

Making Sense of the Intangibles - A Co-Word Analysis of the most Important Perspective of Analysis

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Abstract: Scholars have approached to managing intangible elements from several perspectives throughout the literature. This field of research is still young, with no more than two decades of more intensive empirical research, which has confirmed the relevance of intangible-based elements on achieving a competitive edge in virtually every industry. Taxonomy and classifications of intangible elements have been built from either deductive or inductive methods. And also practitioners are more concerned and convinced that intangible elements are a key in the today's competition, more than ever before. However, a categorization of approaches followed by scholars is still missed. The categorization proposed in this article will allow a more in-depth understanding of how intangible elements may help to achieve a competitive advantage, either from a theoretical or an empirical perspective. In addition, it will provide further information on how the different intertwined approaches relate to each other and, hence, it will help scholars and practitioners to gain a further understanding of how to implement intangible-based strategies more successfully. With these goals in mind, a search on the main databases was conducted (namely, ISI-Web of Knowledge and Scopus). Up to 4,308 different articles dealing somehow with intangible assets were found. In this paper, the title and keywords are analyzed and the content is categorized in six different themes: Knowledge Management refers to IA and its consequences in the Knowledge cycle; Intellectual Capital refers to IAs as mainly the knowledge-based economic value, divided into Human Capital, Relational Capital and Structural Capital; Human Resource Development refers to IAs as organizational learning; Economics deals with the micro and macroeconomic consequences of IAs and with the market of IAs; by Social Policy we mean IAs investment considered as a commodity which have social benefits and which are managed by social operators; and finally the Management and Accountability, where the quite old fashioned view is addressed according to which IAs are strategic resources that must be accounted for and valued for money. We ended with the conclusion that KM and HRD are somehow linked, as are IC, Economics and Traditional Management and Accountancy. We believe this is a first interesting indication on how society looks at the phenomenon of Intangibles. We think that this finding could help scholars and practitioners understand that in fact there are three main ways of looking at intangibles, one related with money, the second with learning and the third with power and this fact should had important consequences in the management, teaching and research of Intangibles. The study is limited because we could have used an even higher number of words to analyze each face of the Cube.

Keywords: intangible assets, organizations, value, perspectives, intangible management

1. Introduction: The need for the Cube

The goal of this research is to investigate the relevance of diverse intangible dimensions for organizations, as well as how these dimensions have been dealt with throughout the literature on the management field. The convenient combination of such dimensions may allow firms build Intangible Assets (IAs) to finally achieve a knowledge-based competitive advantage. From a Penrosian approach, combinations of intangible-based elements are called to be a key for a further understanding of how enterprises, mainly small and medium-sized ones, can build competitive advantages over their different stages of growth. According to Penrose (1959), the ways of the firm's growth may fall in two categories: internal and external growth. Most important to that classification is that internal growth can be based on tangible or on intangible elements. The natural limit imposed by the capacity of liability of small group of shareholders is an additional conclusion implied in one of the most influencing treaties on the growth of the firm. Accordingly, there is a time in the dynamics of an enterprise when internal growth cannot be undertaken anymore, leading these organizations to external forms of growth, namely merges and acquisitions or the entry of new shareholders. Nevertheless, she posited that growth requiring new tangible assets acquisition is a more risky situation than if the assets are intangible. Then it follows that under such circumstances, and in the current business cycle, a further understanding of how to manage intangible-based assets becomes a critical way not only for growing, but for the survival of firms.

Intangible Assets (IAs) have been studied addressing to basic questions: Q1) What is the value of the IA? Q2) What is its return? We call those questions the two faces of the Coin. The first one requires us to define what an IA is and how to count them. The second aims at defining the impact of IAs on individuals, organizations, and nations. We should

mention first and foremost that we consider those two perspectives important and needed nonetheless because they are rooted in the concepts of asset/stock/investment and return, which are basic for organizational management. But we also think that IAs analysis is and has been much more complex than that.

Therefore we propose to find out under what approaches IAs have been assessed across literature. Six thematic areas were proposed (Tomé and González-Loureiro 2012): Intellectual Capital (IC), Human Resource Development (HRD), Economics (Econ), Social Policy (SP) and Traditional Management and Accountability (TMA). And in this paper we aim at verifying the importance of those six perspectives in current IAs research. To do so, we conducted a search on two of the main databases (notably, ISI-Web of Knowledge and Scopus) and gathered up to 4,308 different articles dealing somehow with the key facts of IAs.

