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**Monitoring intellectual capital: A case study of a large company
during the recent economic crisis**

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ABSTRACT

Nowadays, the businesses and organizations are facing two conditions that are relevant for their performance. One is related to the economic crisis that the majority of businesses have been experiencing since the international financial crisis of 2007. This crisis has impacted a great amount of markets and industries around the world. The second condition is more related to the increasing interest of organizations to identify intangible assets and the way they contribute to value generation, as found on relevant literature. The present research considers both conditions at the same time, as both are relevant elements that identify the economic crisis of an organization based on Akerman's business cycle. Furthermore, this work identifies those intangible assets (intellectual capital) that are aiding to respond to the critical condition while they are managed differently, from a general and economic growth context to an economic crisis and recession situation.

1 Introduction

A great challenge that businesses and organizations are facing nowadays is the international economic crisis. Since 2007-2008, the world has been experiencing the worst economic crisis and this is considered as the "perfect storm" after the "Great Depression" that started in the USA in 1929 (Krugman et al, 2009). But, before going forward on the impact of the economic crisis in business performance, it is appropriate to clarify the concept of economic crisis and the performance of intangible assets.

According to Dayton (2004), a crisis is a serious threat to the basic structures or fundamental values and norms of a social system which, under pressure and uncertain circumstances, requires people to make critical decisions. During a crisis situation, most of the people make decisions based primarily on their experience and intuition often ignoring other forms of decision support (Santella et al. 2009).

There are different types of crisis. The classification depends on its origin and the threat to the organization, as follows: economic, health, security, social, and financial, among others. Regardless the type of crisis, people inside the organization that is affected by the adverse context try to make decisions to respond to that threat (Santella et al. 2009; Pressman, 2011). Moreover and per Pressman (2011), one of the important aspects in decision making is to identify the habits and rules that drive individual decision maker's behavior. Also, the way people make their decisions influences the performance of intangible assets within the organization. The aim of this research is to identify how intangible assets behave and adapt to the critical situation to help the organization respond to the economic crisis.

Returning to the actual international economic crisis described previously, this threat impacts not only the macroeconomic elements of the nations and regions but also the microeconomic elements of industries inside, in-

cluding the organizations and businesses belonging to those impacted industrial sectors (Suetorsak, 2006).

The microeconomic concepts are originally from the industrial organizations theory (Ilmakunnas and Topi, 1999) and the organizations belonging are influenced by the industrial sector they belong to, which are considered for the firm theory. So, the microeconomic theoretical concepts could apply to a specific organization (Kawai and Urata, 2002).

1.1 Economic crisis framework

The economic crisis is part of the economic cycle as described in Akerman's (1960) and Schumpeter's (1939) business cycle theories.

Schumpeter's business cycle theory considers three fundamental elements as follows and are described on his book "Business Cycle: A Theoretical, Historical, and Statistical Analysis of the Capitalist Process" (1939):

1. Regardless the macro or micro economic perspective, the economy of an organization is influenced by external elements that make it change and adapt.
2. The innovation and its respective entrepreneurs are both factors that have the most important elements that drive the beginning of any business cycle.
3. The business cycle is related to the three cycles that Schumpeter used to base his theories. The lengths of the following cycles are based on time duration and no other internal factor.
 - Kondratieff cycle (50 years)
 - Juglar cycle (7 to 11 years)
 - Kitchin cycle (3 to 5 years)

Meanwhile, for Akerman's model the organizations live in business cycles that are influenced primarily by

external agents (Akerman, 1960, 186). But in general, his economic model is similar to Schumpeter's concepts because it considers empirical data coming from historical activities (Akerman, 1949). This is because Akerman studied and was part of the Stockholm school, like Schumpeter (Erixon, 2005).

Akerman's (1960) business cycle is made of a wave with a specific length and amplitude with 6 phases identified in the next Figure 1, whereas:

Phase 1: This is the lowest part of the cycle, and could be considered as the beginning of the economic cycle.

Phase 2: It is the small time period where there is a transition between phase 1 and 3 where the growth starts.

