International Journal of Production Management and Engineering

https://doi.org/10.4995/ijpme.2020.10817
Received: 2018-10-14 Accepted: 2019-11-23

Empirical study of the business growth strategy related to the added value by intellectual capital

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Abstract: Four consecutive years of more than a thousand Spanish companies from different economic sectors are analyzed to determine the influence of intellectual capital on the business growth strategy. One of the purposes of this work is to establish a classification criterion of the strategic behaviour of a company linked to the growth of three factors: the demand of the sector, the sales of the company and the financial sustainability of the company. Another purpose is to develop and validate an appropriate classification of where the value added by human intellectual capital is structurally concentrated and used according to the strategic behaviour, growth and sector of the company. Interesting conclusions are drawn about the strategic behaviour of the company and its intangible capital, as well as a different method for classifying companies according to their growth, which helps predict business profitability.

Key words: Value Added Intellectual Coefficient (VAICTM), Sustainable Growth Rate (SGR), Sales Growth, Demand Growth, Business Strategy.

1. Introduction

Intellectual capital, as measured by the method VAIC™, is positively associated with the profitability of companies, since it allows the performance of a company to be measured in the efficient use of capital, resources and intellectual capacity (Greco et al., 2014) (Gupta and Tarikasingh, 2015) (Salazar and Villegas, 2019).

Nowadays, empirical research conducted on the VAIC™ model has been focused on specific activity sectors without taking into account the strategic behavior of companies. Therefore, there is a gap in the state of the art, when studying the value added by intellectual capital for each state of strategic behaviour.

Strategic behavior is related to the use of the company's resources, in combination with core competences, to achieve better competitive positions in the sector that are the source of sustainable competitive advantage. A company may not, however, have the resources it requires to develop a source of sustainable competitive advantage; it has to develop a business strategy (Kabue and Kilika, 2016).

The execution of the business strategy involves changes in the organization of the company, in

To cite this article: Alcalde-Delgado, R., Sáiz-Barcena L., Olmo, R., Alonso de Armiño, C. (2020). Empirical study of the business growth strategy related to the added value by intellectual capital. *International Journal of Production Management and Engineering, 8*(1), 1-11. https://doi.org/10.4995/ijpme.2020.10817

the human and technical resources, as well as the behaviour of relations inside and outside the company, in order to improve the competitive position. The enhancement of the competitive position is associated with a cycle of growth of the company, and therefore, the improvement of the company's indicators such as sales, finance, employees, etc., (Peñate Santana, 2013) (Davidsson, Achtenhagen and Naldi, 2010).

The companies' performance are positively related to structural capital (SC), human capital (HC), and relational capital (RC). It should be stressed that RC has the greatest influence on financial performance indicators, as well as the sustainable growth rate (SGR) (Xu, and Wang, 2018) (Firer and Mitchell Williams, 2003).

This work will make available significant practical contributions related to the following questions:

- How can we classify the strategic behaviour of companies?
- Are there different values in the components of the VAIC™ model for companies between activity sectors or between differences in strategic behaviour?

In order to answer the first research question, the authors propose three parameters (growth in sales, growth in finances, and growth of the economic sector of the company), which are linked to the strategic behaviour of the companies (Schwab et al., 2019) and allow a method of classifying the companies to be created.

To answer the second research question, an empirical study has been conducted for a wide and varied sample of companies. This study makes it possible to find certain relationships between strategic behaviour, the sector of activity and the value added by the intellectual capital of companies.

2. Classification of companies

The use of company classifications in all fields of research to create order in the field and facilitate theorization deserves careful and explicit consideration by researchers. Companies are classified according to size, business orientation, industry and business models. Without a certain level of consensus on the classification of objects within a field of research, the accumulation of knowledge and meta-analysis are impeded and theorization is forced to be on a large scale. (Lambert, 2015).

Applying Lambert's methodology (2015), the purpose of the proposed classification design is to obtain a classification of companies according to their strategic behaviour. The characteristics that best define this purpose are the growth of the company (Mahdjour, 2015). In order to determine the classification criteria, the variables and the combination of the same are determined so as to allow different categories of company growth to be established. These rules define the procedure for classifying companies into different categories that are related to strategic behavior.