Therefore, the remainder of the paper is organized as follows. First, we present the theoretical background of the Cube. Second, we introduce the data and the research and analytical methods we used. Third, we present our results, and after we discuss them. And finally, we expose our conclusions, framed with limitations, practical implications and suggestions for further research.

2. Theoretical background

In this section we explain each of the six parts of the cube and link them with our search strategy. The six parts are presented in the following order: a) KM, b) IC; c) HRD; d) Economics; e) Social Policy; f) Traditional Management and Accountability.

a) Knowledge Management

KM is both a science and a field of activity. As an activity KM comprises the dynamic practices developed to extract value from the knowledge resource. Every time a knowledge transfer or conversion is done the business value grows (Sveiby 2001). Those activities have been defined as a Knowledge Cycle (Nonaka and Takeuchi 1995). Therefore, KM can be described fully with only that term in a search strategy, since an author will include it among the article's keywords.

b) Intellectual Capital

A second dimension is the analysis of IC. It was generated from the need of understanding the difference between the market and the book value of companies. Therefore, IC analysis extended the traditional accounting by exposing the importance of intangibles. IC is sometimes defined "[...] as knowledge that can be converted into value [...]" (Edvinsson and Sullivan 1996: 358). The IC is usually disaggregated into three components: human, structural and a third component often called customer capital (narrow conceptualization, (cf. in Marr and Adams 2004) or relational capital (wide conceptualization following European Commission, 2006 and Viedma Marti 2001). Nevertheless, IC is also fully described by the term in itself, likewise KM is.

c) Human Resource Development and Learning

Some of the most important analyses regarding IAs have been made in the field of Human Resource Development and Learning (HRDL). The IAs investments in this specific field offer the possibility of having an impact on the participants, their learning, their competences, their behaviour, or in other company outcomes, as stated by Kirpatrick long ago (1959). This matrix of thought generated both the HRD and the Organizational Learning (OL) fields. HRD is a strategic and a business approach to training and development of human resources in an organization for performance and organizational improvement (Garavan 1995; Harrison 2000). Becker and Gerhart (1996) suggested that the most fundamental implication is that the choice of HR systems can have an economically significant effect on firm's performance. According to Abdullah (2009) there are four interrelated functions in HRD: Organization Development; Career development; Training and Development; and Performance Improvement.

d) Economics

The basic economic analysis of IAs may have two starting points: as an investment or as a market. As an investment, the operation should generate future benefits that would out-weight the costs. The investment may be made by the individuals, the organizations, or by the State. Rates of returns and added values can be attributed to each investment. The analysis may be made in either a microeconomic and in a macroeconomic way. The former perspective implies that the returns generated by IA investments are measured in terms of: wages or employment for individuals; productivity, sales, market share, work ambiance or product quality for companies; income or exports for countries (Briggs 1987; Whalen 2009). In macroeconomic terms the investment in IAs produces the transformation from a low poor, less qualified, less competent and technically incipient society into a rich, qualified, competent and technological developed one. In the first type of society a vicious cycle exist regarding IAs (low investment and low

return) and in the second type of society a virtuous cycle exists (high investment and high returns). The focus is put on the human resource at macroeconomic level because this economics “[...]address such difficult issues as efficiency, equity, stabilization and growth[...]”, i.e. economic progress (Briggs 1987: 1207). As a market, the economic analysis usually lacks the basic elements defining a market when it comes to intangibles (i.e. supply, demand, quantity, price), as for instance the intellectual property rights in the open innovation paradigm (Chesbrough 2003). Finally, the market is constituted by private operators but also by public ones, and the economic analysis gives valuable insights into the correctness of the public operations in the IAs market. Therefore the main descriptors are economics and markets.

e) Social Policy

Social Policy (SP) is an academic discipline which analyses the way societies develop policies to deal with the basic social needs (Titmuss 1950; 1958). A vast majority of operations (programs) that result in the investment in IAs are made by the public sector or at least are made to satisfy some social or public goal. This form of looking at IAs is linked with the notion of Welfare State (WS) (Esping-Andersen 1990). A WS is a social construct which tries to solve the social needs in a planned way. A WS is opposed to a Welfare Society, in which no such an organized way of solving the social problems exists. Therefore in a Welfare Society, individuals and groups have to basically take care of themselves, perhaps with some support from the outside world (national or international organizations and NGOs). Any WS is characterized by a Welfare Mix (WM). A WM is a composite of public, private and third sector actions, in order to build a WS (Esping-Andersen 1990; Deacon and Mann 1999; Ferrera et al. 2000).

