Intellectual Capital, Strategy and Financial Crisis from a SMEs Perspective

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Abstract

Purpose - This study investigates the relationship of Intellectual Capital (IC) with the strategy of Small-Medium Enterprises (SMEs) and their executive decisions regarding the strategy of their IC portfolio during a financial crisis.

Design/methodology/approach – The analysis is informed by the responses of 162 Greek SMEs on a structured questionnaire. Greek SMEs constitute an appropriate research setting since they operate within an environment of economic recession, financial turbulence and operational uncertainty.

Findings - Initial analysis indicates that SMEs' strategic position seems to have effects on the composition of their IC portfolio, especially when a SME is strategically classified as Analytic according to Miles and Snow's (1978) typology. Greek SMEs do not seem to follow the suggested by literature executive decisions for the strategic management of their IC portfolio. They apply on their IC components strategies that could be classified as "Act" or "Analyse" under Wissenzbilanz's typology (Bornemann and Alwert, 2007) regardless the prospects for improvement expected for these IC components. Therefore, while SMEs seem to care about their IC they do not manage it in a coherent and strategically beneficial way.

Research limitations/implications – Findings are based on SMEs' views on the relation of their IC with their strategy and the executive decisions they make regarding the strategic management of their IC portfolio during the financial crisis. A possible limitation but also an area for future research is to examine the implications of these relations between SMEs' strategy and IC portfolio on SMEs' financial performance.

Originality - The contribution of this study is that explores the relations of SMEs' executive decisions in relation to the strategic management of IC components and the influence that the strategic position of SMEs exerts on the composition of their IC portfolio during a financial crisis.

Keywords - Intellectual Capital, Strategy, SMEs, Financial Crisis, Wissenzbilanz's typology

Article Classification - Research Paper.

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Intellectual Capital, Strategy and Financial Crisis from a SMEs Perspective

1. Introduction

This study investigates the relationship of Intellectual Capital (IC) with the strategy followed by Small-Medium Enterprises (SMEs) and their executive decisions for the strategic management of their IC portfolio during a financial crisis. IC research has conceptualised the relation of IC with strategy by theorising IC as a source of competitive advantage (Martin-de-Castro *et al.*, 2011). However, during a financial crisis the lack of available resources and firms' poor performance might have effects on the direction and intensity of the relations between IC and strategy. Further strategic decisions regarding the management of the IC portfolio might diverge from those proposed by literature. For instance, firms might change their strategic orientation due to environmental pressures and devalue the strategic importance of intangibles. As a result, firms might divert resource allocation from intangible higher risk investments that are expected to improve future performance, to tangible investments with lower returns and lower risk in order to reverse their declining economic performance due to the financial crisis.

We examine the relation that exists between the components of the IC portfolio with strategy during the financial crisis in Greece by using a sample of 162 Greek SMEs. We also investigate the extent that SMEs' executive decisions divert from those recommended by literature. Greek SMEs is an appropriate research setting since they operate within an environment of economic recession, financial turbulence and operational uncertainty. We employ Miles and Snow's (1978) typology to model SMEs' strategic orientations and we draw inferences from Wissenzbilanz's typology to model SMEs' executive decisions for their IC portfolio (Edvinsson and Kivikas, 2007; Bornemann and Alwert, 2007).

Our analysis indicates that SMEs' strategic position seems to affect the composition of their IC portfolio, especially when a SME is strategically classified as Analytic according to Miles and Snow's (1978) typology. Furthermore, Greek SMEs do not seem to follow the suggested by literature executive decisions for the strategic management of their IC portfolio. Probably in an attempt to overcome the crisis they put more emphasis on all aspects of IC components regardless their expected potential for improvement. They seem to follow the recommended by Wissenzbilanz's typology attitude towards IC components only for some human capital related aspects of IC. Our study contributes to literature as it explores IC management during a period of financial crisis for the specific group of SMEs. More specifically, it analyses the relations of SMEs' executive decisions for the strategic management of their IC components and the effects of their strategic position on the composition of their IC portfolio. Therefore it touches upon the relation between strategy and IC for the SMEs that represent a less researched group of companies in literature (Aragón-Sanchez and Sanchez-Marín, 2005; St-Pierre and Audet, 2011) and it is novel on attempting this analysis during a specific time period that is characterized as a financial crisis.

The paper is organized as follows. The second section is devoted to the literature review. The presentation of the research hypotheses as well as the motivation of the study are found in section 3. The results of the analysis are discussed in section 4. In section 5 the conclusions of the study are presented.

2. Background

2.1. Intellectual Capital, Performance and Strategy

Intellectual Capital (IC) related literature is characterized by a plethora of definitions for IC (e.g. Martin-de-Castro *et al.*, 2011; Swart, 2006) that steam from different disciplines and they are aligned with different epistemological views (Mouritsen, 2006). It seems that the term IC is used to encapsulate firm's knowledge based intangible assets which are associated with its operational and subsequent market performance as they enhance firms' responsiveness to business environment and their ability to implement strategy effectively. In an endeavour to shed light on the nature of IC, related literature has shaped different frameworks for classifying IC components. According to literature, three main components of IC can be found: human capital, structural capital and relational capital (Hsu and Fang, 2009; Martin-de-Castro *et al.*, 2011; Swart, 2006).

Human Capital refers to the tacit and explicit knowledge of people and their ability to generate tangible and intangible assets (Brooking, 1996; Edvinsson and Malone, 1997; Sveiby, 1997). This knowledge makes human resources capable of effectively executing their tasks and includes formal education, specific training, experience and personal development (Wu *et al.* 2008; Hsu and Fang, 2009). Besides knowledge, abilities and behaviors are additional critical dimensions for understanding Human Capital (Martin-de-Castro *et al.*, 2011). Abilities are the skills that a person develops as a result of experience and practice (Subramaniam and Youndt, 2005) and they refer to individual learning, team working, communication and leadership.

Behaviors direct the way individuals perform their tasks and they include mental models, paradigms and beliefs such as commitment, self-motivation, job satisfaction and creativity (Martin-de-Castro *et al.*, 2011).

Structural Capital consists of the intangible assets incorporated within the firm's organizational structure and technological infrastructure and facilitate the flow of knowledge in order to improve firm's operational efficiency (Cabrita and Bontis, 2008; Hsu and Fang, 2009). Structural Capital comprises non-human assets and provides the technological tools and architecture for retaining, packaging, reinforcing and transferring knowledge along business processes (Cabrita and Bontis, 2008). These non-human assets might have a technical dimension which refers to efforts in research and development (i.e. R&D), technological infrastructure, intellectual and industrial property or they may be linked with organizational culture, values, attitudes, structures and firm's information and telecommunications capability (Martin-de-Castro *et al.*, 2011).