2.1. Growth of the company

For a company, the meaning of the term growth can be approached from several points of view, such as the following:

- As a view of life-cycle and linear interpretation, involving several stages (slow, rapid, moderate and decreasing growth) where only the companies that best adapt to change survive.
- As an internal growth of optimization managed by managers to allow business growth and a financial vision of external growth, in which the greater the amount of resources committed, the greater the growth.
- As a microeconomic approach, the growth corresponds to the adjustment of the company while also looking for a balance between the company's effectiveness and evolution and, in the long term, of efficiency.
- As an increase in the physical resources of the company, which seeks to establish its optimal dimension, below or above which a company may or may not be competitive.
- As a dynamic approach, asking the company to rethink its activities and assess its available resources.
- As a neoclassical approach to business growth, it proposes the drivers of economic development to the entrepreneurial and managerial capacity, as it discovers the opportunities of the environment before others who are not able to perceive them. What makes companies different is their resources.

- As a modern evolutionary theory of growth, the factors that contribute to it are identified in order to explain the temporal evolution of a company. It considers that the real limit of growth is human behaviour and its inertia, originating in the driven behaviour or existing routines in the company.
- On the other hand, the strategic approach to the growth of the company is posed with an approach whereby the company is a portfolio of products and businesses, in which its growth would be based on these parameters (products and businesses).

Therefore, growth means different things: Aggregate growth in products and services that consume energy and materials, growth in profits, growth in trade, growth in disparity in consumption, wealth, and income, growth in under- and un-employment (Ashford, 2016).

Futhermore, the problem is to define, in each company, what is meant by growth (Álvarez, 2008) and to define how to use the different drivers (human capital, strategy, HRM, innovation, and capabilities) to increase the growth (Demir et al., 2017).

The strategic approach recognizes the existence of two main strategic directions for growth: internal or organic growth and external growth. Both directions create value through internal business processes and differ in the sources used to achieve the said growth (Guerras and Navas, 2015).

Every company at some point goes through two challenges they have to overcome: the financial fragility that arises when the company grows more than its ability to finance growth, or the market fragility, which is when the company grows less than the market. These extremes have to be avoided because, in either case, the company can disappear. Consequently, companies can be in four different situations (Sallenave, 1991), which are:

- The company can follow the growth of demand and maintain its competitive position, which is a situation of balanced growth.
- The company can sustain a growth much higher than that of its sector of economic activity.
- The company cannot follow the growth of its sector and is losing market share.
- The company has a capacity for growth below the growth of demand.

Therefore, the proper management of a company to create sustainable growth without financial difficulties implies having a balanced financial structure to make important decisions, while generating value for shareholders (Kaplan and Norton, 2004) (Magreta, 2001).

Therefore, to determine the classification criteria, the growth in sales, the growth of the demand and the accounting concept of sustainable growth are used. The combination of these variables allows different categories of the growth of the company to be established. These rules define the procedure for classifying companies according to their strategic behaviour.

2.2. Sustainable Growth Rate

Higgins defined for the first time the accounting concept of sustainable growth (SGR or g*) as the rate of increase in assets and sales that a company can financially support, that is, it reflects the rate at which a company's sales can grow without financial stress, as long as profit, debt and profit sharing ratios remain constant (Higgins, 1977) (Amouzesh et al., 2011).

A company's real sales growth rate (G_S) is a percentage that measures the growth over a period of time of the sales value of a company that has one or more businesses.

The growth rate of a company's market demand (G_D) is a percentage that measures the growth over a period of time by the market demand of the company's businesses prorated by the amount of sales of each business.

The condition of balanced sustainable growth implies that if demand grows, the company must have the same growth in sales in order not to lose market share ($G_D = G_S$).

