

The Viable Systems Approach (VSA) for Re-interpreting Network Business Dynamics

Paolo Piciocchi¹, Clara Bassano², Erica Paduano³, and Maureen Galvin⁴

¹ Department of Political, Social and Communication Science, University of Salerno,
Via Ponte don Melillo, Fisciano, Italy
p.piciocchi@unisa.it

² Business Studies Department, “Parthenope” University of Naples,
Via Medina, 40, Naples, Italy
clara.bassano@uniparthenope.it

³ Department of Political, Social and Communication Science, University of Salerno,
Via Ponte don Melillo, Fisciano, Italy
eripad@interfree.it

⁴ Business Studies Department, University of Salerno, Via Ponte don Melillo, Fisciano, Italy
mgalvin@unisa.it

Abstract. The variety of network-district businesses has in strategic terms, resulted in less efficiency within local systems and reflected negatively on the competitiveness of district production. The paper seeks to re-interpret the dynamics of network-districts from the Viable Systems Approach (VSA) perspective. In such a scenario, the limited or non-use of information and communication technology (ICT) tools risks affecting competitive capacity both in an individual and network-district perspective. The paper highlights how the creativity of the Italian network-district system gains momentum i.e. greater competitiveness by using ICT tools in a systems approach to facilitate cultural and management change and to integrate communication within and outside the network-district system.

Keywords: network-district, dynamics, viable systems approach (VSA).

1 Introduction

Firms can be defined as networks of interdependent phenomena with clear cut or fleeting, short-lived goals. However, understanding business dynamics implies a focus on widespread relational networks and the *systems approach* is an ideal platform to start from. In terms of network-district business organizations, the approach highlights how firms basically reflect the postulates of business models and theories. In particular, as concerns small and medium size enterprises (SMEs), an analysis of Italian industrial districts, indicates a wide gap in cultural/managerial terms accompanied by low propensity for technological innovation [1].

The structural limits of small firms, physical proximity and cultural bias also emerge in the district scenario[2].

Our approach pursues cultural and management change by means of experimental collaborative strategies of integrated communication both in and outside the district

system. If on the one hand, interesting developments in technical and organizational terms are evident, on the other, scarce attention is addressed to investing in information and communication technology (ICT) for communicational efficiency and effectiveness. Furthermore, the structural characteristics of SMEs and relational processes heavily limit the understanding and implementation of ICT.

Our study proposes the conceptual framework of the Viable Systems Approach (VSA) as an interpretative theoretical framework for analyzing network-district dynamics relative to information and communication technology in planning marketing and communication district network strategies for competitive local systems on global markets [3].

If it is true that Business Management studies are facing problems from the perspective of redefining the logics of district dynamics, then the identification of a new interpretative key – appraising the dynamics of industrial districts through the VSA conceptual framework [4], [5], [6], [7], [8] as a model for observing and interpreting complex businesses and social phenomena through interpretative schemes – is extremely relevant.

In this context, two traditional conceptual categories, ‘district’ and ‘network’ examined from a VSA perspective, offer new insights for the analysis of “agglomerations of enterprises” located in areas linked by relational content and characterized by a systems deriving status.

In theory, industrial districts are identified by a series of distinctive features relative to each territorial-productive area [9]:

- large number of enterprises (categories of industrial enterprises);
- marked division of inter-firm labor;
- propensity for specialized production;
- enterprise relational networks in a local community;
- common attitude towards innovation;
- a link between firms in the district and their respective target market.

Although various meanings have been attributed to “industrial district”, Becattini, conceives that: *the district is a socio-territorial entity characterized by the active coexistence, in a circumscribed territorial-area, naturally and historically determined, of a community of people and a population of industrial enterprises* [10]. The community and enterprise incorporate a system of values in common [built and consolidated over time] and a system of institutions and rules [for the transmission of these values from one generation to another].

Districts are therefore, characterized by external economies, generated both by natural factors related to the location of the production community and by intrinsic factors such as a common vocation or “industrial atmosphere”. The latter permeates economic and other relationships and is one of the main drivers of distributed, cognitive and non-cognitive learning processes (learning by doing, by using, by localizing, by specializing, by external adapting and by inter-firm relationships) distinctive and inimitable knowhow relative to a specific industrial district. Typically, economic benefits – i.e. reduction of production costs etc. – encourage the regeneration of firms belonging to the same systems area or located nearby and promote further growth through synergies, thus increasing the economic potential and the cognitive heritage of the whole district: *everyone benefits from the ideas of its neighbors (...)*

and each successful invention, a new car, a new procedure or a new way of organizing activity, is likely to improve once launched. Both large and small businesses can benefit (...) but these are more important for small businesses [11]. As Becattini states: (...) what holds together firms that are part of a Marshall type industrial district (...) is a complex and intricate network of external economies and diseconomies of conjunctions and connection costs, a cultural and historical heritage that surrounds both the inter-relationships and those more purely interpersonal (...) [12].

In the relational structure of territorial entities, in many cases quite distant from the concept of the “Marshall type district” [13], the shift from a global macro-systems view to a natural business micro-systemic view defines the role of small, medium and large enterprises within a geographically limited, highly systemic context or environment.

From a more traditional business studies viewpoint, our paper integrates the analysis of districts by interpreting the structural setting from a systems perspective. The assumption is that as an industrial system is the result not the sum of diversified entrepreneurial activities, it follows that district dynamics and territorial systems cannot be defined without a study of systems *tout court*.

2 Network-District: A Complex Concept in a Relational Key

A brief review of the literature highlights three key elements of inter-personal and inter-intra-district relationships [14], [15], [16]:

- network or system of relationships between internal and external businesses for knowledge and economic objectives;
- stable formal relationships created from informal social ties;
- the function and the importance of nodes for the network macro-system.