f) Traditional Management and Accountability

Virtually all the literature on intangible highlights that dealing with intangible resources and assets is a relevant problem of traditional management and accountancy (TMA). Particular characteristics of intangibles, such as non-consumption for use, total availability and so forth as described by Molloy et al. (2011), makes them difficult to be understood by TMA. Just as Spender (1989, 2011) keeps on reminding us, the issue is whether the value is created by adding tangible and intangible capital (TC+IC), or whether it is a question of a moderator effect (TC*IC) in the process of value creation. In addition, Furrer et al. (2008) showed how the strategy field is consistently about performance. Then it follows that intangible, from a strategic accountancy approach, must be about how to increase performance and overcome competitors thanks to intangible-based assets.

3. Methods

a) Sample and data collection

Databases selected were ISI-Web of Science (Social Sciences Citation Index-SSCI) and Scopus. They abstract and index the main scientific journals in the field of Social Sciences. Because of the fact that several journals are included in both, the results were integrated into a single file and duplicate registers were deleted.

The information was gathered between December-2102 and January-2013. A timespan of all the years available in each database to December 2012 was defined for the search.

An initial search strategy included a list of basic key words by each of the six facets (see table 1). A manual filter enabled deleting some articles included in the big box of Social Sciences, which clearly were not related with this investigation. They were articles dealing with fields such as ecology, immunology, psychiatry, occupational health, and the like. After the first results were obtained, Wordstat software was used to extract a list of keywords describing each facet: nouns, verbs and compound forms were extracted from both the title and articles' keywords. After that, a new search was conducted by including in the search strategy the most frequent keywords obtained in the latter step. This iterative search yielded a total of 4,308 different articles. In a last step, again Wordstat software extracted the final list of keywords. A manual filter of this list was conducted in order to eliminate meaningless words. Up to 82 different keywords were retained as main descriptors of research in the field of IAs to date.

Table 1: Search strategy

Facet	Words included in the search	Number of different articles (total=4,308)(a)
Knowledge Management	Knowledge Management; KM	3,227
Intellectual Capital	Intellectual Capital	450
Human Resource Development (HRD)	Human Resource Development; HRD; Organization Development; Intangible* AND [Career Development OR Training and Development OR Performance Improv* OR Learning]	120
Economics (Econ)	Intangible* AND [Econom* OR Market*]	469
Social Policy (SP)	Intangible* AND [Welfare state OR social policy OR welfare mix OR social capital]	92
Traditional Management and Accountability (TMA).	Intangible* AND [strategic management OR strateg* OR performance OR accounta*]	315

(*) A wildcard “*” was used in some cases since different forms of the same lexeme may appear

(a) Total number of different articles is different to the addition of partial results because an article may be found in more than one of the searches conducted.

Source: own draft from ISI-WoK and Scopus databases (data updated on January 20th, 2013)

It must be highlighted that this search strategy does not ensure that pairwise intersections were empty sets. This is why the addition of partial results is not equal to the total numbers of different articles found.

It is worthy to mention that KM is predominant field of research when it comes to IAs. Conversely, SP is the less investigated area in the research of IAs, where only 92 different articles were found.

b) Statistical procedure

Mapping the intellectual structure of a research field requires a mixed method approach, combining both qualitative and quantitative methods. Several methods have been used in related fields such as strategy (e.g. Ronda-Pupo and Guerras-Martin 2012), strategic management (Furrer et al. 2008) or expatriates in international business (e.g. Dabic et al. 2013). Among them, it is worthy to mention the co-citation analysis, which is useful to detect influential works (who) and content analysis, designed to provide a quantitative result of what has been investigated. The latter approach was selected in order to shed some light on the content of research in the IAs across literature.

The method used was similar to that used by Furrer et al. (2008). Accordingly, the methodology described by Hoffman and De Leeuw (1992) was followed and a multiple correspondence analysis (MCA) was conducted. First, a matrix of articles (cases) and keywords (variables) was constructed. When a keyword appeared in an article then a “1” was computed and “0” otherwise. So a matrix of 4,302 articles and 82 keywords was obtained. The HOMALS procedure (homogeneity analysis of variance by mean of least squares) was performed in SPSS (v20) to compute the MCA.

