THE INFLUENCE OF CLIENTS, AS A DIMENSION OF THE RELATIONAL CAPITAL, ON THE PRODUCT-PROCESS INNOVATIVENESS

Helena Santos-Rodrigues
hsantos@estg.ipvc.pt

Maria do Rosário Alves de Almeida
maria.rosario20@gmail.com
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Abstract: The complexity of the business world had increased, in managers and researchers, the will to find new competitive factors within the firms that permit to achieve sustainable competitive advantage. In this concern the knowledge-based view of the firm emphasizes knowledge as a resource that reveals advantages to the firms. And the intellectual capital represents the management of those knowledge-based assets that are valuable to the firm. On the other hand, and despite the importance of innovation and innovativeness within today’s economy, we know little about how intellectual capital of the firm can contribute to a superior innovation at the firm level. Investigating this linkage we have made a survey to 68 firms working on the auto components sector, established in the Northern of Spain and Northern of Portugal, and we found firstly, that innovativeness has two main dimensions, perfectly differentiated, the product-process innovation and the management innovation; secondly that the clients (relational capital dimension) influences differently each type of innovativeness capacity. We found that the clients influences directly, only, the product-process innovativeness. Moreover, in our study, clients had no direct influence on the management innovativeness. These results highlight the importance of the dimension client of the relational capital on the innovativeness performance and more broadly, highlight the value of intellectual capital as a competitive advantage in contemporary time.

Keywords: Clients, Relational Capital, Intellectual Capital, Innovativeness, Product, Process.

* Escola Superior de Tecnologia e Gestão do Instituto Politécnico de Viana do Castelo.
** Universidade Aberta e Instituto Lusíada de Investigação e Desenvolvimento.
1. Introduction

Current times are complex and it sustains that managers and researchers should find new "productive" determinants of a sustainable competitive advantage. This concern comes in line with the current knowledge based view of the firm that emphasizes business knowledge as a resource and stresses it role in firm performance, considering that the companies that integrate and better apply knowledge reveal more advantages when compared with the market (Grant, 1996). Managers, on this line, considered the intangible factors (such as those based on knowledge) as an important source of differentiation, so they considered a priority to create, transform and capitalize knowledge, but they do not know how to identified or combine them (Choo and Bontis, 2002, Roos and Roos, 1997, Martin and Moldoveanu, 2003).

Seems evident that organizational knowledge is the most important and strategic production factor (Spender and Grant, 1996), a critical resource (King and Zethaml, 2003), which helps to create and sustain the advantages.

The Intellectual capital management takes into consideration all kinds of intellectual activities of the company – since the creation to the dissemination of the knowledge – but under a strategic focusing on the creation and extraction of value of the knowledge (improving the capabilities of value creation). Intellectual capital management is therefore a process to extract value to the organizational knowledge (Egbu, 2004). There are various strategic and operational barriers to the management of intellectual capital, essentially, the difficult task of identifying and measuring these intangible assets and establish goals and plans for them.

Molina-Palma says that "innovation capacity management is focused specifically on the relevant knowledge management" (2004: 24). There are actually several studies that make this connection (For example: Ahuja, 2000, Subramaniam and Venkatraman, 2001, Subramaniam and Youndt, 2005, Tsai and Ghoshal, 1998), although the type of relationship between the two concepts is not clear.

We know that the radical and incremental innovative capacity differs on the type of knowledge needed (Cardinal, 2001) and that the intellectual capital affects the incremental and radical innovative capacity (Subramaniam and Youndt, 2005).

Spite of this, the connection between the intellectual capital and the innovative capacity is not clear, there is no universal theory explaining how this connection is produced or which are the most decisive aspects that influence on it. Understanding the relations between the factors that generate the innovation process and its economic impact on companies is still poor (OCDE/UE, 1996, Molina-Palma, 2004). Persists the doubt if there are some more valuable intellectual capital components than others.
2. Intellectual Capital

The Intellectual capital literature emphasizes that successful companies are those that have managed better it intellectual capital than the less successful (Brennan and Connel, 2000) and therefore emphasizes the role of intellectual capital as a valuable asset (Nahapiet and Ghoshal, 1998, Bontis, 2004), the most valuable (Stewart, 1998, Nahapiet and Ghoshal, 1998) the basis of competitive advantage of the the firm (Davenport and Prusak, 1998), “knowledge that can be converted to value” (Harrison and Sullivan, 2000: 34) that has a significant and substantive impact on the firm performance (Bontis, 1998).

The identification of the various categories of intellectual capital should follow the logic of management: if two intangible resources require various actions of management, should then belong to different categories (Bontis et al., 1999).

Considering this, the more usual situation is the consideration of three categories as: human capital; structural or organizational capital and capital relational or capital Client (Saint Onge, 1996, I.A.D.E.-C.I.C., 2003, Roos et al., 1997, Edvinsson and Malone, 1997, Stewart, 1998).