Consequently, the increase in sales will require an increase in the revolving fund and production capacity, which means a growth in assets (G_A), as expressed in Equation 1.

$$G_A = (Assets_1 - Assets_0) / Assets_0 \quad (1)$$

This growth in assets (G_A) implies an equal growth in liabilities. In order for liability growth (G_L) to be balanced, the ratio between debt and equity (E) must be kept constant, that is, the same debt ratio.

Otherwise, it would increase indebtedness and thus the risk of financial bankruptcy, as well as a greater dependence on creditors.

Capital growth (G_P) can be expressed as a function of the return on equity (ROE) and the target percentage allocated to dividend payments (d), as shown in Equation 2.

$$G_P = \frac{(1 - d)Net\ Profit}{E_0} = ROE_0(1 - d) \quad (2)$$

Therefore, the balance in the growth ratio between debt and equity implies equal growth of assets, liabilities, capital and debt, as shown in Equation 3 (Higgins, 2007; Sallenave, 1991).

$$g^* = G_A = G_P = ROE_0(1-d) \quad (3)$$

The total equilibrium will be fulfilled when the balanced growth rate is equal to all growth rates ($G_D=G_S=G_A=G_P$). When this condition is satisfied, the balanced growth rate is called the sustainable growth rate (g*) and the calculation of this value can be seen in Equation 3 (Álvarez, 2008).

Therefore, sustainable growth (g*) means the highest growth in sales volume that the company can achieve, maintaining its accounting ratios of assets and liabilities (equity and external funds). It is very difficult to achieve this balance, although the company may approach it after successive temporary adjustments (García Muñiz, 2011; Sallenave, 1991).

2.3. Equilibrium growth

From the point of view of growth, there are three equilibrium situations for analyzing business management: the equilibrium of commercial management ($G_D=G_S$), financial management ($g^*=G_S$), and product/business portfolio design ($g^*=G_D$) (Sallenave, 2002, 1991).

If the growth of sales of businesses/products exceeds the growth of the market, this means that the company is gaining market share, and would otherwise be losing market share. Therefore, in the case of equality in both types of growth, the commercial management of the company behaves in a balanced way with respect to the market.

Financial equilibrium is most desirable, since it means that financial management will not suffer tensions and, at the same time, financial resources are used. However, companies can either unbalance their financial situation, increasing the debt ratio, or waste their financial resources by not putting them to generate value. There are therefore two types of cases:

- Profitability imbalance due to under-utilised financial surplus, i.e., an excess of funds that are not used, but which can be used for other purposes, such as financial restructuring of the company, reserves, etc., in order to bring variety. In this case, sustainable growth is higher than sales growth.
- Imbalance of growth with financial deficit, which implies that indebtedness is required for its growth to be viable. In this case, the growth in sales is greater than its sustainable growth.

A well-designed product/business portfolio is essential to achieve sustainable growth in excess of market growth. Otherwise, it will be said that the design of the portfolio is unbalanced and the positioning of the products/businesses is inadequate.

2.4. Strategy behaviour of the firm according to its state of growth

According to the state of growth (sustainable growth, sales growth, market demand growth), as can be seen in Figure 1, six conditions of non-equilibrium can be considered for companies, corresponding to their strategy behaviour (Table 1) (Sallenave, 1991, 2002; Godet, 1994; Socolich Mansilla, 2007; Álvarez, 2008).

2.4.1. Expansive company ($G_S > g^* > G_D$)

Expansive companies are those that are expanding beyond available financial resources, exposing themselves to financial stress due to increased indebtedness. At the same time, their sales are growing above the growth of market demand. They are successful companies, with correct commercial management and an adequate design of their business/product portfolio, even if they are getting into debt. Therefore, they are desirable companies for investors or for the entry of new shareholders' capital.

2.4.2. Dominant company ($g^* > G_S > G_D$)

These are companies with satisfactory financial and commercial management and an adequate design of the business/product portfolio.

Table 1. Classification of strategy behavior according to its state of growth.

