal, 2005). Barile considers the historical evolution of the managerial approach as one which has progressively been impoverished of its values. Consequently, to date, management would appear to have lost its virtuous dimension which originally legitimated the company-institution as a beneficial instrument for the well-being of society. The process of implementing best practices has resulted in managerial procedures, models, techniques and tools which have made it possible to re-apply distinctive models of success in different contexts. This is clearly a *problem solving* approach.

According to Barile, some managers have shown little foresight in facing complex *decision making* – fundamental for the survival of the system – tending to use this technical approach of *problem solving* in an attempt to replicate success by repeatedly using common interpretation schemes for every problematic situation.

Even the ways in which the NHS government has acquainted itself with the principles and criteria of business practice have evidenced the development of a problem-solving oriented approach (Churchill, 1999), often applied in *complex decision making* contexts (Saviano and Berardi, 2009), where ethical human and societal values are generally involved.

In this respect, the criticism in the World Health Report 2008, entitled *Primary Health Care – Now More Than Ever* is more than self-explanatory:

“Rather than improving their response capacity and anticipating new challenges, health systems seem to be drifting from one short-term priority to another, increasingly fragmented and without a clear sense of direction”
(WHR, 2008 p. Xiii)

With time, certain practices become habits (Maslow, 1970). Thus, the progressive diffusion of the same in the managerial context has shaped a style of decision making and behavior mainly based upon economic rationality schemes offering value propositions which are less and less consonant to the needs of the client. If service operational productivity and efficiency can be optimized by the use of codes, protocols and procedures (Casati, 1999), the same cannot be said for the *relations* through which the value proposition is delivered to the client. Especially in healthcare service systems, the nature of *provider-client* interaction is complex, involving and blending not only economic and functional, but also ethical and emotional expectations (Olesen and Bone, 1998).

If it is true that economic aspects have become more important for healthcare providers, clients seem to have gone in the opposite direction. In the past, a patient appeared more resigned to accepting illness. Currently, in modern westernized society and as a result of scientific progress, health is considered a primary value, which is protected constitutionally. However, the patient, considered as a client in a more complex relationship does not possess adequate interpretation schemes to assess the effectiveness of the service rationally and tends to make his choice from a *relational* point of view, guided mainly by deep-rooted values based on trust. This is where the true nature of the concept of *information asymmetry* emerges: it is not so much a matter of *unshared information*, but primarily a problem of *dissonant interpretation schemes* and *categorical values*.

The (vSA) perspective

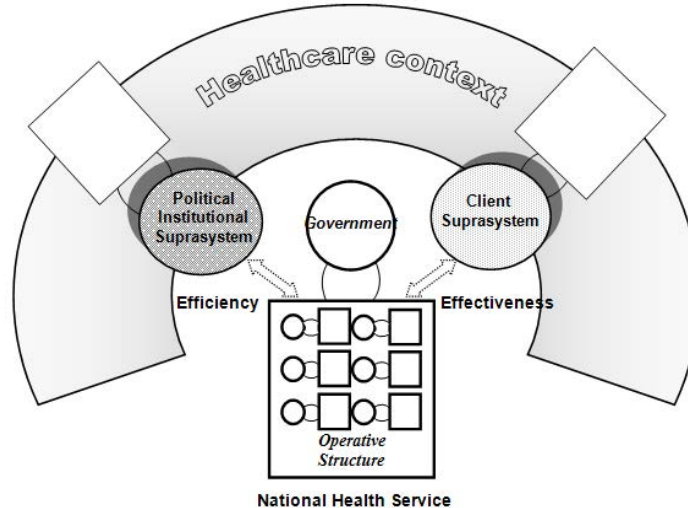
In a context characterized by chronically scarce resources and the continual growth of healthcare needs, the NHS government, when evaluating the expectations of the *politico-institutional suprasystem (authority)*, given the funding system mechanism, has interpreted the concept of *efficiency* mainly from a resource-saving perspective. In fact, this has led to a management approach based on rigid definitions of operative protocols and strategies essentially oriented towards reducing healthcare utilization.