These three capitals seek to make explicit the added value of assets based on knowledge, that have been created and that are identified, or exist in the organization, by a set of intangible activities related to the value of knowledge in action of individuals, groups and Organization (I.A.D.E.-C.I.C., 2003).

When we particularize to the relational capital, this is the result of competitive and social intelligence made by the value of relations and actions of the company shared with external or social workers (I.A.D.E.-C.I.C., 2003). It is, for example, individual knowledge of the market, customers and suppliers channels as the knowledge of the impact of government associations or industry (Bontis, 1999). This capital is more individual than organizational, as it is based on relations between persons outside of the company, there are authors who therefore consider that this is an intermediate form of intellectual capital (Nahapiet and Ghoshal, 1998).

The relational capital refers to the knowledge due to external relations of the company; this makes it more difficult to coding and sometimes is forgotten. But for this same reason, is very important that it is identified (Bontis, 1999).

The composition of the relational capital, has no consensus, the Intelectus model (I.A.D.E.-C.I.C., 2003) considers that it represents the value of knowledge of persons and organization that is the result of the interaction with market agents (business capital) and the society in general (social capital).
3. Innovativeness

Relations with the external environment are often related to innovation, for example, Baldridge and Burnham (1975), in their study reach the conclusion that the entries of the community and from other external organizations are the major determinants of the innovative behavior of the companies.

Is usual the assumption that the innovative companies are those who adopts or generates innovations, or those on “the analyzed period has introduced product or process, or the combination of either technologically new or significantly improved.” (OCDE/UE, 1996: 24). So we can consider that the innovativeness of a company as the business potential to generate innovative results. When particularized to the knowledge-based company we have that the innovativeness relies on the transformation and/or adaptation of the internal capabilities to create and/or adopt innovative, products, processes or management practices and it is closely linked to its ability to use and leverage their intellectual capital or their knowledge resources.

The identification of the elements of the intellectual capital is insufficient to guarantee the effective management of the same (Pike et al., 2002). There is some evidence that idiosyncrasy characteristics of companies put the tonic to the relative value of each component and their interrelationships, as well as the strategy followed by the company.

We found no literature referred to studies that contemplate which elements or dimensions of the relational capital lead to innovativeness. That brings us the definition of our research problem:

*The clients, as a dimension of the relational capital; influences the innovativeness of a firm?*

Companies learn in different ways: training, experience, etc. and do it through internal or external sources of the company. A way to acquire new knowledge is through interaction with external partners such as clients, suppliers, competitors, among others, and with institutions such as universities, government laboratories, and community, among many others. The ideas for new or improved products often arise from client’s proposals for new uses and applications and are also, often, a result of contributions from the community, the competition, the suppliers, among others.

Thus the innovativeness is often determined by innovative inputs (resulted from joint developments with suppliers, customers or concurrent) involving innovative changes in processes, products or management/administration practices. Given the particularities of the automotive industry it is expected that
the clients (relational capital dimension) is greatly linked to the innovativeness of the firms. Then we set our research hypothesis:

**H1:** Clients, a relational capital dimension, influences directly the product and process innovativeness.

Figure 1 display our hypothesized relationship between relational capital and the three innovativeness types considered.

![Hypothesized Relationships](image)

As there aren’t valid and tested scales related to Intellectual capital, as well as we didn’t found scales related to innovativeness that fulfill our needs, we have developed new scales for relational capital and innovativeness. We relied on three performance measures of the innovativeness: the product, process and management innovation (Hii and Neely, 2000, Davenport et al., 2003, Ravichandran, 2000, Ahuja, 2000).

On our analysis we considered the relative innovation, meaning that an innovation is considered new if it is new to the firm, and nevertheless it isn’t new to the world or industry.

4. Methodology

Sample and data collection

In this study we employed, a survey to collect data and to test the validity of the model and the hypothesis posted. The independent variable: clients included in the survey was based on theoretical work (I.A.D.E.-C.I.C., 2003, Shelton et al., 2005, I.A.D.E., 2002) and practical work (Cabrera, 2006, Hill and Neely, 2000) which resulted in 10 items, measured from a 5 point Likert scale (1 = no agreement and 5 = totally agree).
Concerning the dependent variable, the product process innovativeness it has resulted on 12 items related to product innovation (I.A.D.E.-C.I.C., 2003, Hii and Neely, 2000, Molina-Palma, 2004, Wan et al., 2005) and process innovation (I.A.D.E.-C.I.C., 2003, Hii and Neely, 2000, Molina-Palma, 2004, Wan et al., 2005), here was also used the 5 point Likert scale (1 = never and 5 = always). The studied population were manufacturers of automotive components associated or registered in relevant and representative associations of the sector in Galicia (Fundación Clúster de Empresas de Automoción de Galicia (CEAGA) and North of Portugal (Associação de Fabricantes de Industria Automóvel (AFIA). Were surveyed all companies who are suppliers of automotive sector registered in those associations.