Relational Capital represents firm's ability to absorb, exploit and explore new knowledge from its environment in order to obtain and sustain competitive advantage positions (Martin-de-Castro *et al.*, 2011). Firm's relations with its environment can be analyzed into two levels. The first level refers to firm's relations with customers, suppliers, partners and competitors while the second deals with firm's relations with society in general (Swart, 2006).

A growing number of empirical initiatives document the economic value relevance of IC components (Sougiannis, 1994; Lev and Sougiannis, 1996; Al-Horani *et al.*, 2003; Eberhart *et al.*, 2004; Eberhart *et al.*, 2008; Hansson, 2004; Lev *et al.*, 2009). The above empirical evidence refers to the relation between IC and operational performance and market performance for large sized companies. Additionally, a quite similar research strand has confirmed the aforementioned positive relationship of IC with business performance for SMEs (Desouza and Awazu, 2006; Wong and Aspinwall, 2004; Herremans *et al.*, 2007; Kamath, 2008; St-Pierre and Audet, 2011). Within the context of SMEs' research field, it seems that the interaction between IC components is necessary to create economic value and that different IC components have different impact on business performance (Bontis, 1998; Bontis *et al*. 2000; Tovstiga and Tulugurova, 2009; St-Pierre and Audet, 2011).

The positive relation of IC with financial performance signifies its relation with corporate strategy as it enhances firms' environmental responsiveness and their ability to effectively implement strategy. Within the context of strategic management, a significant research stream theorizes corporate strategy through the resource based view of strategy (Powel, 2001). This strand of literature argues that firms' intangible centred capabilities are more likely to enable them to sustain their superior performance. On the other hand, IC represents both an intangible factor contributing to the economic performance of a firm and its competitive advantage enabler within the context of a knowledge based society (Hsu and Fang, 2009). This close conceptual relation between IC and the resource view of strategy has motivated researchers (e.g. Martin-de-Castro *et al.*, 2011) to call for a more systematic empirical analysis of the IC based view of the firm (Reed *et al*., 2006); a theoretical combination of the resource based view of strategy with IC (Martin-de-Castro *et al.*, 2011).

2.2. SMEs' Strategic Orientations and Executive Decisions for IC Portfolio

Miles and Snow's (1978) typology for SMEs' strategic orientations groups SMEs to four strategic categories: Defensive, Prospective, Analytic and Reactive. More specifically:

1. Defensive strategy refers to SMEs that have a narrow range of products that they aim just to protect and not to develop by promoting operational efficiency.
2. Prospective strategy refers to the strategic orientation followed by SMEs that search for new market opportunities that they wish to penetrate through innovations in their product range.
3. Analytic strategy concerns ambivalent businesses that adapt to the conditions in their market and the external constraints, and
4. Reactive strategy corresponds to SMEs that continuously lag behind and that are unable to respond adequately to constraints and changes in their environment.

The above typology of strategic orientation has been adopted by a variety of SMEs research initiatives as being the most suitable to describe the challenges SMEs face within their heterogeneous environment (Aragón-Sánchez and Sánchez-Marín, 2005; Raymond *et al.*, 2009).The strategic propositions regarding the IC portfolio of SMEs are rare in literature. However, at the same time, a number of governmental initiatives and publications (e.g., MERITUM: Measuring Intangibles to Understand and Improve Innovation Management - European Commission) around the world have attempted to provide guidelines to firms (e.g., RICARDIS: Reporting Intellectual Capital to Augment Research, Development and Innovation in SMEs, Wissenzbilanz) for reporting and managing their IC portfolio (Edvinsson and Kivikas, 2007). In the same realm, Wissenzbilanz, a German IC initiative, provides a typology that could be used for executive decisions as regards the IC portfolio (Edvinsson and Kivikas, 2007; Bornemann and Alwert, 2007). Within this framework, each IC component is evaluated according to two separate dimensions: its influencing weight

within the IC firm's portfolio and its improvement potential. By plotting these two dimensions to a matrix, four courses of executive decisions can be recognized:

1. Stabilize IC component: this is the appropriate course of action for IC components characterized by high influencing weight within the IC portfolio and low potential for improvement. The corresponding IC components should be stabilized and nurtured in order for firms to extract the maximum economic benefit from them.
2. Act upon IC component: this is the appropriate course of action for IC components characterized by high influencing weight within the IC portfolio and high potential for improvement. These IC components require further investments on their development as their gradual improvement is expected to create increased returns on the invested capital.
3. Analyze IC component: this is the appropriate course of action for IC components characterized by low influencing weight within the IC portfolio and high potential for improvement. These IC components require further analysis in order to be developed in a way to enable firms to generate economic benefits in the future.
4. Keep level of IC component: this is the appropriate course of action for IC components characterized by low influencing weight within the IC portfolio and low potential for improvement.

3. Motivation and Research Hypotheses

Besides the theoretical justification of the IC based view of strategy, few studies provide empirical insights for the existing relationship between strategy and performance for SMEs. Aragón-Sanchez and Sanchez-Marín (2005) document the relation of strategic orientation and performance for Spanish SMEs. According to their findings, managerial characteristics referring to intangible assets such as organizational structure, human resource management practices, innovation, and technology are of significant strategic value. Nevertheless, firms' strategic position critically affects the composition of the above intangibles (Aragón-Sanchez and Sanchez-Marín, 2005; St-Pierre and Audet, 2011). A number of possible explanations can be drawn for the witnessed relationship between strategy and IC. For example, the better performing SMEs would rely on strong and highly-developed IC to counterbalance the effects of their reduced size and the absence of economies of scale. However the empirical evidence regarding the relation between IC and strategy has been studied during a non-crisis period. The recent international financial crisis and the economic stagnation in several economies have increased the systematic and the firm specific risk while contributed in decreased liquidity and profitability. Especially for Greece, the Greek government-debt crisis was triggered by the world economy recession of October 2008. In late 2009, the fears of a sovereign debt crisis developed among investors concerning Greece's ability to meet its debt obligations lead to a crisis of confidence. In April 2010, Greek public debt was downgraded to junk bond status. At that point of time capital markets were practically no longer available for Greece as a funding source and the European Central Bank, the Eurozone countries and the International Monetary Fund (IMF) agreed on a bailout loan for Greece conditional to tight supervision of the Greek fiscal policy, the implementation of wide scaled privatization of governmental assets and extended structural reforms. Greek economy experienced a period of consecutive recession that commenced in 2009 and it expected to start showing reverting signals in 2014 while the unemployment rate reached the unprecedented rate of 27% of active population in 2013. Within such an economic environment, the existence of the relationship between SMEs' strategic position and the composition of IC investments might be challenged. The high risk of intangible investments (i.e. compared to physical investments) and the increased capital cost, due to the economic crisis, may reduce the economic attractiveness of IC investments and narrow their significance as strategic enablers regardless of SMEs' strategic preposition. However, if SMEs consider their IC components of limited strategic significance they may not have changed the composition of their IC portfolio. Therefore, the following hypothesis is introduced:

> **H1:** *During the economic crisis, the strategy followed by SMEs is expected not to have an effect on the composition of the IC portfolio*

The economic recession might have affected SMEs' executive decisions regarding investments on IC components. Wissenzbilanz (Bornemann and Alwert, 2007) provides a typology of executive decisions for IC portfolio. Each executive decision requires different levels of investment on IC and is expected to generate returns of different size in different time periods. Both "Analyze" and "Act" executive decisions refer to IC components with high potential for improvement and thus requirements for high investments that are assumed to generate earnings in the future. As the time horizon refers to the future, these returns are quite uncertain. The limited availability of resources given the financial distress of SMEs during an economic recession is expected to make such decisions less attractive. On the other hand, "Stabilize" and "Keep Level" executive decisions are either expected to generate returns on the current period or require lower levels of investment on IC compared to the other executive decisions. The above analysis can be summarized to the following hypothesis:

H2: *During the economic crisis, SMEs' executive decisions tend to favour "Stabilize" and "Keep Level" against "Analyze" and "Act" executive decisions regarding their IC components*

3. Methodology

3.1 Sample

In this study we analyse the relationship between IC and strategy for SMEs by using qualitative data gathered through a questionnaire in a field survey in Greece. The survey instrument consists of (79) statements. For sixty one (61) statements the respondents were asked to express on a Likert scale the extent of their agreement (where 5 corresponds to "totally agree") or disagreement (where 1 corresponds to "totally disagree"). The remaining eighteen (18) statements requested respondents to express on a nominal scale information revealing indications for their firm's strategy and their executive decisions on various IC components.

A translated copy of the statements included in the questionnaire is found in the Appendix. The selection of the statements was based on existing literature (Desouza and Awazu, 2006; St-Pierre and Audet, 2011) properly adjusted for the setting of SMEs and the Greek reality. The questionnaire also contained questions that permitted the strategic categorization of various firms under the Miles and Snow typology and the IC components classification under the Wissenzbilanz typology of IC executive decisions. The questionnaire has been pilot tested in one SME in an attempt to spot unclear questions or sources of possible misunderstanding. The statements corresponding to different intellectual capital dimensions were scattered in the questionnaire. Moreover there were fifteen (15) reverse coded statements.

A web based questionnaire was addressed to 3.000 randomly selected SMEs found the ICAP database and 162 questionnaires were received. In order to define SMEs we used the definition developed by the European Commission (E.C.)[1]. More specifically, 103 (63%) companies were identified as Small and 59 (37%) as Medium-sized enterprises. The split of the sample firms to the three sectors is as follows: 42 firms belong to the manufacturing sector, 79 firms to the retail sector while there are another 41 service firms. The field study took place during the Spring of 2013. The response rate was 5.4%. A non-response bias analysis did not reveal any statistically significant differences between early and late respondents (results not tabulated). Table 1 reports the basic descriptive statistics for key financial figures of the sample companies.

- Insert Table 1 –

3.2. Definitions of Variables of Wissenzbilanz typology and Strategy

Instrument includes statements (statements 5-8 Appendix) that enable the classification of a SME according to the Miles and Snow (1978) strategic archetypes. The answers concerning SME's strategy were grouped together so as to create factors that are coded as (i) Prospective (Variable. Pros.) and (ii) Defensive (Variable Defen.). A Cronbach's Alpha test was used to assess the validity of the identified factors. Table 2 presents a brief summary of the factors. An SME that reports 3.5 or above on factor Prospective but less than 3.5 on factor Defensive is classified as "Prospective" concerning its strategic orientation. SMEs that report 3.5 or above on both factors (i.e. Prospective and Defensive) are classified as "Analytic" concerning their strategic orientation. We ground this classification on the argument that scoring high on both factors indicates a firm with ambivalent strategic orientation that adapts to the evolution of its market and external constraints searching alternative courses of action within the context of either innovation or operational efficiency. On the other hand, SMEs that report less than 3.5[2] on both factors (i.e. Prospective and Defensive) are classified as "Reactive" concerning their strategic orientation. It seems that these SMEs have no clear strategic orientation that would enable them to adequately respond to constraints and changes in their environment.

- Insert Table 2 -

As far as the Wissenzbilanz typology of executive decisions for IC components is concerned, the questionnaire included statements that facilitated the assessment of each IC component regarding its influencing weight within the IC portfolio and its potential for improvement. The influencing weight of each IC component within IC portfolio is evaluated as follows:

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1. According to the European Commission; the main factors determining whether a company is an SME are the number of employees and either turnover or balance sheet total. More specifically, according to the article 2 of the Annex of Recommendation 2003/361/ECA, SMEs have less than 250 employees and either annual turnover not exceeding 50 million euro, or annual balance sheet total not exceeding 43 million euro.

2. We choose 3.5 instead of 3 as a critical value because this selection enables us to formulate more balance portfolios of SMEs and allow us to increase the accuracy of SMEs classification according to their strategic orientation.

$$IW_i = \frac{QL_i + QN_i + SM_i}{3} \qquad \text{Eq. (1)}$$

Where IW_i is the influencing weight within IC portfolio, QL_i the quality (statements 24-30, 53-56 and 71-73), QN_i the quantity (statements 9-15, 45-48 and 64-67) and SM_i the presence of systematic management (statements 31-37, 57-60 and 74-76) of the i^{th} IC component. The potential for improvement of each IC component is evaluated using statements 16-23, 49-52 and 68-70. By summing up the evaluations for each IC component of both its influencing weight within the IC portfolio and its potential for improvement it is possible to identify the recommend executive decision according to the Wissenzbilanz typology.

The categorization according to the Wissenzbilanz typology is achieved as follows: For the IC components that attain a score above the value of 3 on both IW and PI "Act" is considered to be the proper strategy. The strategy assigned to the IC components that get a score of the value of 3 or less on both IW and PI is "Keep Level".. For the IC components with a score of 3 or less on IW but above 3 on PI "Analyze" is considered to be the proper strategy. Finally, the proper strategy for IC components which get a score of 3 or less on PI but above 3 on IW is "Stabilize".

The comparison of the recommended executive decision identified as described above to the one actually applied by the SME according to its responses (statements 38-44, 61-64 and 77-79) reveals the existence of divergence or convergence with the theoretical model.