From a (vSA) viewpoint and according to the concept of *suprasystem relevance*, it is clear that healthcare system government, in defining its relationship strategy with external entities, considers the *politico-institutional*

suprasystem as its main point of reference, relevant to satisfying and guaranteeing *access* to the *resources critical* for its *viability*. The *politico-institutional suprasystem*, given its aims, has projected upon the healthcare system, recovery of efficiency expectations in terms of reduced spending, establishing behavioral constraints and rules and reward/sanction mechanisms. Added to which, there is the fact that healthcare managers are appointed on a politically conditioned basis.

Therefore, the healthcare system has progressively become more consonant to the expectations of the *politico-institutional suprasystem*, consequently considering the *client suprasystem* – being primarily interested in the *effectiveness of the service* – as less relevant (Figure 4).

Figure 4 The Main Suprasystems in the NHS Context



An integrated vSA-SS perspective

In any service system the two core roles are covered by the *provider* and the *client*: in healthcare, doctors, nurses, administrators, hospitals, clinics etc., on the one hand, and patients, families, friends etc., on the other, are all *resource integrators* (Lusch and Vargo, 2006; Spohrer *et al.*, 2008, 11-12) involved in the functioning of the system. However, the main role is played by other external entities – Government Authorities, insurance companies etc. – all of which can interfere in the “*access rights*” to resources (Vargo and Lusch, 2008; Spohrer *et al.*, 2008, 5-6) by exerting a relevant influence on the functioning of the system. Consequently, in a healthcare context, a fundamental role is played by the *authority* (the *politico-institutional suprasystem*) because of the *relevant suprasystems* relationship with the *healthcare provider system*.

As service systems can be divided into “front stage” and “back stage” (IfM and IBM, 2008, 6), it follows that NHS *providers* are paying more attention to the latter, i.e., their *relations with the authority*, rather than to their *relationship with the client*. Indeed, healthcare service clients, especially as patients, have always played an excessively passive role in the *provider-client relationship*, essentially because of the problem of *information asymmetry*, as underlined above.

Exerting its role of *authority*, the *politico-institutional suprasystem* regulates and constrains public healthcare service delivery processes and controls *access rights to resources*. In order to guarantee not only *compliance* with current NHS regulations as regards the *provider-authority* relationship, but also the *quality* of the service delivered to the client in a *provider-client* relationship perspective – by matching adequate service to a specific healthcare need – the health service delivery must respect the criterion of *appropriateness*. Actually, there are two interpretations of the concept of appropriateness: that of the *service* and that of the *setting* in which care is provided (Lavis and Anderson, 1996, 321). The former refers to the effectiveness of a healthcare service for a particular type of patient and typically does not include cost considerations, while the latter implies *cost-effectiveness* assessment. To sum up, appropriateness is generally defined as the *right service* at the *right time* in the *right place*. In practice, and because of the prevalent cuts in spending schema, attention has been placed essentially on the measuring of *cost-effectiveness* relative to the setting in which service is delivered with the assessment of appropriateness made mainly from a cost-benefit rather than risk-benefit profile (Brook, 1994; Schweiger, 1994).

In our opinion, rather than imposing limiting precepts, managerial interpretation schemes should be oriented towards an *efficient use* of limited available resources, inspired primarily by a policy of *full enhancement* (Cifalindò, 2000). The optimal route to efficiency is certainly that of cutting *unnecessary costs* – especially in healthcare

(Borgonovi, 2008) – but primarily that of increasing resource *value*, by creating new value from the *integration* of available resources and by exploiting the role of the client as *resource integrator*. The fact is that if clients have a passive role in the relationship, then their potential contribution in the value creation process of the service system is not exploited at all and potential outcomes are wasted. Instead, there is significant evidence regarding the relevant advantages of inclusion of client/patient in the service process precisely in terms of cost reduction and efficiency (McCull-Kennedy *et al.*, 2009). An empirical study indicates that healthcare system clients behave defining varied co-creation styles (team manager, passive compliant, isolate controller, partner, spiritualist and adaptive realist) and outcomes (McKennedy *et al.*, 2009). It is worthy of note that such varied co-creation styles seem to represent a significant expression of dimensions that in fact are related to the above mentioned *categorical values* processes.