The data was collected from 135 surveys that were sent by mail, from June to October 2007, directed to the managers of the firms, and included a return envelope pre stamped, a introduction letter were was requested to the director to fill the survey or to forward it to other qualified person, was also included a support letter from AFIA and CEAGA asking the surveyed person to participate in the study and highlighting the importance of the study.

From these 135 surveys sent, 66 aimed companies located in the North of Portugal and the remaining 69 to companies located in Galicia. After a following period we achieve a total of 68 surveys completely filled and validated, which corresponds to a 50, 37 % response rate. Of these, 45 surveys (66 %) come from firms located in Galicia and the remain 23 surveys (34 %) from firms located in the North of Portugal.

Data analysis

To assess the randomness of the sample we have done a not parametric test adjustment $X^2$-sample population. This test is applied to a sample in which the variable has two or more categories, comparing the frequencies with the frequencies shown by the population. We consider as a classification variable the location (Galicia and Northern Portugal) and the respective district areas: Coruña, Lugo, Ourense, Pontevedra and Aveiro, Braga, Porto, Viana, Vila Real, respectively. It proved the value of 8.0522, seeing the tables of chi-square with 7 degrees of freedom we get a tail probability of 0.3280, which is larger than a significance level of 0.05, which accepts the null hypothesis of equality between the two frequencies. Therefore we verify a good fit of the sample to the studied population.

We continue with an exploratory data analysis to verify the existence of outliers and missing values. Respect to outliers, once data are on a Likert scale of five points, no comments could be done regarded the outlier. As for the
missing values we choose to eliminate the responses of two items with large number of items omitted, and whose elimination does not influence the outcome of the investigation.

We verify the reliability or consistency of the construct, or the extent to which the indicators converge, or are correlated with each other to reflect a given construct. To this end, we used to measure the convergent validity, Cronbach's alpha coefficient. Thus, for each of the items was conducted to check the reliability of the scale, excluding those items that does not give good levels of reliability.

Components matrix shows that the items initially considered as representing the relational capital were explained on 64,075 per cent by 3 common factors obtained through a Varimax with Kaiser Normalization converged in 7 interactions rotation. The KMO points out a reasonable correlation between variables (KMO = 0,726). The Bartlett esfericity test has associated a significance level of 0.000, then there is correlation between some variables. Both testes allow the continuation with the factorial analysis.

The factor correspondent to clients (CR) included the collaboration with knowledge institutions to innovate and the growth of client's satisfaction due to the greater innovativeness. An index was created: CR_CLIENTES.

Relatively to the innovativeness, the variables initially considered refer to the product process innovativeness. The factorial analysis points to a reasonable correlation between variables (KMO = 0,536). The Bartlett test has associated a significance level of 0.000, then there is correlation between some variables. Both testes allow the continuation of the factorial analysis.

The components matrix shows that the items initially considered are explained on 67,562 % by 2 common factors obtained through a Varimax with Kaiser Normalization converged in 3 interactions rotation. One factor concerns the market introduction of product innovations with significant importance and it contribution to improve the firm benefits, the introduction of significant process innovations and it importance to reduce costs and other improvements. We call it innovative product and process capacity (CI_Prod_proce).

5. Results

For the data analysis we did a regression analysis with the variables of Relational Capital and product-process Innovativeness, selecting the B's with values that excess 0,200, it demonstrates the existence of relationships between the constructs.
Table 1 – Regression between clients and product – process innovativeness

<table>
<thead>
<tr>
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<th>Unstandardized Coefficients</th>
<th>Stand. Coef.</th>
<th>t</th>
<th>Sig.</th>
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<tbody>
<tr>
<td>B</td>
<td></td>
<td>Std. Error</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clients (CR)</td>
<td>.399</td>
<td>.097</td>
<td>.399</td>
<td>4.096</td>
</tr>
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</table>

From the analysis of table 1, we verify that the product and process innovativeness is determined by clients (0.399 next 0.000). By this way we validate our research hypothesis confirming the influence of clients on the product and process innovativeness. This highlight the importance of the knowledge derived from the relationships with clients on the innovativeness of the firm.

6. Conclusion

We can conclude that the firms producing components for the automotive sector located in Galicia and North of Portugal can improve the product and process innovativeness when considering the knowledge derived from clients.

But we have to take into account that the study was particularized to a sector very important but peculiar, and it was just focused on one only dimension of the relational capital.

We have also validated the importance of the relational capital on the firm innovativeness. We believe that we have found a portal for the extension of the relational capital research to other dimensions.

We have not considered; nor was the intention of this research; the development of new products or solutions with extern working groups, for instance located in different geographic spaces (as the companies working on the B2B market automobile components sector) here the information technologies work as a communication and approach vehicle between the agents. Therefore, the analysis of the relationship between intellectual capital and the innovativeness considering the active participation with external working groups on the development of innovations is a door to further research.

References