Qualifying strategic and organizational business models in which traditional criteria relative to entrepreneurial projects – optimization of resources, effectiveness of results and schematization of objectives, lifelong learning, critical functions – are rethought on the basis of bottom up competitive logics oriented towards cooperation [17] and common objectives, rather than top down control and individualism.

Furthermore, the importance of exploiting inter and intra-firm entrepreneurial skills, is a strategic element for the development of enterprise potential, creating favorable conditions for governing synergies between individual and independent organizations. In the literature, criteria for the effective working of the network system conceived in terms of collaboration between the links/nodes and the coordination of specific functions is highlighted; less emphasis however, is given to the natural process of network formation: the transition from a series of typically social, spontaneous relations shared over time maturing into strong ties and optimizing the performance of the business system as a whole.

Another approach describing the various forms of aggregation, and defining the developmental stages of the process, would highlight the value of interpersonal networks that regardless of the model, are the result of social and economic relationships between individuals belonging to a certain geographical area or community harnessing their knowhow.

The theoretical basis, a conceptual framework for our empirical study, analyses the development of personal networks and entrepreneurial potential, behavior and the critical functions underpinning management of complex social and economic value systems.

From a sociological perspective, relational analyses evidence interesting empirical findings and models easily adaptable to business-economic contexts; networks are represented through recurring interpersonal exchange patterns. This implies that the interpretation of entrepreneur relations is determined by willingness to join collaborative schemes but hindered by limited knowledge [18] of the social, economic and entrepreneurial reference.

In addition, the structure of the network depends on the location of each firm, relational reciprocity and frequency [19]. Notwithstanding, uniformity is fundamental between business entities, i.e. number, trade potential and structure of the ties.

Anthropological and sociological theories and analytical models have given insights into the dynamics of business networks. In particular, relational exchanges can be classified in four categories [20]:

1. Permanent links or ritual, typical of clans where the logic of reciprocal gifts prevails;
2. Links at two levels of trust between individuals from which utilitarian relationships stem;
3. Potlatch links or competitive exchanges establishing orders of prevalence or power, based on the potential exchange value;
4. Utilitarian links, the logic of economic exchange based on trading.

These categories imply that cohesion in business networks logic is utilitarian, based on regulated economic behavior (laws or formal relationships). However, cooperation starts with a shared social structure, defined by customs or informal relationships [20]. The utilitarian approach in networks should therefore take into account that enterprises are oriented towards collaboration to reach more qualified strategic positioning. This appears evident in district areas, where observation and the emulative action of the enterprises, by differentiating process and/or product, determine conditions for growth proportionally to available resources benefiting all parties concerned.

The district can also be envisaged as a particular type of cluster, characterized by firms associating by chance and reaping unintentional benefits from spatial and sector proximity: deliberate joint action. Collective efficiency characterizes firms that operate within a system, either as a cluster, district and/or a network for competitive advantage, not achievable individually. Moreover, industrial district interaction contemplates the ability to incorporate input from the system and the general environment [20] – social, political and economic – gaining advantage through diversified strategic action.

The appeal of a network perspective for the analysis of a district scenario and its dynamics – the emergence and evolution – of interdependencies between the actors, pivots on the patrimony of experience and knowledge, even external to the local system, at the core of the consolidation process between networks of social and economic of relationships [21], [22].

It should be emphasized that the concept of network of businesses or business network is clearly of Italian origin; in fact, it is a consolidated view that small firms, especially local ones, gain *volente or nolente*, undeniable competitive advantage but also greater opportunities for survival by belonging to a network [23].

The network concept is an interpretative key for clarifying the functioning of district activity above all in terms of devising a joint scheme relative to internal and external relationships within the local system [24].

The survival of small firms for instance, depends on external networks. Power spread, shared, or acknowledged by virtue of interactive mechanisms is therefore, fundamental.

The relationships and networks identified in our analysis lead to the description of district dynamics from a strategic and organizational viewpoint. Empirical findings are illustrated in a diagram representing the nature of relationships and strategic elements upon which network-district success depends.

Fig. 1 and 2 illustrate prevailing collaborative forms that evolve into more regular structures on the basis of social and economic components in the area: networks of social businesses and business networks of an economic nature.

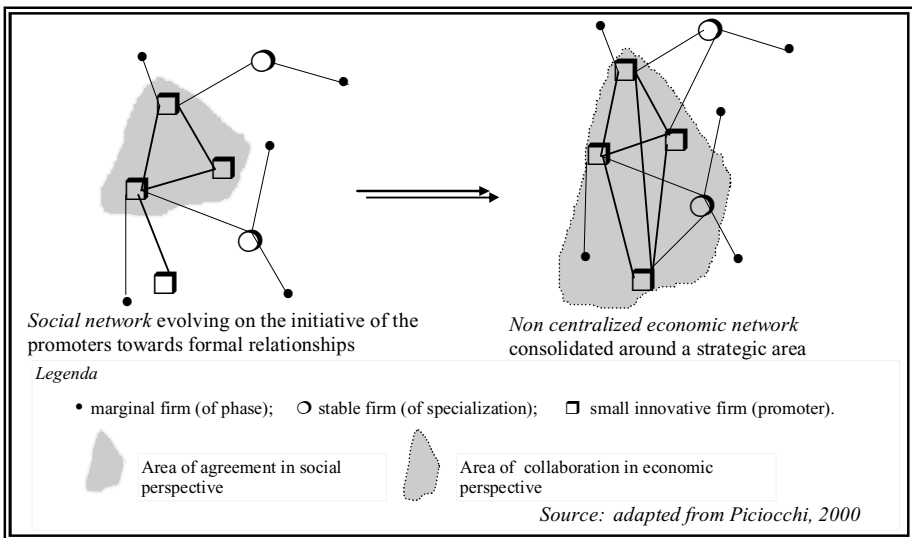


Fig. 1. The evolution of district relations in non-centralized networks

In Fig. 1 a scheme of a decentralized and shared network in management activities (consortia and cooperatives) is illustrated where the strategic actors in the districts are the small innovative enterprises. They rely on mutual social relationships and the propensity for organizational flexibility. Complementary skills and assets tend to be prevalent in the individual phase.