In this case, the HOMALS computes the co-occurrence of a keyword among the set of articles. Frequency and two coordinates are the results of this procedure. Keywords are also depicted in a two-dimensional map. Therefore, the MCA yields a kind of distance between pairs of keywords. The more frequent a pair of keywords appears jointly in the set of articles, the more proximal they will appear in the map, and the more distant otherwise. Thus the resulting map will actually show the shared substance among the set of keywords. Labels to the poles of the axes depend on the meaning of the keywords more proximal to each pole.

4. Results

In the first graphic result of the HOMALS procedure, the cloud of keywords showed that there might be implicit two orthogonal axes. Therefore, the initial solution was rotated 45° counter-clockwise, what yielded more easily interpretable axes (figure 1).

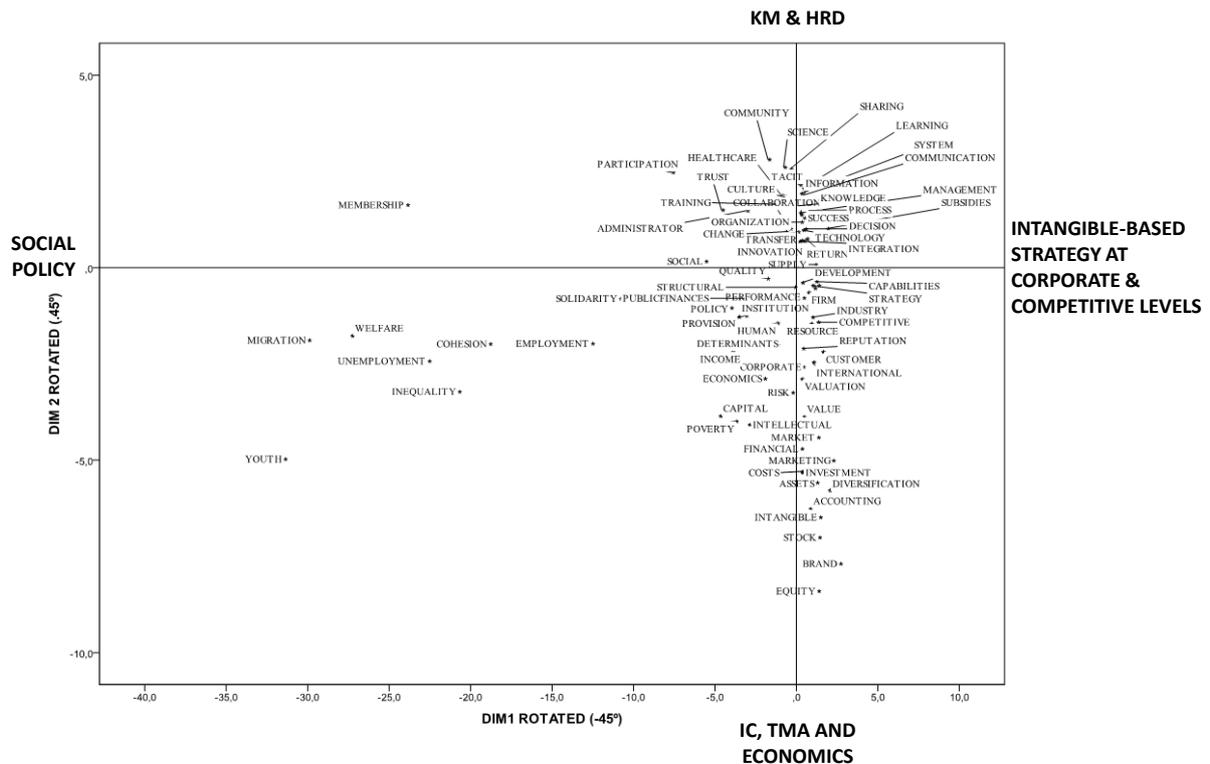


Figure 1: The structure of intangible assets field of research

In terms of most frequent keywords (see appendix), the field of research is clearly governed by Knowledge Management issues. The impact of IAs on organizational performance has been the main consequence investigated. A strategic viewpoint of resources and capabilities has pervaded this field, with descriptors such as *strategy* or *competitive*, or intangible-based issues such as *innovation*. At a glance, Social Policy issues have seemed to attract little attention of scholars in the field of IAs: *youth*, *unemployment*, *cohesion*, *migration*, *solidarity* or *inequality* are among the less frequent descriptors.

