1. Introduction

The viability of the network is given by its coherence, on the one hand, and the ability to generate innovations, on the other hand. Both features depend, on their turn, on the network’s dimension, respectively on the number of nodes (member organizations) involved. Just that the coherence level of the network decreases as its size increases, while the innovation capacity increases with the extension of the network (Kelly, 1998). How can these divergent trends be explained? To this end, we need measurement indicators for the coherence and innovation potential of the value network.

The network’s coherence can be expressed using a special indicator – “the propagation degree of the service level” (PdSL). The service level (SL) captures the degree of fulfillment of customer’s specifications by the supplier, calculated as the ratio between the “quantity of goods / services delivered in perfect form” and “total quantity of goods / services required”. What happens when a network of interconnected organizations, each characterized by its own SL tries to execute the order of a final common customer? A stochastic phenomenon appears – “the propagation of the service level” that reflects the uncertainty generated by a complex system (multiple interconnected nodes, but with relatively autonomous individual behaviors) within each there is a SL for each node, revealing the specific probability of that node to meet the customer’s specifications (Nordhaus, 2001).
probability generated by the degree of conformation to the customer’s specifications by the entire network – Pd_{SL} – is the consequence of multiplying the individual probabilities of all nodes.

For example, if the network consists of 8 nodes that affect the final result, each presenting, on average, a 95% SL, the Pd_{SL} will be equal to about 66%. This means that, for various issues – quality, costs, delivery time, quantity, there will be an average of customer’s dissatisfaction of 34%. If the number of nodes increases to 12, we will have a Pd_{SL} of 54% and, therefore, a dissatisfaction level of 46%. Based on this example, we observe how, with the expansion of the scale of the cooperative system (through the accession of new members), its functional coherence decreases.

2. Factors which influence the viability of a business network

In another order of ideas, the increase of the network’s size has as an associated phenomenon the increase of the typological diversity of nodes. It is well known that diversity is one of the most important sources of innovation (Johnson, 2010). The meaning of the articulation of some networks lies precisely in joining some complementary skills to provide customers a more important value. From this perspective, skills can be divided into two categories (Berkun, 2007):

1) **Generating skills** that allow also the development of new businesses. These skills provide significant differentiation, are relevant to customers and essential to the value creation, with a critical character for the economic value creation processes.

2) **Facilitation skills**, which support only the development of new businesses. These are necessary, but not critical and, for this reason, are the ideal candidates for outsourcing.

The network’s expansion by attracting new members means the increase of the diversity of the skills controlled by the network. But not all actual or potential skills can manifest as efficient sources of innovation (Benkler, 2006). In this respect, we introduce a measurement indicator of the value network’s inclination to innovation, which we call „innovative diversity index“ (I_{DI}), calculated as the ratio between the number of the generative skills and the number of facilitation skills captured by the network.

The model presented in Figure 1 highlights a „maximum point of viability“ of the network, point in which Pd_{SL} and I_{DI} are equal.

![Figure 1. Network’s viability at the confluence between coherence and diversity](image)

How can this „maximum point of viability“ be surpassed to propel the network to the superior levels of flexibility, dynamism and efficiency? The solution consists in opening the network. Although it seems paradoxical, but the opening of the network’s borders and the connection of some new nodes or even of some sub-networks or
entire networks is the path to follow in order to stimulate viability. This solution can operate on one condition: selecting and accepting the new members on the basis of a high \( P_{d_{SL}} \), higher than the average \( P_{d_{SL}} \) level observed within the network. The arrows on the top left in the I\(_{D1} \) curve and bottom right in the P\(_{d_{SL}} \) curve indicate this necessary dynamics.

3. The strategic value of the business network: foundations of a method

In the following, we propose the fundamentals of a quantitative model for determining the value of the network and the value of the organizations associated to the network. The model’s elements are:

1) The viability coefficient of the value network (\( V \)), calculated as follows:

\[
V = \frac{I_{D1} + P_{d_{SL}}}{2}
\]

It results that the network’s viability is higher as the functional coherence that characterizes it is better and the more extensive the innovative diversity is.

2) The multiplier of the strategic value of the entire network (\( M_{SV} \)), determined based on the relation:

\[
M_{SV} = N^{V}
\]

Where \( N \) is the number of nodes (members) of the network. The power of this multiplier is greater as the network’s size is bigger, and its viability more pronounced.

3) The strategic value of the network (\( SV_n \)) may be determined with the expression:

\[
SV_n = M_{SV} \times R,
\]

Where \( R \) is the economic value generated by the network, expressed through some performance indicators such as the turnover, EBIT or cash flow.