		Business/Product portfolio		
Zone	Classification	Financial Management	Portfolio Design	Commercial Management
1	Expansive $G_s > g^* > G_D$	Non-equilibrium of growth	well designed	Gains market share
2	Dominant $g^* > G_s > G_D$	Non-equilibrium of profitability		
3	Shrinking $g^* > G_D > G_s$			Loses market share
4	Restructuring $G_s > G_D > g^*$	Non-equilibrium of growth	Badly designed	Gains market share
5	In decline $G_D > G_s > g^*$			Loses market share
6	Unfocuse $G_D > g^* > G_s$	Non-equilibrium of profitability		

Consequently, these companies increase their market share and accumulate unused financial resources. Due to this excellent competitive position of the dominant company, it is recommended to approach strategies of diversification of the activity or financial restructuring, in order to take advantage of the financial resources generated.

2.4.3. *Shrinking company ($g^* > G_D > G_S$)*

In this situation, we find companies that, despite having an excess of unused financial resources, are losing market share. They are companies with a conservative financial management and an adequate design of the business/product portfolio, but with problems of commercial myopia, since their commercial management is erroneous. If the sectorial rivalry is low, it is appropriate to invest in the company to recover its competitive position. However, if the sectorial rivalry is high, it is advisable for the company to apply strategies to restructure the product/business portfolio, in order to invest in those in which it can more easily improve its competitive position.

2.4.4. *Company in decline ($G_D > G_S > g^*$)*

These companies are in decline as they lose market share while their financial situation deteriorates, therefore these companies require a significant change in their commercial and financial management as well as a restructuring of their product/business portfolio.

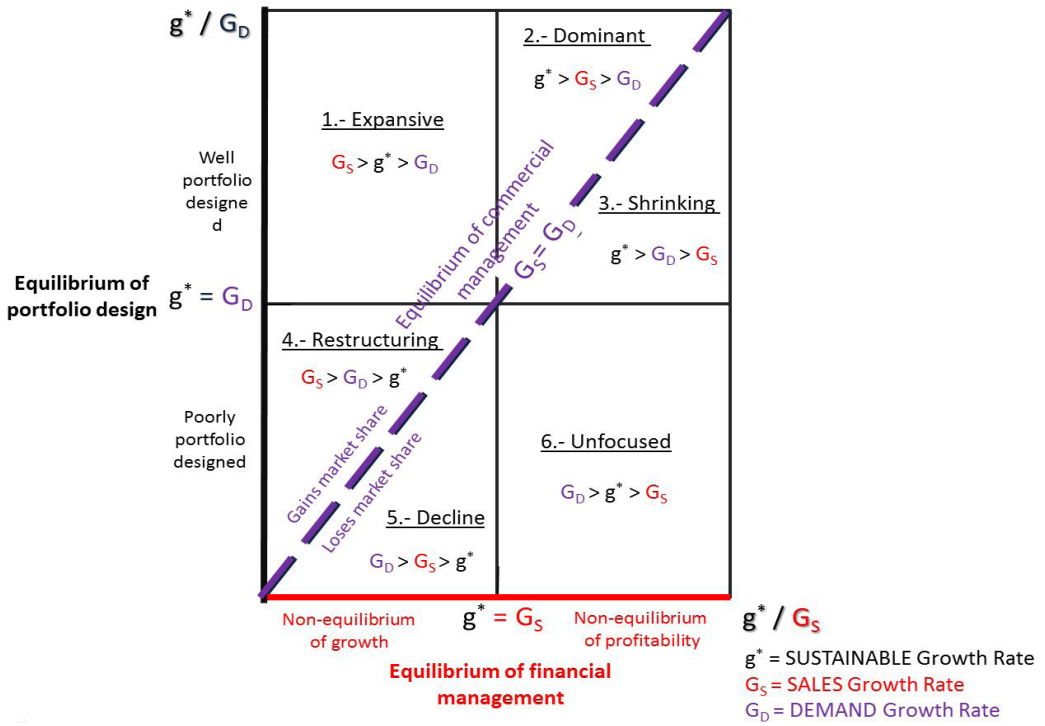

Figure 1. Strategy behavior of the firm according to its state of growth.