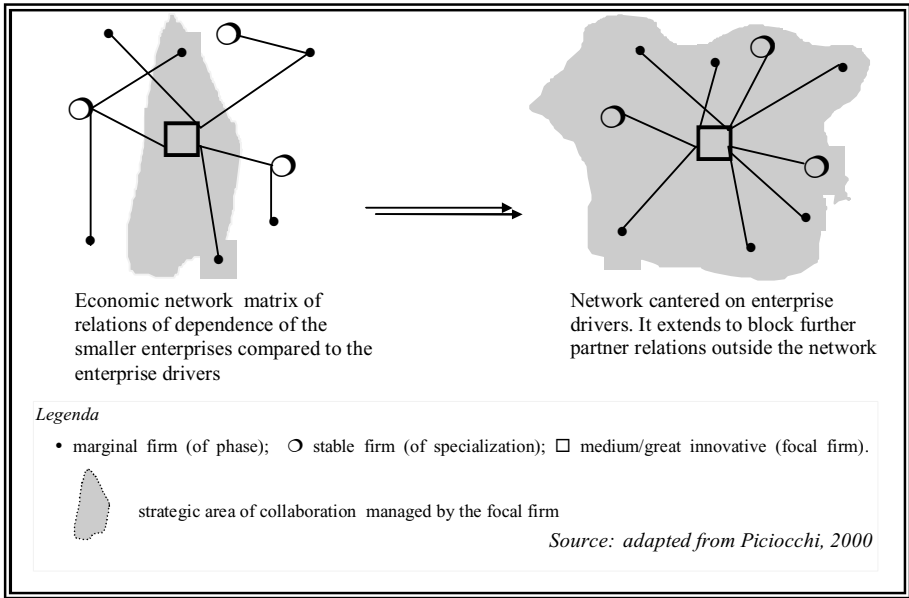


Fig. 2. The evolution of district relations through network

In Fig. 2 the process of formalizing local relationships by the focal firm (driver) in the district (medium/large and innovative companies) is illustrated. Around the focal firm an area of collaboration is identified in the expanded productive system, the direction and management of which depend on decisions made by the focal firm.

External growth is based structurally on smaller firms as concerns the development phase and work processes (marginal firms) as well as specializations (stable firms). The focal firm [25] having surpassed the phase of internal growth, reduces outsourcing; relations with stakeholders in the district then need to be stabilized to keep activities under control. The regulation of network relationships proceeds through the acquisition of smaller enterprises in crisis [26] exclusive supply relationships and direct investments that consist also in the purchase of machinery and equipment in use.

Consequently, the district may be described as an environment in which entities – viable systems in the VSA perspective – survive in a network configuration characterized by distinctive synergic specificity, i.e. representing the components of a strong inter-systems link (consonance).

3 Network Dynamics from a Systems Perspective: The Viable Systems Approach (VSA) Conceptual Framework

The concept of system and the qualification of firms as a system is not new and can be traced to Beer’s theory (1972) [27] however, the recent canonization of the Viable Systems Approach (VSA) [4], [5], [6], [7], [8] has contributed to giving valuable

insights into understanding decision-making processes and strategic, operational dynamics – in a word the survival – of business organizations.

In particular, Golinelli stretches the concept and theorizes that firms as viable systems are effectively characterized by:

- structure and system;
- government and operative structure;
- competitiveness and consonance for firm survival.

The concepts of consonance and resonance are clearer if we connect them to the dualism of Structure and System, Government and Operative Structure (the evolution of Beer's theory), the Conceptual Framework, Relation and Interaction.

The *structure-system* dualism clarifies:

- the static and dynamic aspects of organizations (relationships and interactions; level of openness and capability; negotiation structures and processes);
- the concept of complexity which is typical of socio-economic systems (i.e. complexity originates from the differences between the system and the structure on emergence and in relation with the environment).

Particularly, the distinction *structure-system* focuses on the nature of organizations - social and otherwise - undeniably characterized by a logico-physical order (structure) and action addressed to a specific aim (system) [8], [28].

More specifically,

If we can qualify *structure* as:

a series of related components, to which a role is assigned in firm processes from which the system emerges

then the *system* is:

the structure in act i.e., working towards the achievement of a common goal

In other words, for each entity it is always possible to identify components that related to specific organizational schemes devised by the government of the system, are activated for survival of the said system through the attainment of strategic objectives. That is to say, given a structural configuration – specific structure – several systems can derive by virtue of the different objectives that such a structure pursues.

In conceptual terms, therefore, the *structure* represents the inter-related logico-physical components that – because of the links in terms of role and the rules of behavior established by the firm's governing body (government) – are activated synergistically in order to pursue the objectives of firm survival. On the contrary, the *system* represents the structure in momentum, or the viable expression of the complex organization at a given moment and in a particular context of reference. A system, therefore, is defined viable if it is able to survive in a specific context, setting the foundations for structural compatibility – consonance – to the extent that it ensures an

adequate level of connectivity, or the definition of a common system of values addressed to the pursuit of shared evolutionary paths – resonance – [4].

When the system emerges from the structure, *relations* and *interactions* prevail over structural components and consequently the firm as a system begins to evolve in an increasingly complex context.

