

**Measuring Intangibles and the New Theory of the Firm:  
Some Emerging Issues**

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## **1. Introduction**

There is a close connection between the problem of describing and conceptualising the new ways through which firms compete, are organized and managed, and the problem of identifying methods for measuring and reporting intangible assets. These two debates and streams of research should create more opportunities to communicate. On one side, the discourse about new organizational and managerial forms could lead to a better understanding about what intangibles are and how they should be measured. On the other side, the debate about measuring and reporting intangibles could generate new and useful information tools for organizing and managing firms.

In this paper we offer a few reflections about such a two-way connection. We will focus on what is commonly called the “External Capital” or the “Relational Capital” of the firm, which is usually considered an increasingly relevant component of the Intangible Capital of firms.

More specifically, we will focus on three issues. First, we will speculate about why networked relationships should be considered as intangible assets, and what are the consequences in terms of measuring and reporting them. Second, we will argue that the legitimate need for standardization and homogeneity of intangible resources models, for benchmarking purposes, could be considered somewhat contradictory, under certain conditions, with a need for coherence between models and use contexts. Finally, we will focus on why and how the network’s structure itself, and the firm’s position within a network, can be identified and measured as a relevant intangible asset.

## **2. Network forms and measures of change**

L. Edvinsson (2002) stressed the increasing relevance of time – and in particular, of time advantages – in the markets of the new economy. Indeed, the new competitive challenges to which new organizational forms try to respond are mostly related to the crucial need for quick anticipation and adaptation capacity. This not a new need, *per se*. The capacity to react promptly to changing markets, or even to anticipate and to shape them, has always been one of the most important source of competitive advantage in all economic sectors. In evolutionary terms, the correlation between the

degree of “fitness” between the firms and their environments, and their survival (and success) probability, has been demonstrated and studied for a long time. What is really new is the time frame length of the selection pressures that firms must face. In the last few years, a number of factors have led to a very significant acceleration of several competitive mechanisms. New technological, social and economic dynamics are rapidly forcing firms to deeply rethink their ways to face the challenges of selection (competitive) pressures. Thus, it is hardly surprising neither that the capacity to establish and to use external relationships for strategic purposes is one of the most studied features of nowadays firms, nor that many authors see “networks” as a new organizational form *per se*. Probably the clearest difference between networked organizational forms and traditional hierarchical forms lies in the fact that networks are usually based on weak and/or informal ties, while hierarchical forms are mostly based on strong and/or formal ties. Weak and informal ties give a clear advantage in terms of strategic and operational flexibility; a network-like organization has a competitive edge over hierarchies as long as it takes advantage of its ability to quickly adapt to an unstable environment.

This leads us to the problem of measurement. If we consider the capacity of a firm to establish and develop external relationships as an important intangible asset, especially in very rapidly changing environmental conditions, then why and how should we measure such an asset?

While the answer to the “why” question is quite obvious, it has interesting and not so obvious consequences regarding the possible answers to the “how” question.

We should be interested in identifying and measuring the networking capacity of firms because it can represent a useful proxy for the capacity to anticipate and to adapt promptly to environmental changes. Through external relationships, indeed, firms can access critical and complementary resources. *Accessing* resources, instead of *owning* them, allows firms to quickly and cheaply adapt their repertoire of available assets. Thus, a networked production process (vs. a hierarchised one) allows firms to quickly adapt their outcomes, in qualitative (innovation) and

quantitative (scale) terms, since combinations of cooperative, informal ties are easier to de-connect and re-connect than combinations of hierarchical ties.

If we accept this view about *why* we want to measure the relevance of external relationships and networks, we need to consider some consequences about *what* and *how* we measure. Measuring what is usually called the “External Capital”, or the “Relational Capital” of the firm, is more an issue of measuring a *dynamic capacity*, rather than an issue of measuring just a *static set* of established relationships. Long term, existing relationships show, at best, what are the resources that the firm can access today, but they do not provide much information about the capacity of the firm to access other resources that could become crucial tomorrow. In other words, existing relationships do not show the ability of the firm to *change its relational structure*. And in a dynamic environment, the capacity to quickly and cheaply change the repertoire of available resource is at least as crucial, if not more, as the present repertoire.