4. Results

4.1 Central Tendency and Correlations

Table 3 presents the mean, median and standard deviation of Potential for Improvement (PI) and Influencing Weight (IW) of IC components. It seems that within the Greek SMEs' IC portfolio, the Relation Capital related components have the greater weight and the Human Capital ones the lower weight. "Employees' Educational level", "Knowledge Sharing" and "Employees' Social Culture" are the three IC components with the lower IW within SMEs' IC portfolio according to their mean values. All these IC components are parts of either Human Capital or Structural Capital. On the other hand, the IC components with the higher IW within SMEs' IC portfolio are the "Relations with Customers", the "Relations with Suppliers" and the "Employees' Loyalty". During the financial crisis, it seems that SMEs' relations with their external environment and their employees are perceived as the most important intangible factors. A possible interpretation of this finding is that SMEs strive to keep a good level of relations with their external environment and their employees as an enabler to effectively handle problems related with the limited financial resources.

The three IC components with the higher PI are the Relations with "Suppliers", the "Employees' Social Culture" and "Employees' Educational Level" whereas "Employees' Motivation", "Innovation" and "Knowledge Sharing" are the IC components with the lower PI. The low mean values of "Employees' Motivation", "Innovation" and "Knowledge Sharing" are merely explained by the fact that SMEs may be incapable of improving these IC factors due to the financial crisis. Innovation and Knowledge Sharing require the consumption of economic resources with highly uncertain returns. "Employees' Motivation" is difficult to be improved in an economic environment of high uncertainty with limited financial resources that considerably constrain firms to provide financial benefits for performance achievements.

- Insert Table 3 -

4.2 SMEs' Strategy and the Composition of the IC Portfolio

In order to test our first hypothesis, that refers to the effect of SMEs' strategy on the composition of the IC portfolio, we test whether there are statistically significantly differences on the mean values of IW and PI regarding the different IC components among SMEs following the different four strategies.

We compared the mean responses regarding the PI and the IW of the IC components by performing a Kruskal-Wallis test of equality of means between independent samples by grouping the cases according to the SMEs' strategy. Table 4 reports the results of the Kruskal-Wallis test. As far as the PI dimension of the IC components is concerned, the null hypothesis of equality of means cannot be rejected for the majority of IC components with the exception of "Employees' Skills", "Relations with Customers" and "Relations with Suppliers" where a statistically significant difference among groups at 5% statistical significance level is evidenced. This implies that the mean response concerning the PI of most IC components does not statistically differ across SMEs adopting different strategic orientations. However, strategic orientation seems to cause differences on mean responses concerning the IW of IC components since the null hypothesis of equality of means is rejected at the 5% or less statistical significance level for all influencing weights of the IC components but that of the "Relations with Suppliers".

- Insert Table 4 -

In order to better understand the origin of the differences among strategies, we compare the mean responses for the IW and PI of various IC components between different strategic orientations of SMEs using the Mann Whitney U test. As expected from the results of the Kruskal-Wallis test, the strategic orientation of SMEs is mainly associated with differences on the mean responses concerning the IW of IC components and to a lesser extent with the PI placed on the IC components.

The analysis of Table 5 reveals that the mean responses of the Analytic SMEs differ from the corresponding mean responses of Reactive and Defensive SMEs for the majority of the IW of various IC components. More specifically, the mean responses of Analytic SMEs differ from those of Reactive SMEs with exception of the "Information Systems". The mean responses of Analytic SMEs differ from those of Defensive SMEs with the exception of "Employees' Loyalty", "Information Systems", "Relations with Customers" and "Relations with Suppliers". On the other hand, the mean responses of Analytic SMEs differ from those of Prospective SMEs only in the case of "Employees' Skills", "Employees' Loyalty" and "Employees' Commitment to Long Term Goals". In the case of Prospective SMEs, only the mean response of "Innovation" differs from those of Defensive SMEs. Prospective SMEs, also, differ in the mean response for "Innovation", "Knowledge Sharing" and "Employees' Integration with firms' Values". There is a plausible explanation to that since Prospective SMEs are expected to emphasize more on innovation related activities in order to achieve competitive advantage compared to Defensive SMEs. Finally, Reactive SMEs differ from Defensive SMEs on the basis of their mean responses concerning "Employees' Commitment to Long Term Goals" and "Employees' Integration with firms' Values".

Table 6 reports the results of the Mann Whitney U test for PI of the IC components among SMEs adopting different strategic orientations. The most significant differences are identified between the mean responses of Analytic SMEs and the other types of SMEs. More specifically, Analytic SMEs differ from Reactive ones as far as "Employees'' Learning Capabilities", "Employees' Motivation", "Relations with Customers" and "Relations with Suppliers" are concerned. They also differ from Prospective SMEs regarding "Relations with Customers" and "Relations with Suppliers"; and with Defensive SMEs as far as all Relational Capital components are concerned.

- Insert Tables 5 and 6 -

Summarizing the above analysis, SMEs' strategic orientation seems to affect the composition of their IC portfolio against the Hypothesis 1 which states the opposite. However, SMEs' strategic orientation affects more the IW than the PI dimension of the SMEs' IC portfolio. Most differences on the composition of the IC portfolio arise for those SMEs that are classified as Analytic compared to the other forms of strategic orientation.

4.3 SMEs' Executive Decisions for IC Components

We try to assess the extent to which the actual distribution of SMEs' executive decisions for IC components is consistent with the theoretical distribution of SMEs' executive decisions based on Wissenzbilanz typology in line with our second hypothesis. For this reason, we classify our SMEs into two groups, those SMEs that follow executive decisions for a given IC component that fall within the "Stabilize" or "Keep Level" categories and those SMEs whose executive decisions for a given IC component are characterized as "Act" or "Analyze". The grouping of the four dimensions on two is justified on the similarities existing between the dimensions merged.

Table 7 reports the results of a Cross Tabs analysis. The null hypothesis is that the observed and recommended strategies are independent. Low p-values indicate that the hypothesis of independence is rejected. As the p-values, in the majority of cases, are not small; on the contrary they are high, we get an indication that that the actual decisions of SMEs for the majority of IC components are not consistent with theoretical ones. Only in the cases of "Employees' Educational Level" and "Employees' Satisfaction" the decisions are consistent.

From the above analysis, it seems that SMEs do not make the proper executive decisions regarding their IC portfolio. More specifically, they seem to follow "Act" or "Analyze" behaviours while it should be better to follow "Stabilize" and "Keep Level" strategies. Therefore, while SMEs seem to care for the improvement of their IC components our empirical evidence advocates that they do not manage them in a coherent and strategically beneficial way. At least their actions do not coincide with the theoretical recommendations steaming from Wissenzbilanz's typology. Therefore our results do not provide support to our second hypothesis.