In order to survive (survival is seen as the final target of any viable system) the firm seeks:

- competitiveness, – the achievement of a cost and/or quality advantage;
- consonance, – consensus building within the firm and with its supra-systems (i.e. systems populating the firm’s environment and sharing project expectations and pressures).

In this regard, the concept of *systems identity* is pertinent.

Viability, in effect, represents the ability of an enterprise to survive in a specific context through processes of adaptation, constantly seeking consonance and resonance with other systems for the constant exchange of resources. Consequently, systems identity in its general meaning, refers not only to the system’s ability to represent itself adequately (by means of planned communication forms) but also that of being perceived by its targets as an entity capable of satisfying stakeholder expectations (by means of spontaneous and/or not strictly planned communication forms). In other words, how information is elaborated by the government and communicated to the operative structure for the implementation of strategic plans is decisive for ensuring systems viability. In this sense, ICT definitely contributes to making network structures more flexible and adaptable to stakeholder needs thanks to more efficacious and streamlined communication and interaction between the entities of the network [29].

In this perspective, smart information logics based on *Information Logistics* alters the nature of competition accelerating the flow of information and that of new products and services. In particular, the potential of information logistics spread across the strategic and operational nodes of a network enables businesses to organize themselves differently, to provide and distribute new goods and services: firms have to face the fact that competitive advantage can appear and disappear overnight, but if shared and distributed, it is likely to be more lasting. Consequently, *Information Logistics* and networks contribute synergistically to enhancing systems; networks are sources of competitive advantage creating value centers both inside and outside the firm.

It goes without saying that the inside value chain (in-sourcing) is no longer an adequate model for representing the mutual dependence and “multi-nodes” created between viable firms/systems leading to outsourcing, risk sharing and efficiency factors. Thus, a suitable model is the shared value creation process, a “spider web” of often independent collaborative skills and expertise. Smart network systems of information guarantee the necessary collaborative variety for researching, creating, processing and distributing value as required by the market. This means that it is not just a simple, generic process of sharing material resources, but rather the identification of processes and algorithms that describe how to act in specific scenarios, making use of information relative to the product itself. In conclusion, the benefits of applying the *Information Logistics* approach favors the creation of

processes and network systems focused on the benefit of the market, increasing productivity, information transparency and the rapid adaptation of processes.

In terms of *systems identity* (isotropy in VSA terms) two other conceptual categories require clarification: government and the operative structure. Government comprises the decision making area, the top decision making process and entity – individual and/or group – in any viable system. The operative structure is the action area; its function, by means of self-organising processes, being to carry out the decisions made by government.

Each viable system respects isotropy in the sense that, beyond the possible structural configurations (forms) and the systemic actions (demonstrations) an area of decision making (government) and an area of action (operative structure) are always recognizable.

VSA is based on a methodological framework in which the vision of the firm as a viable system is firmly grounded in a series of postulates and its dynamics framed within a conceptual matrix that defines the cycle; the latter, starting with the business idea, ends with the firm as a system [4], [5]. This methodological pathway – midway between the traditional analytical approach (focus on the parts) and the holistic approach (focus on the whole) based on relations and interactions – refers to “postulates” that can be summed up as follows:

Postulate 1: A system is viable if it can survive in a specific environment

A viable system enjoys a certain degree of autonomy but is contextually associated in an environment justifying its presence and its function (ongoing processes of adaptation)

Postulate 2: Viable systems and isotropy

Viable Systems have the same identity characterised by the interacting co-existence of two distinct areas: a decision making area (government) and an action area (operative structure)

Postulate 3: The viable system in the pursuit of purposes and objectives is linked to supra-systems and subsystems from which and to which, expectations, guidelines and rules can be received and allocated

Firm survival depends on the capability and suitability of viable systems (firm systems) to satisfy the expectations of the supra-systems and address the goals and objectives of sub-systems

Postulate 4: A viable system, as an autonomous entity, is merged within the supra-system of reference in a specific time-frame by virtue of processes of resonance which may follow conditions of consonance

Relations between system and supra-system imply structural compatibility in the exchange (consonance). Compatibility produces harmony of purpose within the supra-system (resonance)

In business management, the viability of a system depends on the ability of the government to develop conditions of consonance and resonance with the relevant entities in the context (supra-systems).

Not all the entities are fully accomplished viable systems however; the degree of fulfillment depends exclusively on the presence within the structure of government – management or ownership system – which drives the system in its survival process. In this sense, the VSA conceptual framework suggests three hypotheses of “systems” entities:

– In Embryo Systems (markets);

- Evolving Systems (networks, districts);
- Viable Systems.

In embryo systems are organizations in which clear traces of an individual or Board to govern the system is lacking. Inter-component relationships are activated on the basis of market transactional logics. In evolving systems, assimilated within the network configurations – centralized or otherwise – there is no effective configuration of government. However, decision making centers reporting both for a single entity (focal firm) and centers (clusters of enterprises or defined groups of enterprises) are evident. Here, the ability “to trace the evolutionary paths” of the whole system clearly emerges: government consolidates, often informally, its own decisional role within the network [30].

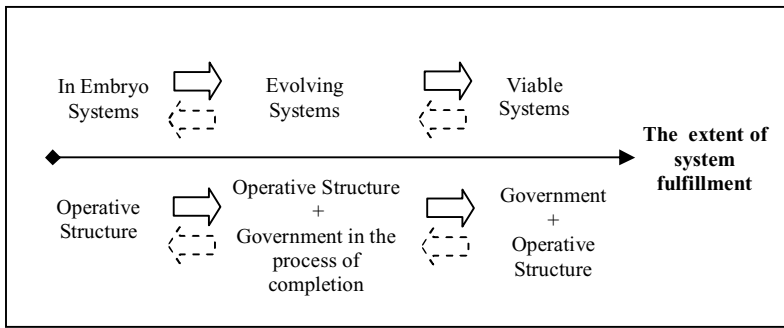


Fig. 3. The continuum evolving systems to viable systems. Source: Piciocchi et Bassano, 2009 adapted from Liguori et Iannuzzi, 2008

Viable systems refer to the full correspondence of system isotropy (systems identity) where the clear and explicit activity of government relative to a specific structure is evident.