Thus, measuring the networking ability of firms should not (only) concentrate on the present (static) situation, but also – and mostly – on the firm’s network *adaptiveness*. Static indicators (like the sheer number and type of relationships) are just part of the picture, and probably not the most important one. It is at least as important to build indicators that take into explicit consideration the history of the firm’s network, and its capacity to change the set of relevant relationships according to the market conditions.

In this sense, it is reasonable to imagine that the value of the External Capital of a certain firm with a vast but rather static (in longitudinal, historical terms) set of relationships with customers, suppliers, institutions etc., could be considered similar or even lower than the External Capital of another firm with a smaller but dynamic set of relationships. This is not, of course, a general rule. We are not naively implying that long-term, stable, formal or quasi-formal relationships are necessarily a liability. We are just saying that in order to measure the External Capital of a firm we need to focus *also* on the dynamics of its external relationships structure. In this sense, a set of indicators measuring the ability of the firm to change its own set of relationships can be seen as a

way to measure its *organizational innovation capacity*. Another crucial implication is that measuring the External Capital of a firm cannot be convincingly done without explicitly considering the kind of external environment in which the firm is competing. In a static market, a set of long term, stable relationships can be a very valuable intangible asset, while in unstable market conditions, instead, it might become a serious intangible liability.

### **3. Modelling the change vs. changing the model**

So far, we argued that there is a strong need for models that explicitly identify and measure the capacity to change and adapt as a crucial intangible asset, since such capacity can be considered the very fundamental organizational rationale of networked forms.

We also argued that the relevance of such an intangible asset depends on the environmental (market) conditions in which the firm compete. While this assertion can be viewed as something close to a tautology, the relation between market conditions and the choice of models for reporting and measuring intangibles is actually an interesting one, and suggests further reflections.

First, we need to consider the present debate about models for reporting and measuring intangibles. While there is a growing diffusion and acceptance of general (and somewhat generic) guidelines and conceptual structures for models, we are still far from finding a set of widely shared operational guidelines, indicators, variables, methods, specific concepts and constructs. A wide array of different models is available, and each model has strengths and weaknesses. We are far from finding a number of standardized models that convincingly meet the needs of different firms in dissimilar contexts. One could even reasonably argue that such a quest for the “perfect, standard model(s)” is neither a possible nor a desirable goal. The problem, of course, is twofold: on the one side, the “slippery” nature of intangible assets makes them hard to grasp in conceptual terms, and even harder to grasp in operational terms; on the other side, the deeply idiosyncratic relation between intangible assets, organizational conditions and market conditions raises further problems.

In other words, an intangible resource can be actually considered as an “asset” *only* under some well specified market (environmental) conditions *and* within a certain organizational setting.

If this is true, a first, obvious consequence is the already cited difficulty (or, maybe, the impossibility) to standardize reporting models to any meaningful level.

A less obvious consequence concerns the firms’ legitimate need for consistency between model and context over time. In other words: should a firm keep using, year after year, the same model in order to compare the (increasing or decreasing) value of its intangible assets over time? The idiosyncratic nature of intangible assets makes the answer to this question less than obvious.

If a firm changes over time the model used to measure its intangibles, it will not be able to assess the historical trend. Also, if firm-specific models are used, it will not be possible to compare the value of intangible assets of different firms. Thus, time consistency and spatial homogeneity of models are very reasonable and legitimate needs. However, those idiosyncrasies that we mentioned earlier (between the value of intangibles, market conditions and organizational settings) are not only relevant in spatially different contexts (between different firms), but also in temporally different contexts. Thus, the strategic value of the same intangible asset “X” in the year 2002 can be very different, for the same firm, from its strategic value in the year 2006 if, in the meanwhile, the market conditions and/or the organizational setting of the firm have significantly changed. Thus, if the firm uses the same reporting model, the same indicators, the same weights, etc., both in 2002 and 2006, it will obtain values that, while being *technically* homogeneous, will be *substantially* very heterogeneous: they will convey very different information and meanings, making any comparison useless or, even worse, misleading.