2.4.5. *Company for restructuring ($G_S > G_D > g^*$)*

These companies are in decline as they lose market share while their financial situation deteriorates, so they do not have sufficient resources to invest and improve their competitive position, which significantly increases the likelihood of bankruptcy. They are companies that manage commercially and financially incorrectly and have an inadequate design of the business/product portfolio, so it is advisable to deeply restructure their product/business portfolio.

2.4.6. *Unfocused company ($G_D > g^* > G_S$)*

This corresponds to companies that have sufficient financial resources to invest, while their growth in sales is lower than the growth of the market. This may be the case of companies in decline, which have worsened their financial situation and therefore a partial or total disinvestment in some products/businesses is recommended in order to adjust to the financial possibilities. This is also the case of shrinking companies that follow a negative evolution due to the fact that they have not resolved their commercial management problems. They are companies that have an adequate conservative financial management but maintain an erroneous commercial management, which means an inadequate design of the business/product portfolio.

3. The value added by intellectual capital (VAIC™)

The value contributed by intellectual capital is related to business growth (Ghanei and Ramezani Kheibari, 2015), while the efficient use of intellectual capital reinforces the positive relationship between growth opportunities and financial performance (Sardo and Serrasqueiro, 2018). Therefore, intellectual capital management is the most important factor in company improvement (Firer and Mitchell Williams, 2003).

The VAIC model makes it possible to measure a company's performance in the efficient use of capital, resources and intellectual capacity, although it does not measure the stock of intellectual capital at the company's disposal (Greco et al., 2014; Gupta et al., 2015).

Efficiency is related to the value added (VA) by the use of resources. The VA is considered to be the difference between sales revenue (OUT) and supplier expenses for the purchase of materials, components and services used in sales, not including personnel expenses (IN) (Pulic, 2008).

Therefore, the VA is the sum of two elements, the cost of human capital (HC) plus earnings before interest, taxes, depreciation and amortization (EBITDA) or structural capital (SC), as indicated in equation 4 (Pulic, 2000; Ulum et al., 2014; Pulic, 2008).

$$VA = OUT - IN = HC + SC = HC + EBITDA \quad (4)$$

The main components of this model are three (Figure 2): human capital efficiency (HCE), structural capital efficiency (SCE) and capital employed efficiency (CEE).

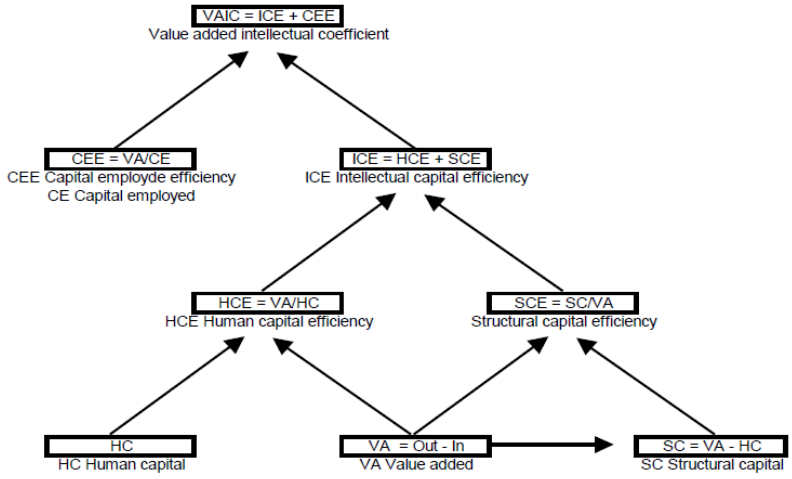

Figure 2. VAIC (*source*: Pulic, 2008).

Human capital efficiency (HCE) is the ratio showing the amount of value added created by each monetary unit spent on workers, i.e., wages.

Structural capital efficiency (SCE) is the ratio that indicates the amount of structural capital (SC) needed to create a unit of value added and measures how successful it is in creating value; it is also called marginal EBITDA (Pew Tan et al., 2007).

Capital Employed Efficiency (CEE) is a measure of the appropriate use of physical capital; it is a ratio or coefficient that measures the value added per unit of physical capital employed (Pulic, 1998).