Given the nature of the industrial district networks and considering their generative and evolutionary path, in a VSA perspective, a network is interpreted as the configuration of evolving systems. In fact, systems identity is achieved through government to which implicitly or expressly, the role of guidance and “entrepreneurial example” is acknowledged by all organizations present in the relevant territory. Normally, such coordination is achieved through an informal bottom-up process or responding as a preliminary step, to the related market and eventually, to relationships (networks) if the relationships persist over time and finally, in theory, evolving toward a viable system whereby structural relationships and systems interactions are acknowledged as stable and recurrent [31].

The coordination of the relationships within a local network or the opportunity of transforming a district-system into a viable system imply the ability of government to guarantee the consolidating of internal and external links with the territorial structure on the basis of specific criteria [32], [30]:

- coordination of internal, external, strategic and operational activities of the enterprise and common purpose of the local system;

- motivation of firm members creatively and decisively participating in the joint management of activities and knowledge sharing in the local network;
- the temporary nature or the flexibility of the network configuration, by virtue of the variability of structure and system, subject both to continuous redefinitions on the basis of experience accumulated and of reciprocal and environmental input;
- the productivity of the enterprise and general system in terms of specific contributions of each component to general aims;
- the reliability on the abilities and on the strategic and operational contributions of each component for the general purposes of the network system.

In this respect, Fig. 4 illustrates the scheme of the evolutionary cycle of districts (CED), from genesis to growth, consolidation and/or mortality of the district system [33].

The model of the Viable Cycle of District Systems constitutes therefore, a descriptive hypothesis of the evolutionary phases of inter-personal relationships between economic entities – or otherwise – in the district, as well as a means of analysis for the planning and the modification of relationships, to achieve viable district systems, generating value for the components (nodes) and for the general system as a whole.

Relational dynamics develop on the basis of the recognition of a need for collaboration and the identification of suitable partners with whom to pursue such aims, primarily social and subsequently, economic. The conceptual framework of the VSA provides an opportunity of studying relationships in terms of the dynamics of entrepreneurial action, gradually shifting from the generative phase (expectations, communications, actions and reactions, appointments, problematic situations and conflicts, spontaneous and/or planned activities) to that of the relational system itself.

The dynamic pathway described in the Viable Cycle of the District Systems model, in terms of implicitly or explicitly interactive local components, implies simple market transactions and the creation of inter-personal networks (in embryo systems or system areas), economic and informal social networks (evolving systems or districts) that only in the case of joint and acknowledged government can evolve into formal networks (viable systems). Particularly in the in embryo phase, potential partners in the face of uncertainty (of the relationship) spontaneously and naturally, favor collaboration (still latent) or join ranks with one or more partners functional to their activity. Sustaining this informative exchange is the search for mutual value from the formalization of the relationship in terms of experiences, competence and additional knowledge created by interaction [32].

Experience in the initial phase and elements of strategic and operational agreement help to reduce the uncertainty of collaboration, the extent to which the local components are involved and their relational value; not to mention further policies of mutual satisfaction. Stable relationships underline the potential value of networks by virtue of linear action and communication within the district. During the phases of introduction and growth/development, organizations in interactive terms, are characterized prevalently by informality, elevated instability and the uncertainty of future results (in embryo system vs. evolving system).