- Insert Table 7 –

5. Concluding Remarks

This study investigates the relationship of Intellectual Capital (IC) with the strategy followed by Small-Medium Enterprises (SMEs). SMEs strategy categorization is performed by using the Miles and Snow's (1978) typology. Moreover, it analyses the executive decisions of SMEs for the strategic management of their IC portfolio during a financial crisis. The analysis of the executive decisions of SMEs for the strategic management of their IC is made through the prism of the Wissenzbilanz's typology. The analysis is performed on a sample of Greek SMEs that have provided data through a survey instrument.

The study revealed some interesting results. Firstly, it is evident that even during a period of economic recession and financial crisis, IC is viewed as a valuable resource associated with SMEs' strategic orientation. Secondly, we provide evidence that IC is not assessed as equally important among SMEs following different strategies. More specifically, Analytic SMEs' mean response to the influencing weight and the potential for improvement of several IC components differs significantly from the others SMEs' mean response. SMEs that follow an Analytic strategy are more conservative and less enthusiastic for the potential improvement of their IC portfolio while consider it more influential for their business success. This finding may indicate that SMEs following the Analytic strategy may have already reached satisfactory levels regarding the status of the components of their IC portfolio while they acknowledge the contribution of IC to their business success. This finding is very interesting as SMEs that follow an Analytic strategy seem to better adapt in a turbulent business environment like the one formed by the financial crisis. However, the mean responses of the SMEs' with other strategic orientations under Miles and Snow's typology (i.e. Defensive, Prospective and Reactive) do not seem to differ significantly.

Thirdly, it is very important that despite the financial crisis Greek SMEs seem to care about their IC portfolio but unfortunately in a suboptimal, at least according to theory, manner. The way SMEs behave towards their IC portfolio does not coincide with the theoretical recommendations proposed under the Wissenzbilanz's typology. Greek SMEs follow the strategy of "Act" or "Analyze" for the majority of the components of their IC portfolio regardless of their potential for improvement. This attitude may result in a resource consumption strategy without proportionally beneficial pay offs. There are only two exceptions to this attitude according to our data. The behaviour of SMEs towards the components of Human Capital "Employees' Educational Level" and "Employees' Satisfaction" follows the recommended by the theoretical framework of Wissenzbilanz strategy.

Our study has some limitations. Firstly, our analysis is based on the input gathered from 162 SMEs. While the size of the sample is rather small, it is comparative to similar studies. Secondly, our analysis has been performed by using information coming from the responses of SMEs on a structured questionnaire, therefore is based on quantitative information. Therefore the accuracy of our results is confided to this limitation. However, the use of questionnaires is a common research method in this research area.

The results of this study pave the way for additional analyses. The research effort could be expanded by analysing the relation between IC and the executive decisions of SMEs regarding the strategy of their IC portfolio under the prism of their economic performance. More specifically, a prospect research agenda would focus on whether SMEs that follow the recommended by literature actions regarding their IC portfolio perform better than those that do not. Additionally, it could be interesting to quantitatively assess, regardless of the respondents' positive view on IC, whether their investments on the development of IC have actually influenced their financial performance. Investments on IC could increase firms' operational risk and reduce profitability especially when SMEs invest more than the recommended strategies would suggest on the basis of IC potential improvement. In this case, investments on IC might undermine the long term survival of the firms rather than being a source of sustainable economic wealth especially during a financial crisis period where access to financing resources is limited.

Appendix: Questionnaire

Questionnaire consists of (79) statements. Sixty one (61) statements requested the respondents to express on a Likert scale the extent of their agreement (where 5 corresponds to totally agree) or disagreement (where 1 corresponds to totally disagree). Eighteen (18) statements (statements 1-4, 38-44, 61-64 and 77-79) requested the respondents to express on a nominal scale their firm's strategy and executive decisions on various IC components. The questionnaires indicated with R are reverse coded. The statements were scattered in the questionnaire and they are presented in the following form for simplicity reasons.

The statements are:

1. I am familiar with the term Intellectual Capital.
2. I am familiar with the term Human Capital.
3. I am familiar with the term Organization Capital.
4. I am familiar with the term Relational Capital.
5. Our strategy is to introduce innovations to the market.
6. Our strategy is to expand our operations to new products and/or markets.
7. Our strategy aims at offering a relative stable set of services.
8. Our strategy aims at dominating the market and improving efficiency by lowering costs.
9. The level of employees' skills is satisfactory compared to competition.
10. The level of employees' education is satisfactory compared to competition.
11. The level of employees' learning capabilities and adaptation is satisfactory compared to competition.
12. The level of employees' satisfaction is satisfactory compared to competition.
13. The level of employees' motivation is satisfactory compared to competition.
14. The level of employees' loyalty is satisfactory compared to competition.
15. The level of employees' commitment to long term goals is satisfactory compared to competition.
16. The quality of employees' skills should be improved. (R)
17. The quality of employees' education should be improved. (R)
18. The quality of employees' learning capabilities and adaptation should be improved. (R)
19. The quality of employees' satisfaction should be improved. (R)
20. The quality of employees' motivation should be improved. (R)
21. The quality of employees' loyalty should be improved. (R)
22. The quality of employees' motivation should be improved. (R)
23. The quality of employees' commitment to long term goals should be improved. (R)
24. Employees' skills are critical for the business success of our firm.
25. Employees' education is critical for the business success of our firm.
26. Employees' learning capabilities and adaptation are critical for the business success of our firm.
27. Employees' satisfaction is critical for the business success of our firm.
28. Employees' motivation is critical for the business success of our firm.
29. Employees' loyalty is critical for the business success of our firm.
30. Employees' commitment to long term goals is critical for the business success of our firm.
31. Management policies targeting at employees' skills exist in our firm.
32. Management policies targeting at employees' education exist in our firm.
33. Management policies targeting at employees' learning capabilities and adaptation exist in our firm.
34. Management policies targeting at employees' satisfaction exist in our firm.
35. Management policies targeting at employees' motivation exist in our firm.
36. Management policies targeting at employees' loyalty exist in our firm.
37. Management policies targeting at employees' commitment to long term goals exist in our firm.
38. Our IC strategy for employees' skills.
39. Our IC strategy for employees' education.
40. Our IC strategy for employees' learning capabilities and adaptation.
41. Our IC strategy for employees' satisfaction.
42. Our IC strategy for employees' motivation.
43. Our IC strategy for employees' loyalty.
44. Our IC strategy for employees' commitment to long term goals.
45. The level of information systems is satisfactory compared to competition.
46. The level of innovation is satisfactory compared to competition.
47. The level of knowledge sharing is satisfactory compared to competition.
48. The level of employees' integration with firms' values is satisfactory compared to competition.
49. The quality of information systems should be improved. (R)
50. The quality of innovation should be improved. (R)
51. The quality of knowledge sharing should be improved. (R)
52. The quality of employees' integration with firms' values should be improved. (R)
53. Information systems are critical for the business success of our firm.
54. Innovation is critical for the business success of our firm.
55. Knowledge sharing is critical for the business success of our firm.
56. Employees' integration with firms' values is critical for the business success of our firm.
57. Management policies targeting at information systems exist in our firm.
58. Management policies targeting at innovation exist in our firm.
59. Management policies targeting at knowledge sharing exist in our firm.
60. Management policies targeting at employees' integration with firms' values exist in our firm.