In a case study that we recently carried out, an Italian financial company prepared an intangible assets report by weighting all the indicators according to their perceived strategic relevance. For example, they synthesised their Relational Capital as the sum of three indicators (and a number of sub-indicators) measuring: i.) the relations with the stakeholders, ii.) the image of the company, and iii.) the network of relationships with other external actors, where the first indicator

was weighted as about three times more important than the second, and about four times more important than the third. Of course, this can make perfect sense when we consider the present, specific market and the present, specific internal characteristics of that company. The problem is: will this model, these indicators, and these weights still make sense in the future? It is perfectly conceivable that the market, and/or the company, in a few years will change in such ways that, for example, the “image” or other factors will become the most crucial one. When this happens, the most sensible thing to do would seem to change the model accordingly. Would this harm the possibility to gather (and to communicate to the financial market community) *homogeneous* information about the actual trends of the company’s set of intangibles resources? Probably so, in technical terms. But in substantial terms, it is better to have meaningful, although technically un-homogeneous information, rather than having meaningless, although technically homogeneous information.

So, the desire to preserve information homogeneity could push firms to keep using the same models over and over, even when the changing market and organizational conditions would suggest to do otherwise. If market conditions are particularly unstable, or when major strategic and/or organizational changes occur, this could be a serious problem. In this respect we suggest that *changing the model* properly could be as important, or even more important, than *modelling the change capacity* (as illustrated in the previous paragraph). These two elements are not contradictory, since they refer to different levels of analysis, so they should be pursued in parallel.

The first element refers to the need to use reporting models of intangible assets that are consistent to the external and internal conditions of the firm. The deeply idiosyncratic nature of intangibles makes the information value of reporting models strongly dependent upon their coherence to the actual internal and external conditions. This means that when such coherence becomes weak, the need for homogeneity and standardization should be sacrificed and the model should be changed.

The second element, as we argued in the previous paragraph, refers to the need to use models focusing on the adaptation and anticipation capacity of the firm as a critical intangible asset. Most intangible resources (and, in particular, external relationships) can be considered as being “assets” only if they improve the capacity of the firm to adapt quickly and smoothly to changing strategic needs and environments. So, the models for reporting and measuring intangibles should clearly reflect this capacity, through appropriate conceptual structures as well as change measures and indicators.

#### **4. Network structure, position and complementarity**

Much of the discourse about the “new firm” – or the “new theory of the firm” – is concerned with the rapidly increasing relevance of external relationships, often in network-like forms. While in the organizational debate the concept of network is still far from being defined in a clear and widely accepted way, some technical tools are available for describing and measuring relationships (and networks) between actors, or nodes. Social network analysis, for example, provides relatively simple ways to classify and even measure features of networks and positions within networks. We are not implying that concepts that are specific of the social network analysis research could or should be accepted “as they are”, and then a-critically translated into the discourse about intangible assets. However, social network analysis can provide indicators and parameters (network typologies, network structural properties, indicators etc.) that could be fruitfully used in reporting and measuring models of intangible assets, especially if we consider that the “External Capital” of firms is still usually measured in simplistic ways, at best. For example, the simple total number of external relationships activated by a firm does not provide much information neither about its networking ability, nor about the specific features, advantages and disadvantages of its network structure. We will not go into technical details here, but a few examples could be useful to clarify our ideas.

The position of a firm within a network of relationships can provide useful information about the relevance of those relationships for the firm itself. The position within a network can be measured in different ways, all providing different pieces of information. For example, a firm's *degree* measures how many *direct* relationships the firm has with other actors (either as an absolute value, or as a percentage of all the possible relationships between the focal firm and a set of actors). This indicator tells us something about the number of resources can be *rapidly* accessed by the firm through *direct* external connections. Also, it tells us something about the *power* that the firm can directly exercise by influencing other actors. A high degree means that the firm has a high *centrality* within that network, as far as *direct* connections are concerned.