The VAIC model provides a standardized and consistent basis for measurement, since data is obtained from audited financial reports rather than subjective evaluations, such as questionnaires (Shiu, 2006), while other models are not able to provide a comparison between companies (Firer and Mitchell Williams, 2003; Maditinos et al., 2011).

The measure of intellectual capital provided by the VAIC model has a significant and positive influence on revenue growth, profitability (ROE return on equity, ROA return on asset, operating, ROS return on sale, operating profitability) and companies' sustainable growth (Mukherjee and Sen, 2019; Smriti and Das, 2018; Xu and Wang, 2018; Sardo and Serrasqueiro, 2018; Kai Wah Chu et al., 2011; Gupta, 2015; Maditinos et al., 2011; Joshi et al., 2013; Najafizadeh and Fordoei, 2014; Zia et al., 2014; Gan and Saleh, 2008).

Approximately 50% of a company's market value is not reflected in the accounts, as they do not include the positive correlation between intellectual capital and the market value of firms, and also between intellectual capital and financial improvement (Chen et al., 2005).

Overall, evidence has been found to suggest that intellectual capital, as measured by the VAIC, is positively associated with corporate profitability (Kai Wah Chu et al., 2011; Gupta, 2015; Najafizadeh and Fordoei, 2014; Hajeb et al., 2015).

There are different studies with different results for structural capital efficiency (SCE), some with a positive relationship, others a negative one and yet others with a non-existent one for SCE and profitability. However, for HCE and CEE, the majority relationship with profitability is positive (Haris, et al., 2019).

Nevertheless, the human capital efficiency (HCE) component is the one that presents the greatest difference between companies from different sectors (Svanadze, 2015).

4. Empirical analysis

This work has been carried out in a non-probability convenience sample, that is, the sample is composed of companies that facilitate their measurement and are accessible or favorable.

The sample is based on 1,379 companies (73% are public limited companies and 27% are limited liability companies) that have the accounting data for the annual period between 2009 and 2013. However, the data for the four years comprising the time period from 2010 to 2013 will be used, since the data for the year 2009 are used as the basis for the percentage growth for the year 2010. In total, the sample is 5,516 financial statements from 1,379 companies, as shown in Table 2.

Table 2. Sample used in the empirical analysis.

	Sector of economic activity	Samples
1.	Restaurants and hotels	124
2.	Construction	316
3.	Distribution &Sales	1344
4.	Agriculture	56
5.	Manufacturer	2376
6.	Energy and water	176
7.	Information Technology	236
8.	Others	888
	Total	5516

	Strategy Behaviour: (State of growth of the company)	Samples
1.	Expansive	357
2.	Dominant	760
3.	Shrinking	1828
4.	Restructuring	586
5.	In decline	586
6.	Unfocused	1091
	Total	5516

4.1. Business profitability grouped by sector of economic activity and strategic behaviour

For the selected sample, calculations are made of the company's profitability ratios, specifically the following are used: ROE (Return on Equity), ROA (Return on Assets), Operating Profitability and ROS (Return on Sales). In Figure 3, a large variability of these profitability indicators can be observed within each sector, especially with regard to ROE. This variability for companies within each sector may be related to differences in the strategic positioning of each of them, which motivates different growths.

For this reason, the graph in Figure 4 has been made, in which a greater concentration of the values of the profitability indicators is observed, when these values are grouped according to the states of growth instead of the company's sector of economic activity.

In this Figure 4, negative results of profitability (ROE, ROA and ROS) can be observed for companies in decline; while companies in a restructuring situation have profitability close to zero.

On the other hand, positive returns correspond to all dominant, expansive and shrinking companies, and it is the dominant companies that have the highest values, followed by contracting companies.

Therefore, the six different states used in this study to classify companies are adequate to predict business profitability and thus assess business management performance.

Since the established classification of companies can determine the strategic behaviour and therefore the goodness of business management, it also seems correct to assume that this classification can be used to predict the change in value added by intellectual capital. Thus, the six different states of strategic behaviour used in this study to classify companies are adequate to predict business profitability and thus assess business management performance. To determine these six categories, accounting data has been used to determine the sales growth, sustainable growth and market demand growth.