61. Our IC strategy for information systems is satisfactory compared to competition.
62. Our IC strategy for innovation is satisfactory compared to competition.
63. Our IC strategy for knowledge sharing is satisfactory compared to competition.
64. Our IC strategy for employees' integration with firms' values is satisfactory compared to competition.
65. The level of the relations with customers is satisfactory compared to competition.
66. The level of the relations with suppliers is satisfactory compared to competition.
67. The level of the employees' social culture is satisfactory compared to competition.
68. The quality of relations with customers should be improved. (R)
69. The quality of relations with suppliers should be improved. (R)
70. The quality of employees' social culture should be improved. (R)
71. The relations with customers are critical for the business success of our firm.
72. The relations with suppliers are critical for the business success of our firm.
73. The employees' social culture is critical for the business success of our firm.
74. Management policies targeting at the relations with customers exist in our firm.
75. Management policies targeting at relations with suppliers exist in our firm.
76. Management policies targeting at the employees' social culture exist in our firm.
77. Our IC strategy for the relations with customers.
78. Our IC strategy for the relations with suppliers.
79. Our IC strategy for the employees' social culture.

Tables

Table 1: Descriptive Statistics

	Sales Revenues	Total Assets	Equity	Earnings before taxes	Profit Margin (%)
Mean	7.22	8.35	3.22	0.14	27.87
Median	3.41	4.55	1.29	0.04	24.40
Standard deviation	9.25	10.00	5.38	0.90	17.32
Min	0.01	0.13	-5.65	-4.38	0.00
Max	47.605	42.16	28.20	5.91	100.00

All the reported numbers (except the profit margin) are in millions of euros.
The descriptive statistics refer to years 2009 – 2011.
The number of observations is 429.

Table 2: Factors Identified for SME's Strategy

Factor		Definition	Cronbach's Alpha
Code	Name		
Pros.	Prospective	Strategy that focuses on searching for new market opportunities though innovations in firm's product range (Statements 5 and 6).	0.751
Defen.	Defensive	Strategy that aims on offering a narrow range of products and to promote operational efficiency (Statements 7 and 8).	0.671

Table 3: Descriptive Statistics of Potential for Improvement and Influencing Weight of IC Components

Potential for Improvement of IC Components	Mean	Median	Std. Deviation
Employees' Skills	2.6111	3.0000	0.96040
Employees' Educational Level	**2.7716**	3.0000	0.94753
Employees' Learning Capabilities	2.6852	3.0000	0.90870
Employees' Satisfaction	2.5926	2.5000	0.97519
Employees' Motivation	2.4136	2.0000	0.96938
Employees' Loyalty	2.7531	3.0000	1.16928
Employees' Commitment to Long Term Goals	2.6975	3.0000	1.08685
Innovation	2.4506	2.0000	1.00343
Information Systems	2.7469	3.0000	1.20203
Knowledge Sharing	2.5617	2.0000	1.01505
Employees' Integration with firms' Values	2.6790	3.0000	1.04943
Relations with Customers	2.7284	3.0000	1.26110
Relations with Suppliers	**2.9630**	3.0000	1.21015
Employees' Social Culture	**2.8519**	3.0000	1.20156
Influencing Weight of IC Components	**Mean**	**Median**	**Std. Deviation**
Employees' Skills	3.9959	4.0000	0.57434
Employees' Educational Level	3.6091	3.6667	0.60999
Employees' Learning Capabilities	3.8477	4.0000	0.56722
Employees' Satisfaction	3.7366	3.6667	0.52990
Employees' Motivation	3.7675	4.0000	0.67397
Employees' Loyalty	**4.0700**	4.0000	0.61096
Employees' Commitment to Long Term Goals	3.8416	4.0000	0.64904
Innovation	3.7469	4.0000	0.78794
Information Systems	3.7181	3.6667	0.71422
Knowledge Sharing	3.7037	3.6667	0.64563
Employees' Integration with firms' Values	3.7469	3.6667	0.71057
Relations with Customers	**4.3477**	4.3333	0.57477
Relations with Suppliers	**4.0761**	4.0000	0.70615
Employees' Social Culture	3.7160	3.6667	0.86590

Potential for Improvement is calculated on the basis of the corresponding statements 16-23, 49-52 and 68-70 (Appendix). The scale is 1: there is a low need for improvement to 5: there is high need for improvement

Influencing weight of IC components is calculated as follows:

$$IW_i = \frac{QL_i + QN_i + SM_i}{3}$$

where IW_i is the influencing weight within IC portfolio, QL_i the quality (statements 24-30, 53-56 and 71-73), QN_i the quantity (statements 9-15, 45-48 and 64-67) and SM_i the presence of systematic management (statements 31-37, 57-60 and 74-76) of the i^{th} IC component.

Scale for QL is 1: very low critical importance to 5: very high critical importance

Scale for QN is 1: very low compared to competition to 5: very high compared to competition

Scale for SM is 1: at a very low level to 5: at a very high level

Table 4: Kruskal-Wallis Test of Equality of Means between Independent Samples
Cases are grouped according to the SME's Strategy