A better interpretation of the map can be reached if poles are labelled. To do so, more proximal keywords to each pole must be considered. On the left side, keywords with the highest values are *youth*, *migration*, *welfare*, *membership*, *unemployment*, *inequality* *solidarity* and *participation*. Social Policy (SP) is an academic discipline which analyses the way societies develop policies to deal with the basic social needs (Titmuss 1950; 1958). A great deal of operations (programs) that result in the investment in social IAs are made by the public sector or at least are made to satisfy some social or public goal. Therefore, this pole can be labeled as “Social Policy”.

At one second pole, keywords with highest values are *brand*, *marketing*, *diversification*, *subsidies*, *customer*, *intangible*, *stock* and *acquisitions*. According to Furrer et al. (2008), diversification and acquisitions are corporate-level strategies. Some additional keywords proximal to this pole are *competitive* and *industry*. Therefore, it can be said that this pole is about strategies involving intangible-based elements at either corporate or competitive levels, hence the strategic dimension of IAs.

Keywords with the highest loads on the upper side are *community*, *science*, *sharing*, *participation*, *tacit*, *learning*, *system*, *culture*, *communication*, *training*, *membership* and *knowledge*. They relate with key issues in the field of knowledge management and knowledge systems (González-Loureiro and Figueroa-Dorrego 2012). This comprises the identification, acquisition, development, distribution, use and retention of knowledge flows throughout the organization (Probst and Büchel 1997; Davenport and Prusak 1998). Some issues relate with Human Resource Development such as *training* and the development of groups (*membership*). Therefore this pole agglutinates two intertwined faces of the cube, KM and HRD, both of them dealing with the human dimension of intangible assets: knowledge.

Finally at one third pole, keywords dropped in the map are *equity*, *brand*, *stock*, *intangible*, *accounting*, *diversification*, *assets*, *investment*, *costs*, *marketing*, *youth* and *financial*. They relate with the quantification of the intangible value in

economic terms. The measurement of intangibles is a key input to facilitate an efficient management of IAs (González-Loureiro and Figueroa-Dorrego 2012). The overlapping between Traditional Management Accountancy and Intellectual Capital seem to be at the very extreme of this pole, while Economics is also present at about halfway from the origin to this pole.

At the very center of the map, keywords are extremely intertwined among the different facets under which IAs has been investigated to date. Key issues relate essentially with strategy, taking the form of *performance, development, resources, capabilities or industry*.

Accordingly, KM has been overrepresented in the research on IAs. Two dominant poles relate with the human dimension of IAs, i.e. KM and HRD, and with the measurement of economic inputs, processes and outcomes, i.e. IC, TMA and Economics. However, Social Policy has attracted little attention from scholars on IAs. And yet Social Policy can be seen as a relevant input, a process or an output strongly based on intangibles. For instance, the country's or region's welfare and its social stability in institutional terms are seen as key determinants for new entries of international firms, in the case of international business research (Dabic et al. 2014). Therefore there is room for enlarging the empirical research on IAs toward Social Policy issues. For instance, this question is particularly relevant in the case of emerging economies where market imperfections call for the intervention of the state. While foreign actors do not always want more interferences in free market rules and call for speeding up their transition to less regulated markets.

Yet whether Social Policy is an input, a process or an output of IAs management is still a black box that deserves further attention from scholars.

5. Discussion: A step forward in the road to the Intangible Cube

Our main with the research project we have in mind and in which this paper is included is to make sense of the Intangible analysis, by specifying several different ways of analysis. In a first paper we defined the theoretical differences between the six approaches (Tomé and Loureiro, 2012).

In a following study we hope to perform an empirical study on companies in which we will define what is the importance practitioners give to each facet of the cube. If we then dimension each face of the cube according to that dimension we will end up with a hexahedron which will represent the real situation of the cube in the economy and the society.

In this context this paper is complementary of that future work. Firstly, this paper dealt with scientific work, not with managers opinions. Secondly in this paper we found that there are three main ways of grouping the six faces. And frankly, the grouping we found makes perfect sense. In first place, we know almost intuitively that the problematic of power and social policy has been absent of many intangible studies. This occurs even the prosperity of the western world is built over an immense set of social policies devoted to enlarge and consolidate the various aspects of intangibles, namely education, training, brands, routines and experience. The fact that so many people use it and so few people study it is in our opinion related to funding mechanisms. IC, and KM sciences won importance when companies began to worry about market value and knowledge as an asset. In each case, technology helped the promotion and importance of the analysis. Crucially companies funded the studies on KM and IC because they were worried with the consequences of IC and KM for their own situation. But regarding SP, basically only governments make and made those studies because they are meant to analyze policies, from whichever form of Welfare State (Esping Andersen, 1990). Therefore, Social Policy has been a distant cousin in the analysis of intangibles.