Thus, the strategic value of the network is more consistent as:
- The viability of the \( V \) network is higher.
- The network itself is larger (a bigger \( N \)).
- The economic value created by the network is more important (a greater \( R \)).

4) The multiplier of the strategic value of network’s members (\( M_{SVn} \)) results from the following formula:

\[
M_{SVn} = (N - 1)^{V}
\]

5) The strategic value of the organization \( n \) within the network (\( SVO_n \)) is:

\[
SVO_n = M_{SVn} \times R_n,
\]

Where \( R_n \) is the economic value produced by the organization \( n \) as a result of its participation within the network. The strategic value of the organization \( n \) within the network is even more significant as the place of the organization \( n \) is more central. We prefer that the centrality of the place of a member of the network be established not in the specific manner of the complex social networks’ theory, but by the economic value created by the organization’s involvement in the network.

6) The global value of the organization \( n \) depending on the totality of networks \( i=1,\ldots, k \) to which is associated (\( VS_{ng} \)) can be deduced from the formula:

\[
VS_{ng} = \sum_{i=1}^{k} VS_n
\]
The global value of the organisation is more important as more numerous the networks to which is connected are.

As meta-objective of the strategy, results that the organisation must aim to occupy the most central position in as many value networks. The strategy consists, actually, in becoming simultaneously nodal organisation in as many networks possible. This is possible in only one-way: the organisation must take the active role of „architect“ and network orchestrator. Since any value network is woven around customers’ expectations, to be as close to these expectations, in the meaning of knowing them and formulating an attractive value offer represents the key factor or the force that allows the nodal organisation to make the rules of the game and not to participate in an adaptive way to a game created and managed by others.

The most valuable skill of the organisation refers to the talent to create completely new games. These games provide monopolistic positions, even just temporarily. The more or less durable monopolies constitute the source of the biggest earnings. Creating monopolies is the fair reason for launching original games. The networks woven around some new games – new markets created as a result of the crossing between the unsatisfied expectations of customers and an original and attractive value proposition – are best able to produce monopolies, having therefore the highest strategic value (Anderson, 2006). As in the knowledge economy the strategic resource is focused on the intellectual capital of the organisation, the strongest monopolies are those built on an almost exclusive knowledge, respectively on an intellectual capital difficult to imitate.

Ultimately, any solution, no matter how original at the beginning, is eventually imitated or surpassed by other, more efficient, the monopole disappears and the value of the network decreases. To continuously generate original solutions and to reshape accordingly the configuration of the value network expresses the essence of the evolitional advantage of the organization. The networks focused on original value propositions (offers) have the highest value, temporarily without competition, openers of new markets (Christensen and Raynor, 2003). Being a nodal organization in such a network means to be the leader in new markets. Therefore, to create new markets, based on original and highly attractive value propositions represents the objective of the „new“ strategy. The main means of this strategy is the value network, very coherent from functional point of view and with huge innovation potential, able to generate and perpetuate consistent evolutionary advantages.

The strategic value of the network reflects the extent to which the focal organization manages to master this logic of action. Figure 2 presents the entire reflexive and action chain that convert the customers’ expectations in the value provided and, furthermore, in the value of the network that serves the clients.

4. Conclusions

Maximizing the strategic value of the networks in which is involved may be a reliable indicator of the success of the strategy pursued by the organization. If the network represents the vehicle that transforms the value offer into evolutionary advantage and then in a new market in which the organization that orchestrates the network is the leader, then the careful management of the relevant characteristics of the network is essential. The operational coherence of the network’s members, the appropriate dimension and the sufficient innovative diversity outline an action cooperative system through which customers’ expectations are met. Through the appropriate control of these factors, the focal organization will materialize the value proposition.

May the „limit“ or „optimal“ dimension of the value network be calculated? The answer is no, but a „good“ size of the network corresponds to those number of members who can guarantee an excellent global service. If the association of an additional member does no longer add value, then his co-optation is useless. The expansion of the value network must not prejudice the operational coherence, but instead, strengthen it and also increase the innovative diversity. This means that each new member must either have a service level SL superior to the average value observed in the older members of the network, either to provide new generating skills, either contribute with both. If the dimension expresses the „gross energy“ of the network, the operational coherence and the innovative diversity, as sources of excellent performance and creativity, represent the „filters“ that refine the energy,
synthesizing the evolutionary advantage. Thus, the evolutionary advantage is „refined energy“ which fuels the „engines“ of the new markets.

Viewed from this angle, the value network appears as a portfolio of specialized operators, but functionally compatible to a high degree. At the same time, the network appears also as a portfolio of complementary skills provided by these operators.

References