4.2. Value added by intellectual capital grouped by sector of economic activity and strategic behaviour

When companies are grouped by activity sectors (Figure 5), the lowest values in human capital efficiency indicators are found in the construction and catering sectors, while the highest values correspond to energy and information technology sectors.

The sector with the greatest added value of intangible capital is that corresponding to information technologies followed by the energy sector. In

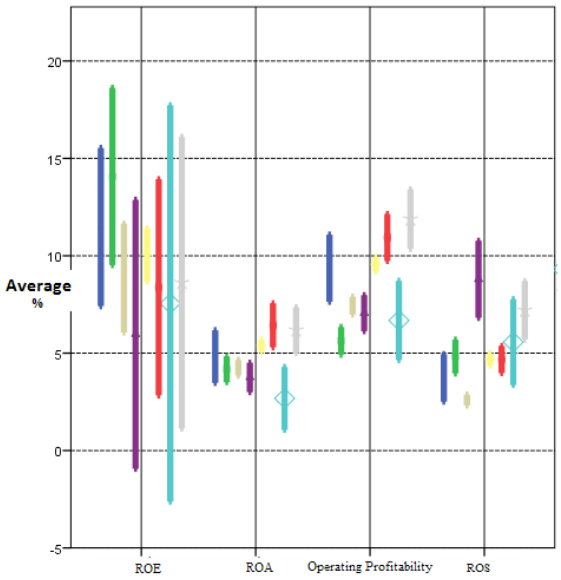

Figure 3. Profitability of the sample by industrial activity. Agriculture; Construction; Distribution & Sales; Energy & Water; Manufacturer; Others; Restaurant & Hotels; Information technology.

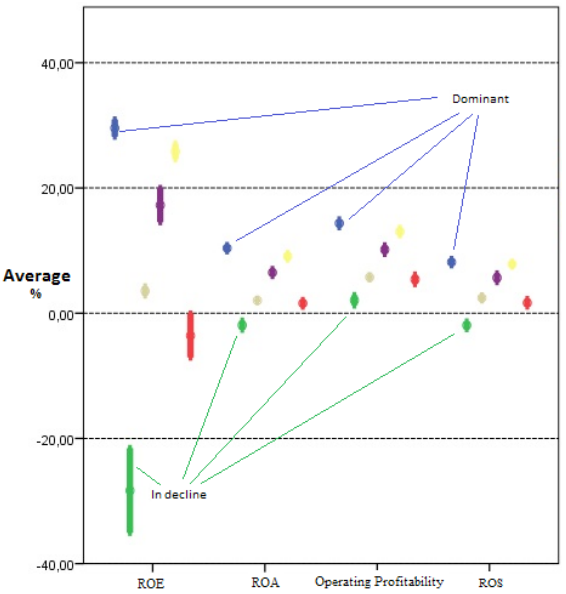

Figure 4. Profitability of the sample by strategic behavior. Dominant; In decline; Unfocused; Expansive; Shrinking; Restructuring.

view of the current strategy behaviour , companies in a conquering business situation have the highest values of intellectual capital, following by expansive companies (Figure 6).

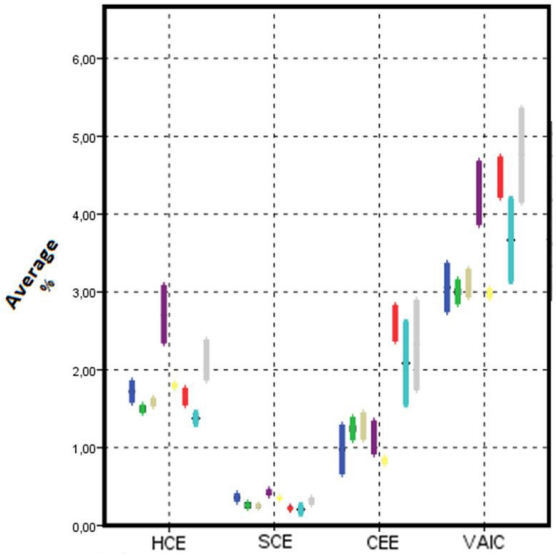

Figure 5. HCE, SCE, CEE, VAIC by sector of economic activity. Agriculture; Construction; Distribution & Sales; Energy & Water; Manufacturer; Others; Restaurant & Hotels; Information technology.