In what concerns HRD and KM, the analysis have been much related because the people who need to know about the competence of the individual or organization also want to know about his or her knowledge. In fact there is some overlap, which is deeply increased if we speak about learning. Given that we acquire knowledge when we learn, and that we should get more competent when we learn KM and HRD are so intertwined that sometimes it is difficult to disentangle them.

A similar situation occurs in relation to IC, Economics and Traditional analysis. IC analysis is much more money related than KM and HRD analysis, so it should be definitely put in a second axis. And, if IC is related with money, it becomes essentially a problem of value for money, as in traditional accountancy. So, the link between IC and TAC becomes

intuitively clear. But, if we are talking about money, Economics is THE natural field, because in a way we may think the “economics is the study of money” . Therefore the rationality for the third axis becomes also quite obvious.

One question that remains unanswered is, which one of the axis, on power, money or learning is more viewed by companies and organizations. We would guess that if we address the questions accurately, it may happen that SP will be included in the second axis and that we will have one axis related with money and the other with other aspects of the company. Also we may arrive at a situation in which power, money and learning will be seen as equally important because if we need learning to generate money and we need money to invest in learning, in the end of the day we need power structures to promote learning and to relate money with learning.

Another question that these results raise is the consequences in the management, teaching and research of activities on Intangibles of finding that there are two, or three main ideas, namely power, money and learning,

In what concerns management, the message of this paper is that power, learning and money should be considered as key factors in any policy of organizational development, anchored in SP, KM and HRD, and IC, Economics and Accounting theory respectively.

For teaching, this paper suggests that one should be very aware of the importance of the six perspectives when lecturing intangible analysis. This means that each perspective and its main theories should be included in the syllabus of the education and training of the Intangibles specialist. This fact has the consequence that if Intangibles are the main asset in the 21st globalized economy, the education of the specialist in intangibles should also be global, in the sense that he should master a vast quantity of theories from the six facets we mentioned.

For the research community point of view, scholars should take note of the detected importance of power, learning and money. Furthermore, the community should address the relation between those three ideas in the perspective of maximizing the use and benefit of intangible in societies and organizations. In the context of scarce resources, this idea is much interesting and ultimately would have impacts in the management of organizations and societies. The community of scholars should also be aware of the vast number of possible insights, at least six, over any problem, and of the need to be heteroclite and not only strictly focused in a given and very limited field, that is only one facet, to understand intangibles.

Finally we must understand that the present study is limited because we could have used an even higher number of words to analyze each face of the Cube. This issue ought to be dealt with in a revision of the study in the future, and it would relate essentially to the SP facet.

Summing up, intangible are a plural phenomenon, decisive in a global age, and that requires a global understanding of the various facets to be reasonably known.

6. Conclusions: The six facets of intangible assets

The aim of this article was to investigate how the main dimensions of IAs have been dealt with throughout the literature on the management field. As a multifaceted phenomenon, we initially provided six different facets to begin with this investigation. A co-word analysis of up to 4,308 different articles dealing somehow with IAs has allowed us to explore how these six facets relate and intertwine each other.

In analyzing this set of articles, we found that the descriptors of some facets are also included in some other dominant facets. As a result, two axes were built to map this wide field of research. A first axis is explained mainly by the fields of KM, IC and Economics. A second axis is explained largely by HRD and IC fields. It must be highlighted that KM is predominant in terms of the number of papers. Meanwhile SP has not been explored extensively from this approach of IAs.

These results may help to gain an in-depth understanding of the IAs phenomenon from the side of scholars. Further research is still needed to confront these results with the practitioners’ side in order to evaluate how the real business world assess these six facets of the IAs in order to achieve an intangible-based competitive advantage. Such a competitive advantage is easier to be maintained apart from competitors because of the imperfections of the IAs’ market. In addition, in the current context it may ease the survival of firms, particularly SMEs, since this advantage requires a less risky combination of resources, capabilities and assets.