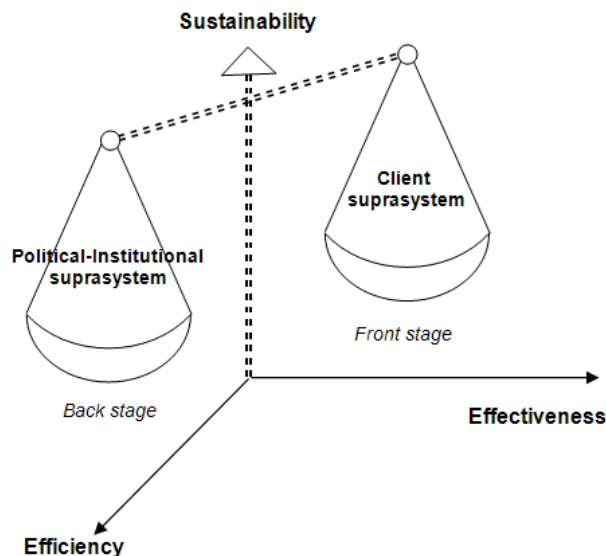
The need for an efficient use of limited available resources leads to an interpretation of the concept of efficiency linked to a perspective of *sustainability*. In every complex service system the main challenge is to balance a *triple* target of *efficiency*, *effectiveness* and *sustainability*. “As sustainability becomes an increasingly urgent global concern, businesses should take the opportunity of expanding the definition of stakeholder value to include new measures. Far more emphasis should be placed on the balance between efficiency, effectiveness and sustainability!” (IfM and IBM, 2008, 14). According to SS (Spohrer *et al.*, 2007, 75):

- the *efficiency* target concerns planning and stipulates that things must be done in *the right way*;
- the *effectiveness* target concerns goals and decrees that *the right things* must get done;
- the *sustainability* target concerns relationships and seeks to establish *the right relationships* with other systems.

The necessity for reforms which would make healthcare services more “sustainable” has been widely discussed in recent decades (Olsen, 1998, 287; Arah *et al.*, 2003; Sibthorpe, 2005). Indeed, generally managers “treat the need to become sustainable as corporate social responsibility, divorced from business objectives” (Nidumolu *et al.*, 2009). However, from a (vSA) perspective, the relation-centered definition of sustainability highlights interestingly how in particular *sustainability* can be considered a bridge linking governance targets, through which *efficiency* and *effectiveness* should be interpreted and reconciled. Thus, just as the politico-institutional suprasystem determines constraints and rules, NHS organizations are obliged to balance targets of effectiveness (*front stage*) and efficiency (*back stage*) with that of sustainability (*front and back stages*).

In Figure 5, the need for balancing the *EES* triple target acting on *both* relational contexts – the *front* and the *back* stage – is represented in metaphorical terms.

Figure 5 Balancing the *EES* Triple Target of Management in Healthcare Service Systems



From the back stage perspective, healthcare system government has to achieve the target of operational efficiency by correctly interpreting the expectations of the politico-institutional suprasystem in a *sustainability perspective*. More interestingly, on the front stage, the target of effectiveness should be interpreted from the same perspective, i.e., establishing *sustainable* relationships with clients. This is also where the value co-creating role of

the client in the system is clarified: the client has to share the responsibility for achieving the sustainability target together with all the other entities involved in the system. We will evidence the practical implications of this point in more detail.

In sum, healthcare providers should seek to achieve the *sustainability target* acting on *both* the back and front stages. As sustainability is currently considered not only a widespread urgent concern but also a key driver for innovation, a key (vSA) *viability target* is that: *the governing entity of the system should seek to establish and maintain the right relationships with other relevant entities involved in the main dynamics of the system by developing conditions of consonance and resonance.* Therefore, in compliance with the SS view that service performance relies on both *front-stage* and *back-stage* processes and as concerns the Italian Health Service context, we can attempt to respond to the critical question posed by SS (IfM and IBM, 2008, 6):

“How can the ‘voice of the customer’ (customer needs) and the ‘voice of the process’ (provider capability) be matched for the best overall performance?”