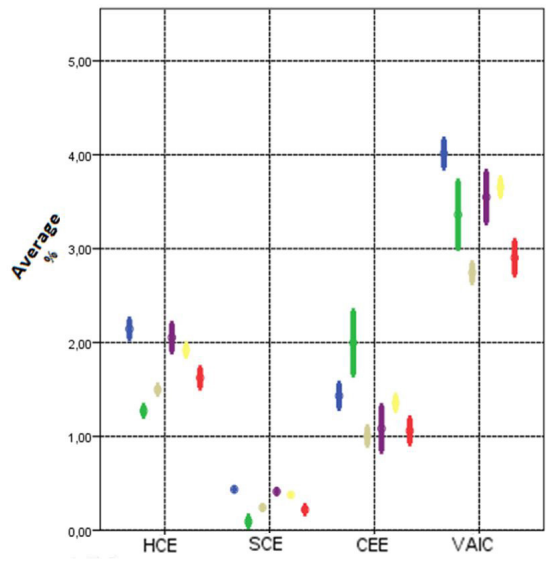

Figure 6. HCE, SCE, CEE, VAIC by state of growth.

Dominant; In decline; Unfocused; Expansive; Shrinking; Restructuring.

5. Conclusion

This work makes an outstanding contribution to the state of the art of the classification of companies, since it establishes a new codification based on their strategic behaviour in the market.

A structured method has been followed to obtain this new classification of the companies that relates the strategic behavior with the variables of growth in sales, sustainable growth and growth of the market demand.

The combination of these variables has allowed six company categories (Expansive, Dominant, Shrinking, Restructuring, In decline, Unfocused) to be established.

An empirical study has been used, with a large sample of Spanish companies, to verify that there is a relationship between profitability and the classification obtained from the companies' strategic behavior in the market. Therefore, the six categories obtained are not only suitable for classifying the evolution of companies in their market, but also their profitability.

In addition, it has been highlighted that the usual classification of companies according to their sector of activity is not adequate for this purpose; nor have other company classifications been found in the state of the art that would allow this relationship to be obtained.

On the other hand, the model for measuring the value added by intellectual capital (VAIC) has been used for each of these categories of companies, obtaining relationships between some components of intellectual capital, strategic behaviour and corporate profitability.

One result of the study is that declining companies have the lowest human and structural capital efficiency values, even though their employed capital efficiency is the highest. Meanwhile, the companies that are in the process of restructuring and out of focus are those that have the lowest values of intellectual capital or VAIC. The companies that are in a conquering business situation are the ones with higher values of the indicators of intellectual capital.

It can also be concluded that it is companies in the energy, water and information technology sectors

that add the most value to their intellectual capital processes, which is particularly relevant in terms of human capital.

Another conclusion is that the value added by intellectual capital (VAIC) is higher in companies with sustainable growth higher than market growth (companies in business situation: conquering, explosive and shrinking). These companies have greater human and structural capital efficiencies than others, with technology and energy companies having the greatest added value of intellectual capital.

Consequently, this study combines data from companies in different sectors with indicators of intellectual capital (human, structural, relational) to establish new correlations between these intellectual components and the results of business management, from three points of view: financial management, product portfolio management, and commercial management.

Therefore, the new classification of companies obtained in this work is a starting point for new scientific studies on intellectual capital and the strategic behaviour of companies in the market.

6. Acknowledgements

The authors would like to acknowledge the grants T-CUE Doctoral prize for research on topics directly related to business needs, the grants of the PhD extraordinary award and the support of the University of Burgos to facilitate access to data gathering in relation to the work presented in the paper.

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