However important, direct connections are not the only ones conveying useful information; also, they are not the only intangible assets that networks of external relationships can provide to the firm. If we believe that the capacity to change is the most important rationale behind external relationships, then *indirect* connections can become even more important. Thus, according to social network analysis, the position of a firm within a network can be measured in terms of *closeness*, that is, in terms of how the firm is *close* to the other actors of the networks. It is possible to measure this by measuring the *length* of the geodesic paths through which each actor can reach the others. This is a completely different concept of centrality: a firm can have a small number of direct connections but, at the same time, it can be able to reach, through relatively short paths, a large number of potential partners. This can be seen as a measure of the firm's *flexibility* granted by the external relationships structure, since a high value of the closeness indicator means that the firm is able to rapidly reach a high number of potential partners. In this sense, the closeness indicator describes a very important intangible asset (potential flexibility) carried by the external capital of the firm, especially when flexibility has a strategic relevance.

Another simple although useful concept provided from social network analysis is the firm's *betweenness* within a network. This indicator increases (or decreases) according to the extent that the actor falls (or does not fall) on the geodesic paths between pairs of other "nodes" in the network.

In other words, it measures how much a firm's position within a network lies in "between" the paths that connect other actors. This is a slightly but significantly different concept from the previous ones: the firm "X" can have high values of degree and/or of closeness and, at the same time, a low value of betweenness, if all the other actors, while being relatively close (or directly connected) to "X", have a lot of connections with each other, and if the position of "X" in the network is out of those paths. It is easy to see that this indicator describes the strategic relevance of a certain position within a network in terms of the "intermediating" potential of the firm (and, consequently, in terms of the indirect *power* over other actors that can be associated with it), as well as the capacity to gather the information circulating within the network. Again, these intermediating and information gathering capacities can be seen as relevant intangible assets associated with the external capital of a firm.

While these indicators are very basic, descriptive tools taken from social network analysis, nonetheless they can provide very useful information for understanding *why* a certain number of external relationships should be considered an (intangible) asset for a firm, and, consequently, how we can measure and compare the value of such an asset. More specifically, they help us to understand that indirect (or potential) connections can be as important as direct, established ones; also, they help to consider how the network structure itself, and the position of the firm within that structure, can be a valuable intangible asset *per se*.

Finally, complementarity is another relevant keyword for both the new theory of the firm and the measuring of intangibles. An important distinctive feature of network-based organizational forms is the capacity to put together complementary, autonomous actors in an adaptive way. Thanks to their inherent flexibility, networks can search innovative combinations of complementary competencies and activities more quickly and less costly than what hierarchies can do. In evolutionary terms, networks can activate learning processes made of variation, selection and retention loops that are faster and cheaper to carry out. Dynamic, open-ended complementarities between actors and competencies (as opposed to highly inertial, closed-ended complementarities

typical of hierarchical forms) is what gives networks distinctive competitive advantages in unstable environments. In this sense, it is crucial that the set of external relationships allows the firm to access a *variety* of different, complementary resources. In this sense, a huge number of redundant external relationships can be less valuable than a much smaller set of complementary relationships. Thus, the degree of complementarity between a firm and the external actors of the network is most likely a crucial feature of the network structure, and an important intangible asset *per se*. Measuring complementarity in a network requires to measure, or at least to consider, the actual content of the relationships, that is, the innovative (or competitive) potential of the combination between the different capacities and resources involved. Given the strong idiosyncratic nature of every network, this may well appear as a prohibitive task, especially if the goal is to find some “standard” measure for benchmarking purposes. Once again, social network analysis does provide relatively simple measures of the network structure’s differentiation that might effectively help to evaluate the degree of diversity of a firm’s relationships set.