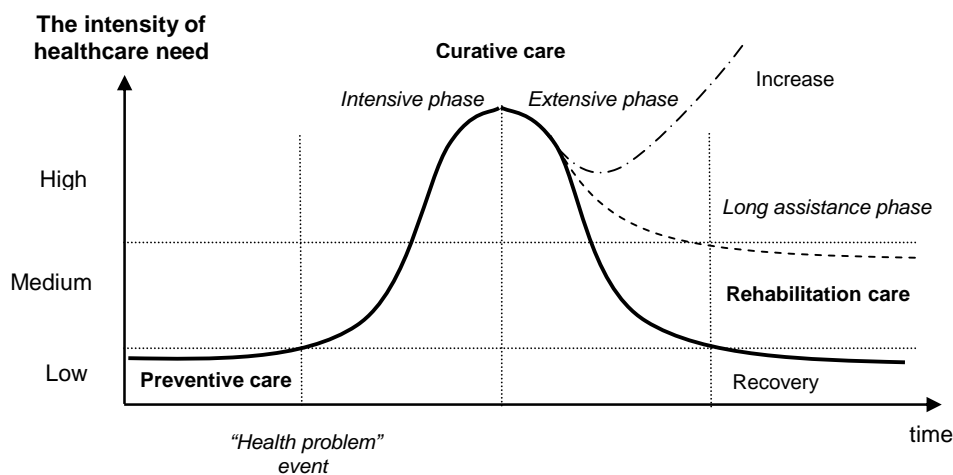
To obtain a value co-creation relationship between the main roles in a service system, matching the “voice of the customer” and the “voice of the process”, the viewpoints and needs of *both* client and provider have to be considered.

Client viewpoint

From the specific point of view of the client, focus should be on the nature and dynamics of assistance needs by the client as a patient. Healthcare needs are characterized by various aspects: psycho-social (good health and well-being), biological (recovery from an illness) and functional (functional recovery). The NHS responds to these needs with a healthcare service delivering respectively *preventive care*, *curative care* and *rehabilitation care*.

In a generic healthcare situation, from a patient perspective, we can safely assume that when a “health problem” occurs, the healthcare need suddenly peaks until a diagnosis is obtained (*intensive phase of curative care*) and begins to decline only when a solution (cure) is found (*extensive phase of curative care*), even in the case of requiring long term assistance such as *rehabilitation care*. If this is true, the characteristic dynamics of the healthcare need can be illustrated (Figure 6) by a curve showing the variation of intensity of the healthcare need in a typical sequence of assistance, starting from a basic offering of collective prevention and public health service (*preventive care*).

Figure 6 The healthcare Need Curve



Source: Adapted from Saviano, M. 2007, p. 61.

On the basis of the graph, as the result of a health problem, the intensity of the healthcare need starts to rise and varies in terms of the specific types of healthcare services required. Therefore, we can assume that it is generally low as regards prevention, peaks after a health problem and drops again when the problem is resolved. In other words, the intensity of the healthcare need is:

- high for *curative care*;

- medium for *rehabilitation care*;
- low for *preventive care*.

We could argue, consequently, that in the healthcare context, patients/clients tend to feel and act depending on the *intensity of the healthcare need* related to their conditions. Expectations and assessment of the healthcare service are influenced by this perspective and, as already mentioned, the role of the emotions is relevant, especially in situations of service failure (McCull Kennedy, 2006).