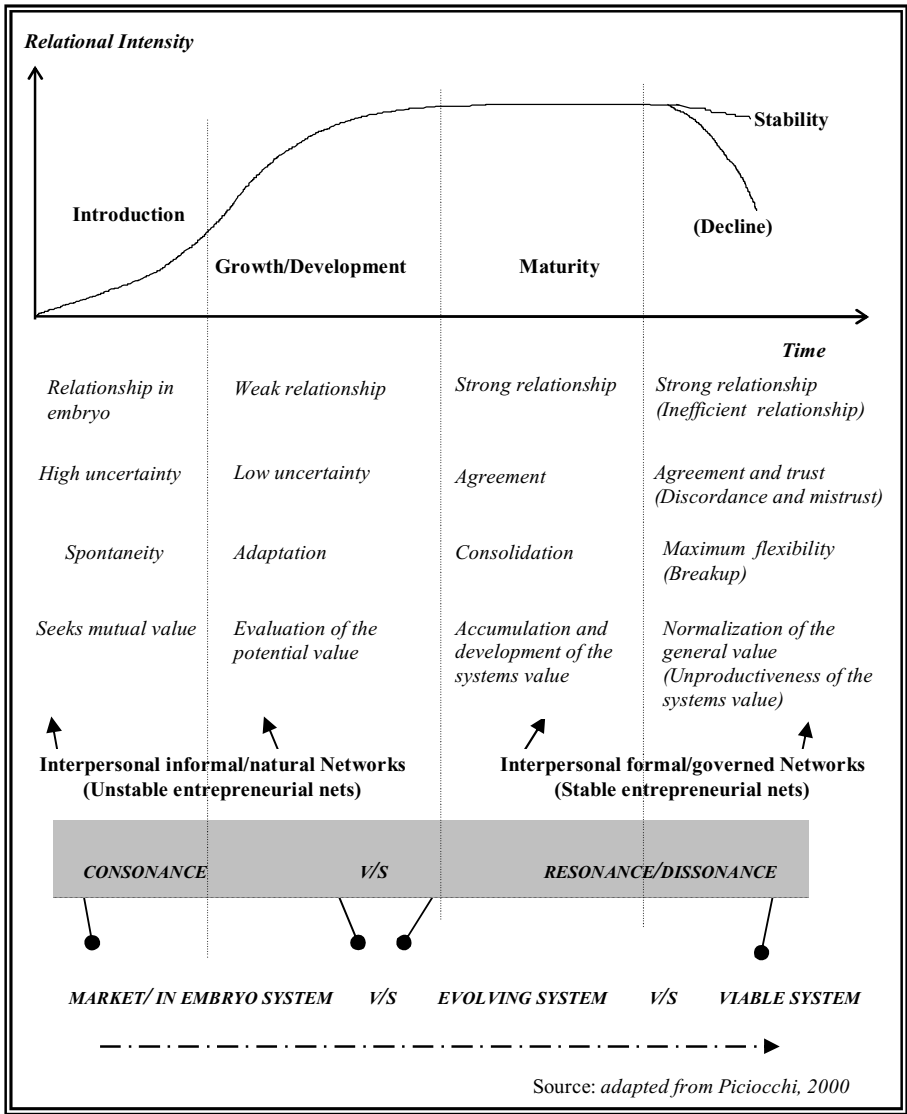


Fig. 4. The Viable Life Cycle of District Systems

When evolving relationships become firmly rooted (phase of maturity) interaction is consolidated in formal bonds. The intensity of the relationship increases the value of exchange enabling further growth, better collaborative schemes and general potential of the territorial system. Therefore, organizational and operational strategies positively influence the relational intensity of the network providing a stable configuration for optimizing node activity and global performance.

As illustrated in Fig. 4, transition to the stability phase brings the network to its final stage of growth. Stability, agreement (resonance) in relationships lead to fiduciary exchange, where the stable value of the relationships or the consolidation of the local system are pursued. Shared experience, expectations, flexibility and adaptations reach elevated levels of consonance and resonance and this decrees in full the formalization of the network system (evolving system v/s viable system), on the basis of a complex relationship that targets economic-financial, social and psychological benefits. The strong interdependence typical of the phases of maturity and stability places the entrepreneurial actors within a formal network, in which activities are governed through stable and encoded functional regulations.

The Viable Cycle of District Systems model represents two types of networks-districts:

- *natural or informal districts*, in the Introduction and Growth phase;
- *formal or governed districts*, in the Maturity and Stability phase.

4 Conclusions

Network-district competitiveness has to be analyzed from both a micro and macro perspective where:

- micro refers to each firm;
- macro refers to the entire district system.

However, both are penalized by opportunistic relational processes existing between the many stakeholders of the network-district and this does not facilitate external competitiveness [34].

In this context, ICT by virtue of its underlying capacity for creating networks, guarantees a platform from which to launch a permanent learning process able to convey the image, reputation and identity of the entire local system to the global market [35], [36].

As is well known, small district firms – in particular on the Italian scenario – have to date, invested in innovation merely for promoting production [37]. The resultant gap can only be narrowed by informed awareness of the new ways of communicating – cultural management change – and the will to experiment collaborative strategies of communicational integration within the network-district system [38].

In our paper, the appeal of the conceptual category “network” and the VSA conceptual framework clarify the systems dynamics of districts, their structural characteristics and the roles and synergies of each organized component. In our approach the analysis of relationships within enterprises united by strong productive specialization and systems vocation is clearly delineated.

The attraction of approaches such as VSA and Networking is justified in terms of interpreting “productive districts”, not as closed circuit systems, but as networks of structural relationships capable of producing consonance and resonance within and outside the district’s geographical boundaries. In fact, in a network and systems perspective, enterprises are not limited by interaction imposed by a system of values but rather are able to weave a web of adequate relationships to guarantee both the exchange of critical resources for business survival and at the same time, to consolidate the territorial vocation of the local system.

Furthermore, the concept of district, understood as cluster of enterprises capable of profiting from external economies and from spatial and sector proximity, tends to disappear with the emerging of an entity of government (focal firm) as a viable centre of the district and the evolving of local systems toward a viable system. Complex systems – such as districts – are defined as systems in evolution towards a viable system if collaboration in and the coordination of the various sub-systems (components of the network) are governed through a spontaneous bottom-up type process or systems entity (for instance the entrepreneurial association of the district) that not only mediates between structural components but above all, plans and implements survival in compliance with VSA postulates and precepts. In other words, the concept of evolving district, envisages synergic integration – of consonance and resonance initially spontaneous and then gradually planned – by virtue of productive specialization and the territorial integration of mainly small size enterprises. Such districts, envisage levels of coordination and collaboration, flexible adaptation and/or transformations driven by aggregation that the government of disseminating information (scientific, technical-productive, commercial etc) circuits makes possible to increase competitiveness, both on a local sub-system (firm) and global level of system (district). The building and maintaining of conditions of structural consonance (relationships) and of systems resonance (interactions and flows) require in fact, non-negligible costs of coordination and control; consequently, the role of each local component is enhanced within the survival logics of the general system.

A further consideration is the nature of the exchanges between the network components; when districts are created and evolve, it is possible to distinguish two categories of relationships: direct and indirect. The direct relationship concerns the intensity – the number of links in the system – developed between the territorial components or the entrepreneurial organizations that adhere to the project of collaboration; i.e. the intensity of the relationship and the effective value of the synergies of the network. The indirect relationship, instead, refers to extensive network interaction, determined by the fact that each component, albeit participating autonomously and freely in the life of the system, implicitly brings a patrimony of previous relations with external organizations; these indirect exchanges affect network operations and increase the intensity of the relationship and its value. Both the direct-formal relationship and the indirect-informal relationship characterize the intensity and therefore, the nature of interactions in the district system.