Finally we would like to add some final comments on applicability. First, we think the cube is a metric on how scientists and managers look at intangibles. In this regard, a visual future outcome of this research would be two transparent cubes –representing scholars’ and managers’ perceptions– in which the dimension of each face would represent its relative importance for each group of individuals. Second, according to the main posits of the theory of the firm’s growth (Penrose 1959; Foss 1999), internal-based growth is naturally constrained by the limited capacity of the current owners, namely the Penrosian managerial services. Therefore, further research may be conducted to shed some light on the survival and success of firms from this intangible-based approach, including elements of each of the six facets disclosed over this article. Third, this research demonstrates the importance of the resource-based approach to the strategic management process of intangibles, even in a context of rapid changing environment. This emphasizes the view of strategy as fit and the key role of knowledge and dynamic capabilities on the ongoing review of strategic decisions. It would be very interesting to check whether managers and practitioners would share similar ideas in this regard, since managing intangibles is governed by right opposed principles to managing tangibles (the latter is deprecated by its use while the former is enriched). In short, a more clear taxonomy and mapping of concepts related with intangibles will help scholars to find research avenues while practitioners will gain a better understanding on how intangibles should be managed strategically to compete successfully in the ever changing competitive landscape.

References

- Abdullah, H. (2009) "Definitions of HRD: Key Concepts from a National and International Context", *European Journal of Social Sciences*, Vol 10, No. 4, pp 486-495.
- Becker, B. and Gerhart, B. (1996) "The Impact of Human Resource Management on Organizational Performance: Progress and Prospects", *Academy of Management Journal*, Vol 39, No. 4, pp 779-801.
- Briggs, V.M. (1987) "Human Resource Development and the Formulation of National Economic Policy", *Journal of Economic Issues (Association for Evolutionary Economics)*, Vol 21, No. 3, pp 1207.
- Chesbrough, H.W. (2003) *Open innovation: The new imperative for creating and profiting from technology*, 1st edn, Harvard Business Press, Boston.
- Dabic, M., González-Loureiro, M. and Furrer, O. (2014) "Research on the strategy of multinational enterprises: key approaches and new avenues" *Cuadernos de Economía y Dirección de Empresas-CEDE*, (forthcoming).
- Dabic, M., González-Loureiro, M. and Harvey, M. (2013), "Evolving research on expatriates: what is 'known' after four decades (1970–2012)", *The International Journal of Human Resource Management*, (ahead-of-print), 1-22.
- Davenport, T.H. and Prusak, L. (1998) *Working knowledge: How organizations manage what they know*. Boston: Harvard Business School.
- Deacon, A. and Mann, K. (1999) "Agency, modernity and social policy", *Journal of social policy*, Vol 28, No. 3, pp 413-435.
- Edvinsson, L. and Sullivan, P. (1996) "Developing a model for managing intellectual capital", *European Management Journal*, Vol 14, No. 4, pp 356-364.
- Esping-Andersen, G. (1990) *The three worlds of welfare capitalism*, Polity press Cambridge.
- European Commission (2006) *Reporting Intellectual Capital to Augment Research, Development and Innovation in SMEs*. Report to the Commission of the High Level Expert Group on RICARDIS. Encourage corporate measuring and reporting on research and other forms of intellectual capital., European Commission, Europe.
- Ferrera, M.; Hemerijck, A. and Rhodes, M. (2000) "Recasting European welfare states for the 21st century", *European review*, Vol 8, No. 3, pp 151-446.
- Foss, N.J. (1999) "Edith Penrose, economics and strategic management", *Contributions to Political Economy*, Vol 18, No. 1, pp 87-104.
- Furrer, O.; Thomas, H. and Goussevskaia, A. (2008) "The structure and evolution of the strategic management field: A content analysis of 26 years of strategic management research", *International Journal of Management Reviews*, Vol 10, No. 1, pp 1-23.
- Garavan, T.N. (1995) "Stakeholders and strategic human resource development", *Journal of European Industrial Training*, Vol 19, No. 10, pp 11-16.
- González-Loureiro, M. and Figueroa Dorrego, P. (2012), "Intellectual capital and system of innovation: What really matters at innovative SMEs", *Intangible Capital*, Vol 8, No. 2, pp 239-274.
- Harrison, R. (2000) *Employee Development*. Institute of Personnel and Development, London.
- Hoffman, D.L. and De Leeuw, J., (1992), "Interpreting multiple correspondence analysis as a multidimensional scaling method", *Marketing Letters* Vol 3, No. 3, pp 259-272
- Kirpatrick, D. (1959) *Evaluating training programs*, Berrett Koehler (2nd ed.).
- Marr, B. and Adams, C. (2004) "The balanced scorecard and intangible assets: similar ideas, unaligned concepts", *Measuring Business Excellence*, Vol 8, No. 3, pp 18-27.
- Molloy, J.C.; Chadwick, C.; Ployhart, R.E. and Golden, S.J. (2011) "Making Intangibles "Tangible" in Tests of Resource-Based Theory: A Multidisciplinary Construct Validation Approach", *Journal of Management*, Vol 37, No. 5, pp 1496-1518.
- Nonaka, I. and Takeuchi, H. (1995) *The Knowledge-creating company : how Japanese companies create the dynamics of innovation*, Oxford University Press, New York etc. Oxford University Press, 1995.
- Penrose, E.T. (1959) *The Theory of the Growth of the Firm*, Blackwell, Oxford University Press, Oxford.