Potential for Improvement **(PI)** of IC Components	*Reactive (N=59) Mean*	*Defensive (N=46) Mean*	*Prospective (N=15) Mean*	*Analytic (N=42) Mean*	Chi-Square	df	Asymp. Sig.
Employees' Skills	2.7966	2.6087	2.6667	2.3333	**7.854**	**3**	**0.049**
Employees' Educational Level	2.8814	2.7609	2.9333	2.5714	2.989	3	0.393
Employees' Learning Capabilities	2.8983	2.6304	2.6000	2.4762	7.146	3	0.067
Employees' Satisfaction	2.7119	2.6087	2.4667	2.4524	2.176	3	0.537
Employees' Motivation	2.5424	2.4783	2.3333	2.1905	4.585	3	0.205
Employees' Loyalty	2.8814	2.6957	2.8667	2.5952	2.051	3	0.562
Employees' Commitment to Long Term Goals	2.7966	2.6957	2.6667	2.5714	1.371	3	0.712
Innovation	2.4407	2.5652	2.7333	2.2381	5.010	3	0.171
Information Systems	2.8983	2.7391	2.8667	2.5000	2.393	3	0.495
Knowledge Sharing	2.6271	2.5652	2.6667	2.4286	1.437	3	0.697
Employees' Integration with firms' Values	2.6780	2.6087	3.1333	2.5952	3.710	3	0.295
Relations with Customers	2.8644	2.8261	3.2000	2.2619	**9.294**	**3**	**0.026**
Relations with Suppliers	3.1017	3.0435	3.4667	2.5000	**9.245**	**3**	**0.026**
Employees' Social Culture	2.9153	2.9565	3.2667	2.5000	6.028	3	0.110
Influencing Weight **(IW)** of IC Components	*Reactive (N=59) Mean*	*Defensive (N=46) Mean*	*Prospective (N=15) Mean*	*Analytic (N=42) Mean*	Chi-Square	df	Asymp. Sig.
Employees' Skills	3.7966	3.9710	4.2000	4.2302	16.517	3	0.001
Employees' Educational Level	3.4520	3.5725	3.7778	3.8095	10.669	3	0.014
Employees' Learning Capabilities	3.6836	3.8696	3.7556	4.0873	14.088	3	0.003
Employees' Satisfaction	3.5311	3.7319	3.7778	4.0159	21.125	3	0.000
Employees' Motivation	3.5311	3.7826	3.7778	4.0794	20.102	3	0.000
Employees' Loyalty	3.8588	4.1014	4.4444	4.1984	17.056	3	0.001
Employees' Commitment to Long Term Goals	3.5593	3.8841	4.0000	4.1349	22.292	3	0.000
Innovation	3.5593	3.6594	4.1111	3.8651	11.041	3	0.012
Information Systems	3.4124	3.4493	4.2444	4.3651	52.314	3	0.000
Knowledge Sharing	3.4915	3.7464	3.7111	3.9524	13.126	3	0.004
Employees' Integration with firms' Values	3.5141	3.7101	3.9111	4.0556	15.566	3	0.001
Relations with Customers	4.1921	4.4275	4.2889	4.5000	9.682	3	0.021
Relations with Suppliers	3.9774	4.1014	3.9778	4.2222	**3.443**	**3**	**0.328**
Employees' Social Culture	3.4633	3.6159	3.6667	4.1746	19.475	3	0.000

Table 5: Mann Whitney U test for the Mean Values of the Influencing Weights of each IC component Across firms with Different Strategic Orientation

		Reactive versus Prospective SMEs		*Reactive versus Analytic SMEs*		*Reactive versus Defensive SMEs*		*Prospective versus Analytic SMEs*		*Prospective versus Defensive SMEs*		*Analytic versus Defensive SMEs*	
		Mann Whitney U	Asymp. Sig. (2-tailed)	Mann Whitney U	Asymp. Sig. (2-tailed)	Mann Whitney U	Asymp. Sig. (2-tailed)	Mann Whitney U	Asymp. Sig. (2-tailed)	Mann Whitney U	Asymp. Sig. (2-tailed)	Mann Whitney U	Asymp. Sig. (2-tailed)
Human Capital	Employees' Skills	207.000	0.815	580.000	0.006	481.000	0.541	452.500	0.023	376.000	0.753	1272.000	0.027
	Employees' Educational Level	177.500	0.320	576.500	0.006	475.500	0.493	553.000	0.201	368.500	0.664	1230.500	0.014
	Employees' Learning Capabilities	201.000	0.698	615.500	0.015	455.000	0.337	504.000	0.079	365.500	0.628	1301.500	0.040
	Employees' Satisfaction	141.000	0.052	531.500	0.002	407.500	0.115	658.500	0.802	330.500	0.300	1308.500	0.043
	Employees' Motivation	162.000	0.162	482.000	0.000	425.500	0.182	527.500	0.125	378.000	0.777	1230.500	0.014
	Employees' Loyalty	185.000	0.420	575.000	0.006	384.500	0.059	477.000	0.043	328.500	0.282	1396.000	0.126
	Employees' Commitment to Long Term Goals	185.500	0.429	481.500	0.000	368.000	0.037	440.000	0.018	324.500	0.260	1312.500	0.047
Structural Capital	Information Systems	160.000	0.147	719.500	0.115	475.000	0.492	663.000	0.837	327.500	0.282	1440.000	0.200
	Innovation	93.000	0.002	363.000	0.000	478.500	0.521	616.500	0.509	139.500	0.000	539.000	0.000
	Knowledge Sharing	129.000	0.025	509.500	0.001	418.000	0.153	632.500	0.615	328.500	0.287	1265.500	0.025
	Employees' Integration with firms' Values	111.500	0.007	399.000	0.000	348.500	0.020	602.000	0.424	341.500	0.393	1284.000	0.033
Relational Capital	Relations with Customers	154.500	0.109	607.000	0.012	387.000	0.065	598.000	0.396	392.000	0.949	1527.000	0.418
	Relations with Suppliers	148.500	0.083	635.500	0.024	396.500	0.088	663.000	0.838	381.000	0.813	1594.000	0.667
	Employees' Social Culture	153.000	0.106	507.000	0.001	432.500	0.218	525.000	0.123	374.000	0.731	1284.500	0.033

Table 6: Mann Whitney U test for the Mean Values of the Potential Improvement of each IC component Across firms with Different Strategic Orientation