Provider viewpoint

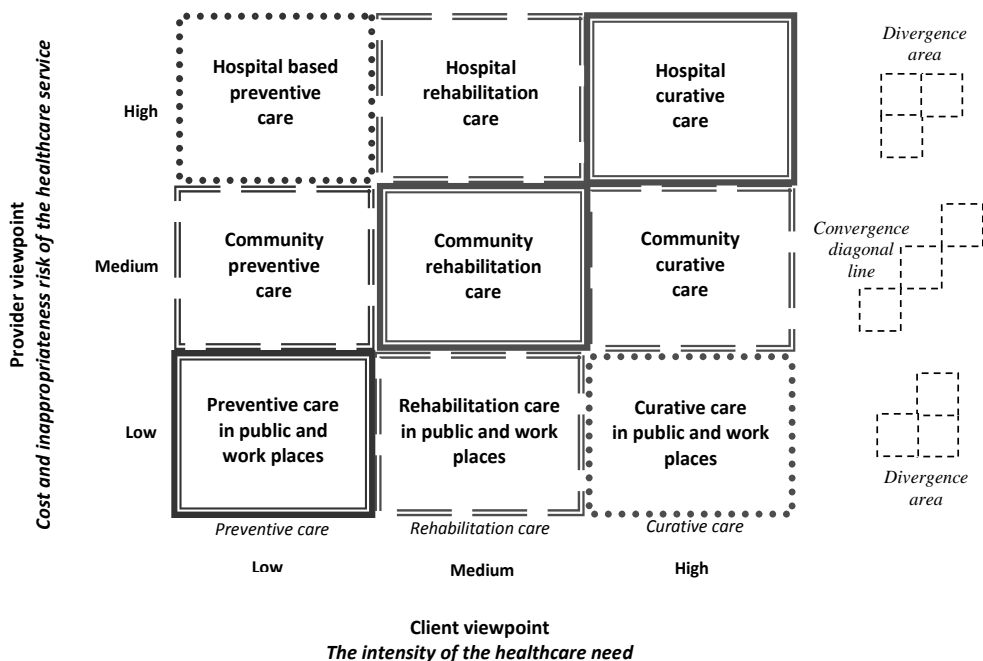
From the provider viewpoint, given a specific healthcare need, the assistance service is addressed to the client on the basis of a decision making process centered on choosing the right setting for the service, i.e., hospital, community, or public and work places, that implies different utilization levels of structures, professionals and technologies of the system. Constrained by both the LEAs central definition and the funding system, provider organizations deliver their healthcare offering, attempting to act within the limits established by the *appropriateness* of the healthcare service, interpreting appropriateness, as mentioned, mainly from a *resource saving* perspective on a *cost-effectiveness* basis. For this reason, the service delivery process is constrained within rigid protocols and procedures. Thus, decision-making and behavioral logics on the part of providers are conditioned specifically by the *cost of the healthcare service* and by their interpretation of *risk of inappropriateness*. It is clear that costs and risks vary significantly in different healthcare services. Taking into account the present cost structures in the Italian Health Service (Pessina and Cantù, 2008; Cantù, 2009), we can assume that the *cost and the inappropriateness risk* of the healthcare service are:

- high for *hospital care*;
- medium for *community care*;
- low for *collective prevention and public health service* (services delivered in public and work places).

Matching provider-client viewpoints

At this stage of the research, provider and client needs are matched by means of a relational matrix, the *Healthcare Service Matrix (HSM)*, in which *both* their respective needs and the areas of *convergence* or *divergence* – in terms of obtaining, or otherwise, target conditions of *consonance* – are represented (Figure 7).

Figure 7 The Healthcare Service Matrix



Source: Adapted from Saviano, M. 2007, p. 72.

The matrix shows the three Italian LEA groups potentially matching the different expectations and needs of the provider and the client. An economic rationale prevails from the provider's perspective, based mainly on the assessment of *process efficiency* in terms of *cost and inappropriateness risk of the healthcare service*. On the contrary, the client rationale is based mainly on the evaluation of *service effectiveness* in terms of adequacy to specific healthcare needs.

The representation shows how healthcare provider and client seem to converge – to be in *consonance* – as regards healthcare *service-need* appropriateness along the diagonal line of the matrix: generally, hospital care seems to be appropriate for cure needs (high-high), community care for rehabilitation (medium-medium) and collective and public health service for prevention (low-low). However, in the other areas of the matrix it seems that both the provider and the client can easily under/over-estimate *healthcare appropriateness*. For instance, delivering community care service for a therapeutic need could be perceived by the client as not really appropriate, while demanding hospital care for long term rehabilitation would be considered *inappropriate* by the provider. However, it should be said that most of the cases of *inappropriate* healthcare delivery in Italy, consisting generally in *inappropriate* use of the hospital setting, derive from the necessity to guarantee an *appropriate* service to the patient, given that alternative settings are not available or effectively and sustainably deliverable.

It seems feasible to read the *HS Matrix* also as a “service intensity matrix” (Teboul, 2006; Spohrer and Kwan, 2008), where service is represented in terms of level and intensity of interaction: from customization (high-high) to standardization (low-low).

In short, on the basis of the *HS Matrix*, we argue that there is potential divergence in the *provider-client relationship*, highlighting a growing *risk of dissonance*. Moreover, the relationship tends to diverge more as general crises and economic rationale push healthcare providers to keep the service at a lower assistance-level (where possible) while clients tend to ask for ever higher assistance levels.

The implications for the healthcare provider-client relationship

The *HS Matrix* highlights the need to match the different viewpoints of the entities involved in the service system, taking into account their different aims and expectations and, consequently, different assessment criteria of service appropriateness (Palfrey *et al.*, 2004).