In sum, the above considerations, albeit partial, confirm that when the characteristics of a district such as the environment-market tend to change (to expand its economy) by pursuing a driver entity (Focal Firm) policy, the district evolves from a system in embryo to a viable system whereby ownership (isotropy or systems identity) decision making (government) and action (operative structure) are able to ensure systems survival.

In ICT terms, the *systems identity* of the district is ensured by intranet networks while the community of district relations, impose the use of interactive marketing tools [38]. Consequently, a *change of perspective* in web communication activities is also needed. This requires the capacity of enterprise to create opportunities for dialogue with the stakeholders on the network by exploiting ICT strategies and tools. In this context, at the present time, the necessary tools for such interaction and dialogue are rarely present in networks-districts and in the event they are available they are not adequately developed.

In conclusion, the practical implications of this scenario demand ongoing and developing intra-inter district learning processes through information and communication technology, to promote competitiveness and growth not only of networks-districts, but also of the individual enterprises that make them up.

Consequently, despite its limits, our paper suggests interesting implications for future research relative to the debate on the use of information and communication technology in the context of marketing and communication strategies in network-districts.

References

1. UNIDO: Development of clusters and networks of SMEs. The UNIDO programme (2001), <http://www.unido.org/doc/331111.htmls>
2. Granovetter, M.: Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology* 91, 481–510 (1985)
3. Arora, A., Fosfuri, A., Gambardella, A.: *Markets for Technology: The Economics of Innovation and Corporate Strategy*. MIT Press, Boston (2001)
4. Golinelli, G.M.: *L approccio sistemico al governo dell'impresa*, Cedam, Padova (2000)
5. Golinelli, G.M.: *Viable Systems Approach (VSA). Governing Business Dynamic*, Cedam, Kluwer (2010)
6. Golinelli, G.M., Spohrer, J., Barile, S., Bassano, C.: The evolving dynamics of service co-creation in a viable systems perspective. In: *The 13th Toulon-Verona Conference Proceedings of the International Conference in Coimbra, Portugal, September 2-4 (2010)*
7. Golinelli, G.M.: *L Approccio Sistemico Vitale (ASV) al governo dell'impresa. Verso la scientificazione dell'azione di governo*, Cedam, Padova (2011)
8. Barile, S.: *Contributi sul pensiero sistemico in economia d'impresa*, Centro Studi di Tecniche Aziendali – ARNIA, n. 18, WM Stampa Editoriale s.r.l., Atripalda, AV (2000)
9. Becattini, G.: *Il distretto marshalliano come concetto socio-economico*. *Studi e Informazione Quaderni* (34) (1991)
10. Becattini, G.: *Modelli locali di sviluppo*, Il Mulino, Bologna (1989)
11. Varaldo, R., Ferrucci, L. (eds.): *Il distretto industriale tra logiche di impresa e logiche di sistema*, Franco Angeli, Milano (1997)
12. Becattini, G.: (a cura di) *Mercato e forze locali: il distretto industriale*, Il Mulino (1987)
13. Marshall, A.: *Principles of Economy*, Utet (1972)
14. Schon, D.A.: *Champion for Radical New Invention*. *Harvard Business Review* (2) (1963)
15. Maidique, M.A.: *Entrepreneurs, champions and technological innovation*. In: *Hax A.C, To the Guide of the Future*, Ipoa (1989)
16. Hauschildt, J., Chakrabarti, A.K.: *Arbeitsteilung im Innovationmanagement*. In: *Zeitschrift für Organisation* (June 1988)
17. You, J., Wilkinson, F.: *Competition and Cooperation: Towards Understanding Industrial Districts*. *Review of Political Economy* 6, 259–278 (1994)
18. March, J.G., Simon, H.A.: *Organizations*. Wiley, New York (1958)
19. Staber, U.: *The Structure of Networks in Industrial Districts*. *International Journal of Urban and Regional Research* 25, 537–552 (2001a)
20. Collins, R.: *Teorie sociologiche*, Il Mulino, Bologna (1988)
21. Camagni, R.: *Piano strategico, capitale relazionale e community governance*. In: *Pugliese, T., Spaziante A (a cura di) Pianificazione strategica per le città: riflessioni e pratiche*, Franco Angeli, Milano (2003)