		Reactive versus Prospective SMEs		*Reactive versus Analytic SMEs*		*Reactive versus Defensive SMEs*		*Prospective versus Analytic SMEs*		*Prospective versus Defensive SMEs*		*Analytic versus Defensive SMEs*	
		Mann Whitney U	Asymp. Sig. (2-tailed)	Mann Whitney U	Asymp. Sig. (2-tailed)	Mann Whitney U	Asymp. Sig. (2-tailed)	Mann Whitney U	Asymp. Sig. (2-tailed)	Mann Whitney U	Asymp. Sig. (2-tailed)	Mann Whitney U	Asymp. Sig. (2-tailed)
Human Capital	Employees' Skills	420.000	0.746	858.000	0.006	1154.000	0.166	236.500	0.135	312.000	0.562	824.000	0.209
	Employees' Educational Level	428.000	0.837	1025.500	0.122	1233.000	0.400	248.500	0.203	300.500	0.432	895.500	0.537
	Employees' Learning Capabilities	363.500	0.254	899.000	0.013	1085.500	0.060	289.500	0.627	343.000	0.972	874.000	0.413
	Employees' Satisfaction	366.000	0.275	1068.000	0.213	1248.000	0.453	307.500	0.888	310.000	0.540	901.000	0.571
	Employees' Motivation	374.500	0.335	947.500	0.034	1259.500	0.505	313.000	0.970	304.500	0.481	814.500	0.184
	Employees' Loyalty	438.500	0.956	1043.500	0.161	1219.000	0.358	278.000	0.488	319.000	0.656	929.000	0.750
	Employees' Commitment to Long Term Goals	409.000	0.641	1078.000	0.248	1290.500	0.654	307.000	0.880	332.500	0.828	882.000	0.464
Structural Capital	Information Systems	379.000	0.372	1063.000	0.208	1253.500	0.478	227.000	0.098	317.000	0.610	735.500	0.042
	Innovation	438.500	0.956	1037.000	0.151	1275.000	0.584	256.000	0.268	315.000	0.601	871.000	0.411
	Knowledge Sharing	431.000	0.872	1089.000	0.281	1307.500	0.738	270.000	0.395	323.500	0.707	879.000	0.447
	Employees' Integration with firms' Values	330.500	0.118	1179.500	0.668	1316.000	0.782	217.500	0.064	244.500	0.078	946.500	0.864
Relational Capital	Relations with Customers	372.500	0.333	886.000	0.012	1338.000	0.900	182.500	0.014	288.500	0.331	718.500	0.034
	Relations with Suppliers	367.000	0.296	900.500	0.017	1329.000	0.852	186.000	0.017	276.500	0.235	714.000	0.030
	Employees' Social Culture	371.500	0.327	1008.500	0.104	1309.500	0.751	206.000	0.043	296.000	0.387	737.500	0.049

Table 7: Crosstabs Results
** statistical significance at 1%, * statistical significance at 5%, Asymp. significance (2-sided) in parentheses.

Employees' Skills	Actual Strategy	"Stabilize" or "Keep Level"	"Act" or "Analyze"	Total	Pearson Chi-Square
Expected Strategy	"Stabilize" or "Keep Level"	26	108	134	0.447
	"Act" or "Analyze"	7	21	28	(0.504)
	Total	33	129	162	
Employees' Educational Level	**Actual Strategy**	**"Stabilize" or "Keep Level"**	**"Act" or "Analyze"**	**Total**	**Pearson Chi-Square**
Expected Strategy	"Stabilize" or "Keep Level"	32	93	125	4.262*
	"Act" or "Analyze"	16	21	37	(0.039)
	Total	48	114	162	
Employees' Learning Capabilities	**Actual Strategy**	**"Stabilize" or "Keep Level"**	**"Act" or "Analyze"**	**Total**	**Pearson Chi-Square**
Expected Strategy	"Stabilize" or "Keep Level"	33	102	135	0.320
	"Act" or "Analyze"	8	19	27	(0.572)
	Total	41	121	162	
Employees' Satisfaction	**Actual Strategy**	**"Stabilize" or "Keep Level"**	**"Act" or "Analyze"**	**Total**	**Pearson Chi-Square**
Expected Strategy	"Stabilize" or "Keep Level"	42	90	132	6.518**
	"Act" or "Analyze"	17	13	30	(0.010)
	Total	59	103	162	
Employees' Motivation	**Actual Strategy**	**"Stabilize" or "Keep Level"**	**"Act" or "Analyze"**	**Total**	**Pearson Chi-Square**
Expected Strategy	"Stabilize" or "Keep Level"	39	101	140	2.791
	"Act" or "Analyze"	10	12	22	(0.095)
	Total	49	113	162	
Employees' Loyalty	**Actual Strategy**	**"Stabilize" or "Keep Level"**	**"Act" or "Analyze"**	**Total**	**Pearson Chi-Square**
Expected Strategy	"Stabilize" or "Keep Level"	43	72	115	1.842
	"Act" or "Analyze"	23	24	47	(0.175)
	Total	66	96	162	
Employees' Commitment to Long Term Goals	**Actual Strategy**	**"Stabilize" or "Keep Level"**	**"Act" or "Analyze"**	**Total**	**Pearson Chi-Square**
Expected Strategy	"Stabilize" or "Keep Level"	41	84	125	1.365
	"Act" or "Analyze"	16	21	37	(0.243)
	Total	57	105	162	
Innovation	**Actual Strategy**	**"Stabilize" or "Keep Level"**	**"Act" or "Analyze"**	**Total**	**Pearson Chi-Square**
Expected Strategy	"Stabilize" or "Keep Level"	31	107	138	1.321
	"Act" or "Analyze"	8	16	24	(0.250)
	Total	39	123	162	
Information Systems	**Actual Strategy**	**"Stabilize" or "Keep Level"**	**"Act" or "Analyze"**	**Total**	**Pearson Chi-Square**
Expected Strategy	"Stabilize" or "Keep Level"	16	104	120	0.805
	"Act" or "Analyze"	8	34	42	
	Total	24	138	162	(0.370)
Knowledge Sharing	**Actual Strategy**	**"Stabilize" or "Keep Level"**	**"Act" or "Analyze"**	**Total**	**Pearson Chi-Square**
Expected Strategy	"Stabilize" or "Keep Level"	29	102	131	2.401
	"Act" or "Analyze"	11	20	31	(0.121)
	Total	40	122	162	

Employees' Integration with firms' Values	Actual Strategy	"Stabilize" or "Keep Level"	"Act" or "Analyze"	Total	Pearson Chi-Square
Expected Strategy	"Stabilize" or "Keep Level"	45	84	129	1.259
	"Act" or "Analyze"	15	18	33	(0.262)
	Total	60	102	162	
Relations with Customers	Actual Strategy	"Stabilize" or "Keep Level"	"Act" or "Analyze"	Total	Pearson Chi-Square
Expected Strategy	"Stabilize" or "Keep Level"	22	90	112	2.104
	"Act" or "Analyze"	15	35	50	(0.147)
	Total	37	125	162	
Relations with Suppliers	Actual Strategy	"Stabilize" or "Keep Level"	"Act" or "Analyze"	Total	Pearson Chi-Square
Expected Strategy	"Stabilize" or "Keep Level"	33	68	101	1.626
	"Act" or "Analyze"	26	35	61	(0.202)
	Total	59	103	162	
Employees' Social Culture	Actual Strategy	"Stabilize" or "Keep Level"	"Act" or "Analyze"	Total	Pearson Chi-Square
Expected Strategy	"Stabilize" or "Keep Level"	43	71	114	2.861
	"Act" or "Analyze"	25	23	48	(0.091)
	Total	68	94	162	

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