As underlined by Vargo and Lusch (2004; Lusch and Vargo 2006) from their perspective of *Service Dominant Logic* service is a kind of interaction between specific entities aimed at *value co-creation* outcomes. This means that the entities involved in a service system should *interact co-creating* value. Thus, we need to understand in depth the nature of the *provider-client* interaction in service system and to discover what makes both parties seek value co-creation outcomes.

To facilitate understanding of the nature of the healthcare *provider-client relationship* in a service system, it might be useful to focus on the concept of *service system* and on the nature of the relative resources underpinning its configuration, taking into account both the SS and the (vSA) perspectives. According to the SS conceptual framework, “a service system can be defined as a dynamic configuration of resources (people, technology, organizations and shared information) that creates and delivers value for provider and customer through service.” (IfM and IBM, 2008, 6). Given that people are a key resource in organizations, it seems plausible to say that the main resources of a service system are *people* (either as individuals or in organizations), *technology* and *shared information*.

The SS definition of service system shows the implicit necessity of taking into account the key resources that determine the nature of interaction processes in the system and relative unique identity (Maglio *et al.*, 2009, 400). As illustrated, from a (vSA) perspective, the concept of identity of a viable system can be expressed in terms of its *information variety*, i.e., in terms of *categorical values*, *interpretation schemes* and *information units* (Barile, 2009). If we compare the resources of a service system with the dimensions of viable system *information variety*, interesting links emerge as shown in Table 2.

Table 2 Exploring the Links between Service System Resources and the Dimensions of Viable System Information Variety

<i>Service System Resources</i>	Dimensions of Viable System Information Variety
People	Categorical values
Technologies	Interpretation schemes
Shared information	Information units

More precisely, it can be asserted that in a *viable service system*:

- *people* express human values and strong beliefs (*categorical values*) that characterize individual and organizational decision-making and behavior. Furthermore, people “participating in service production and consumption are bound to have physiological and psychological issues, cognitive capability, and sociological constraints, etc.” (Qiu, 2009, 42);
- *technology* expresses schemes and patterns structured in models, techniques, procedures, tools and operative solutions;
- *shared information* “includes language, laws, measures, methods, process descriptions, standards, and others” (IfM and IBM, 2008, 19). As the former can be codified and turned into explicit information, it refers to all those knowledge units that are easily disseminated in the system.

According to the (vSA) *information variety* model, as explained, individual (and organizational) *categorical values* influence the interaction process in the context determining conditions of *consonance* with other systems. Consequently, they affect the *information sharing* process and the degree of openness of the system. In SS terms, this means that, when we refer to a *viable system* resource that has an independent life in the relative context, the *rights of access* to it (Vargo and Lusch, 2008) are affected by the degree of openness to external interaction decided by the governing subject of the system. This emerges clearly from the *three foundational premises of Service Science* (Maglio, 2008):

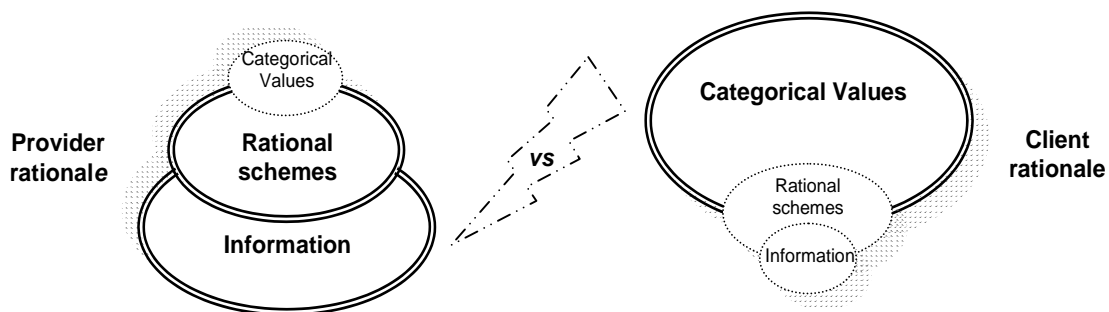
1. *Service system entities dynamically configure four types of resources, physical or non-physical with rights or with no-rights (people, organizations, technology, and shared information).*
2. *The access rights associated with customer and provider resources are reconfigured by mutually agreed to value proposition relationships.*
3. *Service system entities calculate value from multiple stakeholder perspectives according to culturally determined value principles.*

In short, the (vSA) categorical values act emotionally as “*culturally determined value principles*” that express different perspectives and expectations. On the basis of a requisite variety law (Ashby, 1969; Godsiff, 2009) and according to the *information variety consonance model*, the effective alignment between intra and inter-system entities depends on the degree of *consonance* while the mutual agreement resulting from the interaction process depends on how their variety dimensions act in relation to the perceived problematic context (see Table 1).