22. Becattini, G.: La campagna di ricerche sui distretti industriali. In: Bellandi, Russo (a cura di), *Distretti industriali e cambiamento economico locale*, Torino, Rosenberg & Sellier (1994)
23. Lorenzoni, G., Boari C., Grandi A.: Le organizzazioni a rete: tre concetti di base. In: Lorenzoni, G. (eds.), *Accordi, reti e vantaggio competitivo. Le innovazioni nell'economia di impresa e negli assetti organizzativi*, Etas Libri, Milano (1992)
24. Piciocchi, P.: Sistemi di reti imprenditoriali tra le PMI meridionali: relazioni tra imprese nel distretto e nella filiera dell'Agro Nocerino Sarnese, Monografia n. 15 della Collana di Studi Aziendali e di Marketing diretta dal prof. Roberto Aguiari – Centro Studi di Tecniche Aziendali ARNIA, WM Stampa Editoriale s.r.l., Atripalda, AV (2000)
25. Bassano, C.: Dalla Crisi dell'impresa-guida alla crisi della rete di impresa: verso un modello di analisi, with Gianluca Vagnani. *Esperienze d'Impresa*, Boccia Editori, Salerno (2) (2003)
26. Piciocchi, P.: Crisi d'impresa e monitoraggio di vitalità. L'approccio sistemico vitale per l'analisi dei processi di crisi. Collana del Dipartimento di Studi e Ricerche Aziendali – Università degli Studi di Salerno, Giappichelli (17) (2003)
27. Beer, S.: *Brain of the firm. The managerial cybernetics of organization*. The Penguin Press, London (1972)
28. Siano, A., Vollero, A., Siglioccolo, M.: The Governance-Structure-System Model: a Framework for Corporate Communication Management. Empirical Evidences from some Case Studies. In: *Corporate and Marketing Communications Conference*, London, Middlesex University Business School, April 16-17, pp. 16–17 (2007)
29. Asheim, B., Cooke, P.: Local learning and interactive innovation networks in a global economy. In: Malecki, J., Oinas, P. (eds.) *Making Connections: Technological Learning and Regional Economic Change*. Ashgate, Aldershot (1999)
30. Piciocchi, P., Bassano, C.: Governance and viability of franchising networks from a Viable Systems Approach (VSA). In: Giannini (ed.) *The 2009 Naples Forum on Service. Service Dominant Logic, Service Science and Network Theory*, Proceedings of the International Conference in Capri, Napoli, June 16-19 (2009) ISBN13: 978-88-7431-452-2
31. Amin, A., Cohendet, P.: Organisational learning and governance through embedded practices. Paper Presented at Workshop Information Processes and Path-dependent Evolution: Local Systems Response to Changes in Context, Padua University, November 27 (1999)
32. Becattini, G., Rullani, E.: Local systems and global connections: the role of knowledge. In: Cossentino, F., Pyke, F., Sengenberger, W. (eds.) *Local and Regional Response to Global Pressure. The Case of Italy and its Industrial Districts*, International Institute for Labour Studies, Geneva (1996)
33. Bassano, C.: *I distretti orafi italiani*, ESI, Napoli (2008)
34. Calvelli, A., Cannavale, C., Canestrino, R.: The replication of the Italian Industrial district model: cross-cultural issues. *Journal of Cross-Cultural Competence and Management* (4), 39–74 (2005)
35. Piciocchi, P., Basile, G., Vollero, A., Bassano, C.: Communication through internet-based Technologies (IBT) for promoting competitiveness in Italian jewelry districts. In: *Proceeding Act 14th International Conference on Corporate and Marketing Communications hosted by: Faculty of Marketing Department, Business School, University of Nicosia, Cyprus, April 23-24 (2009) ISBN: 978-9963-634-59-0*
36. Wenger, E.: *Communities of Practices: Learning, Meaning, Identity*. Cambridge University Press, Cambridge (1998)

37. Piciocchi, P., Saviano, M., Bassano, C.: Il controllo di gestione nelle reti di franchising. In: Antonelli, V., D'Alessio, R. (eds.) *Casi di Controllo di Gestione*, Ipsoa (2004)
38. Piciocchi, P., Saviano, M., Bassano, C.: Network Creativity to Reduce Strategic Ambiguity in Turbulent Environments: a Viable Systems Approach (VSA). In: *The 11th International Conference on Global Business & Economic Development, Proceedings of the International Conference at the University of Bratislava, Slovak Republic, May 27-30, vol. 3 (2009)* ISBN – 13: 978-0-9797659-8-8; ISBN-10:0-9797659-8-6
39. Lorenzoni, G.: Imprese, relazioni fra imprese, distretti industriali nello sviluppo delle PMI. In: Varaldo, R., Ferrucci, L. (eds.) *Il distretto industriale tra logiche di impresa e logiche di sistema*, Franco Angeli, Milano (1997)
40. Liguori, M., Iannuzzi, E.: Un modello di analisi per la definizione del grado di compimento dei sistemi vitali. In: Barile, S. (ed.) *L'impresa Come Sistema*, Giappichelli, Torino (2008)
41. Emery, F.E. (ed.): *La teoria dei sistemi. Presupposti, caratteristiche e sviluppi del pensiero sistemico*. F. Angeli, Milano (1974)
42. Piciocchi, P., Bassano, C., Paduano, E., Papasolomou, I.: The Virtuous circle of Syntropy (VCS). An interpretative chaos vs cosmos model for managing complexity. In: *The 2nd Annual Euromed Conference, Proceedings of the International Conference at the University of Salerno, Fisciano, Italy, October 26-28 (2009)*, doi:10.3292
43. Rullani, E.: The Industrial District (ID) as a cognitive system. In: Belussi, F., Gottardi, G., Rullani, E. (eds.) *The Technological Evolution of Industrial Districts*, Kluwer, Boston (2003)
44. Spohrer, J., Golinelli, G.M., Piciocchi, P., Bassano, C.: An integrated SS-VSA analysis of changing jobs. *Service Science* 2(1/2), 1–20 (2010), ISSN 978-1-4276-2090-3
45. Coase, R.: The Nature of the Firm. *Economica* 4, 386–405 (1937)
46. Cohen, W., Levinthal, D.: Innovation and learning: the two faces of R&D. *Economic Journal* 99 (1989)
47. Enright, M.: Regional Clusters and Firm Strategy. In: Chandler, A., Hagstrom, P., Solvell, O. (eds.) *The Dynamic Firm: The Role of Technology, Strategy, and Regions*. Oxford University Press, Oxford (1998)
48. Hannah, M., Freeman, J.: *Organizational Ecology*. Harvard University Press, Cambridge (1989)
49. Harvard Business School: Cluster Mapping Project, Institute for Strategy and Competitiveness. Harvard Business School, Cambridge (2002)
50. Piore, M., Sabel, C.: *The Second Industrial Divide: Possibilities for Prosperity*. Basic Books, New York (1984)
51. Porter, M.: Clusters and the New Economics of Competition. *Harvard Business Review* 76, 77–90 (1998)