- Probst, G. and Büchel, B.S.T. (1997), *Organizational learning: The competitive advantage of the future*. Prentice Hall Upper Saddle River, NJ.
- Ronda-Pupo, G.A. and Guerras-Martin, L.A. (2012) "Dynamics of the evolution of the strategy concept 1962-2008: A co-word analysis", *Strategic Management Journal*, Vol 33, No. 2, pp 162-188.
- Spender, J.C. (1989) *Industry recipes: An enquiry into the nature and sources of managerial judgement*, Basil Blackwell Oxford.
- Spender, J.C. (2011) "The Problems and Challenges of Researching Intellectual Capital" in *Managing Knowledge Assets and Business Value Creation in Organizations: Measures and Dynamics*, ed. G. Schiuma, Hershey, New York, pp 1-12.
- Sveiby, K.E. (2001) "A knowledge-based theory of the firm to guide in strategy formulation", *Journal of Intellectual Capital*, Vol 2, No. 4, pp 344-358.
- Titmuss, R.M. (1950) *Problems of social policy. History of the second world war*. United Kingdom Civil Series, Londres, HMSO
- Titmuss, R.M. (1958) *Essays on the Welfare State*, London: Allen & Unwin.
- Tomé, E. and González-Loureiro, M. (2012) "Building the Intangible Cube: Assessment of the Relevant Organisational Dimensions of Intangible Assets", *Business Excellence / Poslovna Izvrsnost*, Vol 6, No. 2, pp 127-140.
- Viedma Marti, J.M. (2001) "ICBS - Intellectual capital benchmarking system", *Journal of Intellectual Capital*, Vol 2, No. 2, pp 148-165.
- Whalen, C.J. (2009) "The Human Resource Economics of Vernon Briggs", *Working Papers*. Paper 92.

Appendix: List of keywords describing the field of intangible assets research

Keywords	dim1 (rot. 45°)	dim2 (rot 45°)	Frequency
KNOWLEDGE	0.23	1.60	2,921
MANAGEMENT	0.30	1.42	2,844
FIRM	0.79	-0.65	1,447
PERFORMANCE	0.49	-0.79	1,217
ORGANIZATION	0.36	1.18	1,191
SYSTEM	0.35	1.92	1,108
INFORMATION	0.34	1.37	1,082
THEORY	0.37	0.70	1,013
TECHNOLOGY	0.46	0.97	966
INNOVATION	0.52	0.69	926
COLLABORATION	-0.33	1.01	840
STRATEGY	1.04	-0.47	809
RETURN	0.69	0.75	515
PRODUCT	1.17	-0.54	481
CAPITAL	-4.63	-3.86	480
MARKET	1.38	-4.42	472
RESOURCE	0.95	-1.46	464
LEARNING	0.48	2.05	453
CAPABILITIES	1.26	-0.37	449
DEVELOPMENT	0.41	-0.40	430
COMPETITIVE	1.37	-1.42	418
SOCIAL	-5.52	0.16	397
PROCESS	0.87	1.49	342
INDUSTRY	1.03	-1.29	333
VALUATION	0.37	-2.89	323
INTELLECTUAL	-2.84	-4.08	307
DECISION	0.60	1.00	287
CULTURE	-0.62	1.83	282
INTANGIBLE	1.50	-6.49	279
COMMUNITY	-1.64	2.81	273
VALUE	0.51	-3.88	269
SHARING	-0.29	2.56	267
CORPORATE	0.45	-2.59	257
COMMUNICATION	-0.11	1.79	239
ECONOMICS	-1.91	-2.89	236
QUALITY	-1.73	-0.29	215
POLICY	-3.96	-1.05	211
INSTITUTION	-3.49	-1.28	205
TRANSFER	0.14	0.92	194
HUMAN	-1.12	-1.45	191
ASSETS	1.30	-5.59	185