In the case of healthcare service systems, it is clear that provider and client think and act differently and that such differences influence the interaction process. In particular, following the curve of the healthcare need (see Figure 6), we argue that as the healthcare need rises, the influence of categorical values and emotional dimensions also increases and the client (the patient, his/her family etc.) thinks, decides and acts *less in a rational* and *more in an emotional way*. Furthermore, seeing as healthcare is generally related to health problems, it should be considered that negative emotional status tends to have a greater relevance in interaction processes with the service provider and, in general, negative emotions have a stronger impact than positive emotions on customer satisfaction (Liljander and Strandvik, 1997).

Therefore, comparing the healthcare provider and client viewpoints, their different perspectives emerge clearly: *clients are guided mostly by values and emotions (categorical values), while healthcare providers are guided mostly by protocols and procedures (rational schemes and information)* (Figure 8).

Figure 8 Healthcare Provider and Client: Two Different Rationales



As a result, there is a high risk of *relational dissonance* between provider and client due to their different rationale. If the NHS is closer to a *politico-institutional suprasystem* logic, it seems to have less awareness of *client suprasystems* expectations. Whilst becoming more resonant with the former, it seems to be jeopardizing the conditions of consonance with the latter, generating a *new risk of inappropriateness*. This means that – in a system

that aims at guaranteeing universal *access rights* to essential services – the *assessment of appropriateness* should extend to a broader evaluation of quality of care, taking into account the client perspective. In other words, bearing in mind that “less is not necessarily better” (Lavis and Anderson, 1996, 327), the *assessment of appropriateness* should be based not only on *cost-centered* considerations, but also on criteria of effectiveness by taking into account psychological, emotional, relational and social dimensions involving *sustainability* in the *provider-client* relationship.

4. Concluding Remarks and Practical Implications

In short, the exploration of methodological links between (vSA) and SS highlights several interesting features. As well as more general elements of convergence implicitly deriving from the common roots in systems thinking and for the purpose of construing a *viable service system model*, our study evidences further specific vSA-SS links:

- *critical bearing of resources* and *influence of suprasystems* as key factors in determining the *access rights to resources*;
- *sustainability* as a key *viability target*;
- a *viable service system* where the key resources (*people, organizations, technology, and shared information*) can be expressed in terms of information variety dimensions (*categorical values, interpretation schemes and information units*) that determine the identity of the system and affect its relational behavior in different decision making contexts.

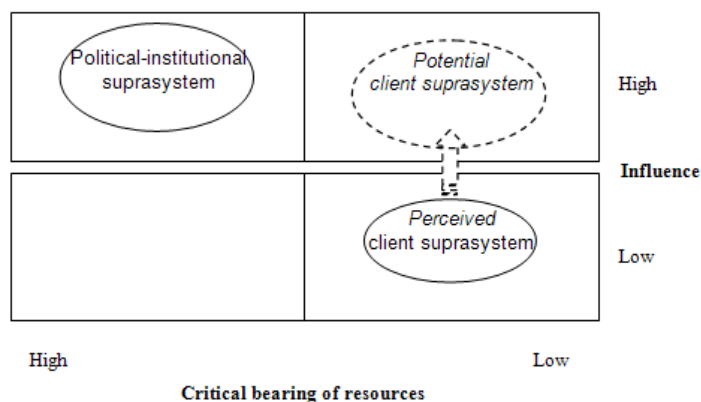
As regards the practical implications of our study, it emerges that a deep rethinking of the NHS relational approach is required to *prevent* the risks of instability of the system, which is linked to an increasing lack of consonance with *client suprasystems*. The Italian NHS has experienced (and still is experiencing), together with other viable social entities, a period of radical change (Genco, 2002). Regional structures are facing enormous difficulty; furthermore, the ageing of the population will bring an increase in healthcare needs that risks provoking a socio-economic crisis the outcome of which may prove to be barely controllable (Barile, 2007).