## **6. Conclusion**

The increasing reliance on strategic external relationship is one of the most distinctive features of the innovative organizational forms of nowadays firms. All the models for intangible asset reporting explicitly consider this as a crucial component of the intangible capital of firms. However, measures and indicators that are commonly used do not always clearly reflect the actual strategic and organizational rationales that justify such supposed relevance. Having a large set of external relationships is considered, *per se*, to be a valuable asset. In this paper we argued that research on intangible asset reporting should try to go beyond and consider more sophisticated measures of the external capital relevance.

First, we argued that the actual value of the external capital should be more closely related to the its contribution to the capacity of the firm to quickly and cheaply adapt to changing environmental (market, institutional, social, supply-chain, etc.) conditions. Thus, measures of the

external capital should concentrate on modelling the capacity to change of the firm. In this respect, not all relationships are equally valuable: under certain conditions, some relationships can be more a source of inertia rather than being an actual asset.

Second, given the highly idiosyncratic nature of the value associated with the external capital of firms, we argued that models of intangibles should carefully reflect a strong need of coherence between the model itself and the context (internal and external) in which it is applied. When the context is highly volatile, we think that firms should be ready to adapt their measuring and reporting methods and models. While benchmarking and longitudinal analysis goals push to standardize and to keep the models unchanged over time, we think that such coherence is actually the primary need. The main goal should be to preserve the context-specific meaningfulness of the information generated by the reports.

Third, we argued that the relationships structure itself, as well as the firm's position within that structure, can provide useful information about the value of the external capital of a firm. In this respect, we suggested that tools and ideas coming from the social network research could be fruitfully used in order to better understand the rationale of such value, and to build proper measures and indicators.

## **Bibliography**

Burt R. S., (1976). "Position in networks", *Social Forces*, n° 55.

Dunford R., Steane P., Guthrie J., (2001) "Overviewing intellectual capital, the management of knowledge and organization learning", *Journal of Intellectual Capital*, vol. 2, n° 4.

Dzinkowski R., (2000) "The value of intellectual capital", *The Journal of Business Strategy*, vol. 21, n° 4.

Edvinsson L., Malone M.S., (1997) *Intellectual capital – realizing your company's true value by finding its hidden brainpower*, New York, Harper Business Publisher.

Edvinsson L., (2002) *Corporate Longitude: What You Need to Know to Navigate the Knowledge Economy*, Prentice Hall

Erikson T., Nerdrum L., (2001) "Intellectual Capital: a Human Capital perspective", *Journal of Intellectual Capital*, vol. 2, n° 2.

Freeman L. (1979). "Centrality in social networks: Conceptual clarification", *Social Networks*, n° 1.

Knoke, D. and J. H. Kuklinski., (1981). *Network analysis*, Beverly Hills: Sage

Lev B., (2000) "Intangibles. Management, Measurement and Reporting", The Brookings Institution.

McElroy M.V., (2002) "Social Innovation Capital", *Journal of Intellectual Capital*, vol. 3, n° 1.

Mouristen J., Bukh P.N., Larsen H.T., Johansen M.R.,(2002) "Developing and managing knowledge through intellectual capital statements", *Journal of Intellectual Capital*, vol. 3, n° 1.

Petty R., Guthrie J., (2000) "Intellectual Capital literature review: measurement, reporting and management", *Journal of Intellectual Capital*, vol. 1, n° 2.

Purser R.E., Pasmore W.A., (1992) "Organizing for Learning", *Research in Organizational Change and Development*, n° 6.

St Leon M.V., (2002) "Intellectual Capital. Managerial perceptions of organizational knowledge resources", *Journal of Intellectual Capital*, vol. 3, n° 2.

White H., Boorman S., Breiger R., (1976), "Social structure from multiple networks. Blockmodels of roles and positions", *American Journal of Sociology*, n° 81.

Zambon S. (2001) "Accounting, financial analysis, and audit in the intangible economy", presentation delivered at the kick-off Meeting of the EU Rescue Project on Intangibles, Ferrara, November.