The (vSA) conceptual framework provides a useful scheme of interpretation to decipher the pattern of emergent instability in the Italian Health Service. The application of principles and concepts of the viable system to the articulated architecture of the healthcare service evidences interesting features of “pathology” and “therapy” and a way towards recovering consonance in the diverging rationales of the *provider-client relationship*.

The concept of healthcare service *appropriateness*, a construct by means of which the *authority* exerts its influence imposing *compliance* with rigorously defined standards of service, should be extended from a cost/benefit assessment to a more complex evaluation of *sustainability* in order to analyze first of all how much of the deliverable care is expected to benefit patients and subsequently whether and in what way care could be provided less expensively. In this sense, the above mentioned *risk of inappropriateness* can affect the system’s stability, thus requiring a systems viability monitoring process (Piciocchi, 2003).

Healthcare system government must evaluate *client suprasystem influence* accurately (Figure 9) intervening appropriately to achieve an ideal level of resonance. Even if structurally fragmented, client suprasystems express a large-scale potential of influence on system dynamics.

Figure 9 Subjective Perception of Client Suprasystem Relevance in the NHS



From an alternative viewpoint, it is clear that even clients, in a general context with a higher healthcare need, show a poor propensity for rational responsible behavior: too often, clients contribute to the wasting of resources.

Thus, the recovery of relational consonance in a *value co-creation perspective* implies an effort on the part of both provider and client to bring their cognitive-behavioral varieties closer: the NHS by means of greater awareness of values and emotions and clients by more rational behavior. In other words, on the one hand, healthcare providers should increase their emotional sensitivity, proved to be correlated to organizational commitment, especially in healthcare (Humphreys *et al.*, 2005), on the other hand, clients must be able to understand, share and contribute to the demands of an *efficient* and *effective* healthcare system. This can only be done by fully sharing and enhancing scanty resources. In short, the NHS has to recover a socio-ethical dimension, regain the original sense and values of its mission and recognize its value (Sancetta, 2007), while clients will have to start acting more rationally.

More attention to *prevention* by both healthcare providers and clients could be one desirable effect of this change. The area of prevention, as shown in the matrix (see Figure 7) seems to be the least critical, but this is the result of the scarce relevance given to prevention by the community, and of the poor efforts made by the NHS in communicating and involving people in preventive care. Prevention represents an area in which the new paradigm can express itself, demanding *participation* from the citizens in a *value co-creation view*. Participation is a necessary condition for developing a relational structure from which a *value co-creation system* can emerge, based on information sharing and cooperation in order to achieve a common target of *sustainable healthcare*. In this respect, the provider and the client have to *share* information and interpretation schemes but most of all, values and responsibilities.

In other words, the change of paradigm in service systems management approaches towards a value co-creation logic in which provider and clients consider one another as partners in a sharing process, highlights the need for rethinking the healthcare *provider-client relationship* according to SDL and addressing the challenges of the SS interdisciplinary approach.

In methodological terms, (vSA)'s contribution seems to be evident: (vSA) together with SS, enables us to mould a unified vision of complex objects of analysis and evidences the many converging elements that emerge from different perspectives as well as the benefits deriving from the use of diverse interpretation schemes, as proposed in SS.

In short, (vSA) suggests the analysis of government issues from the perspective of considering the organization as a *viable system* that survives in the context of reference by establishing the *right relationship* with the other relevant entities involved in the functioning of the system (*suprasystems*) and by monitoring the evolution of interaction processes. Furthermore, the concept of a *viable system* as a form of *information variety*, characterized not only by *information units* and *interpretation schemes* but also by *categorical values*, enables new perspectives to be envisioned and suggests how healthcare decision makers can deal with values, beliefs and feelings in the process of governance.

In conclusion, our study leads to new stances and welcomes other perspectives, embracing the need for “an interdisciplinary approach to research and education in service” (IfM and IBM, 2008, 1; Spohrer and Donofrio, 2009).

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All three Authors apologize for any inaccurate interpretation of SS constructs and models, but sincerely hope to have made a contribution, however small, to fostering common debate upon systems, system thinking and service science.

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