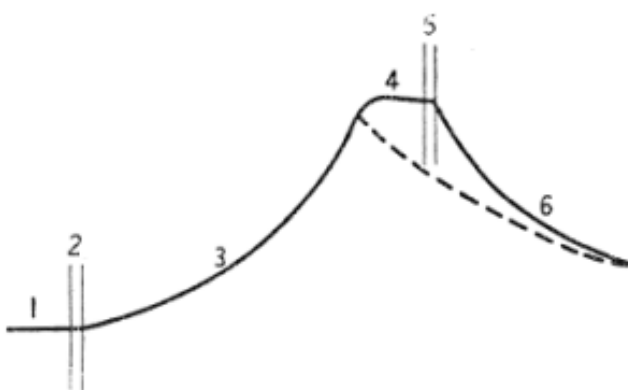
Phase 3: This is an accumulative and growth period of the micro economic model.

Phase 4: This is the time period previous to the economic crisis and it is right after the growth ends.

Phase 5: Similar to phase Phase 2, this small period of time identifies the crisis and the recession or economic contraction starts next.

Phase 6: It is the slope down of the economy of the organization and fosters the specialization of the organization and business to survive.

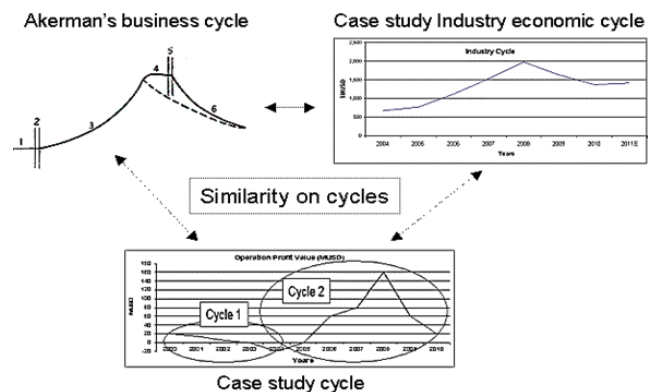
Figure 1: The 6 phases of an economic cycle (Akerman, 1960)



The terms and concepts used by Akerman's business cycle are used for the industry and the firm, meaning that those concepts of phases of the business cycle apply not only at the industry level but also at the firm level (Erixon, 2011). For this reason, the Akerman business cycle reflects the industry cycle and consequently the enterprise economic performance as follows in figure 2 (Erixon, 2011; Kawai and Urata, 2002; Ilmakunnas and Topi, 1999).

Figure 2 shows how Akerman's economic cycle has a similar shape as an industrial sector that is affected by the current economic crisis and also at the bottom is the economic crisis of a business belonging to such industry. The business represented in this figure is used as case study for this research.

Figure 2: From Akerman's microeconomic business cycle to firm economic performance.



1.2 Intellectual capital framework

In the relevant literature reviewed, the intellectual capital of any organization could be considered as a reference to group and measure the contribution of the intangible assets and they could be grouped as follows: human, structural and relational capital (Bounfour, 2003; Ordoñez, 2003; Andriessen, 2004)

According to Lev (2001) an intangible asset is any asset that has a future economic benefit or income for the organization but does not have physical representation, such as goodwill. It could be considered as an accounting element. In the other hand, Andriessen (2004) considers that intangibles assets should rather be regarded as intangible resources, because the asset term implies control and ownership, while resource is more appropriate to the intangible nature.

Following are the descriptions found for the different groups of the intellectual capital and the intangible assets that belong to such groups are listed.

1.2.1 Human Capital

This group is made of different knowledge assets of the person, such as people knowledge backlog coming from training, skills, innovation and others (Ordoñez, 2003). This capital is part of the underpinnings core competence of the organization (Harvey & Lusch, 1997; Jennewein, 2004, Lee et al., 2003), as listed in the next Table 1.

Table 1: Human capital taxonomy

Intellectual Capital	Intangible Assets
1. Human Capital	1.1 Backlog Knowledge
	1.2 Skills
	1.3 Innovation
	1.4 Values
	1.5 Experience
	1.6 Know-how
	1.7 Loyalty
	1.8 Performance
	1.9 Development
	1.10 Attitude
	1.11 Other

Source: Rudez, 2006; Castro and Lopez, 2008; Bornemann, 2007; Stahle and Bounfour, 2008; Marr et al, 2004.

1.3 Structural Capital

The second group of the intellectual capital classification arises after intangible assets are implemented in the organization and contribute to the value creation, such as processes, methods, systems, information technology, software, among others as shown in the next Table 2 (Ordoñez, 2003; Rudez, 2006; Castro and Lopez, 2008; Bornemann, 2007; Stahle and Bounfour, 2008; Marr and Adams, 2004; Mourtisen et al., 2001).

Table 2: Structural capital taxonomy

Intellectual Capital	Intangible Assets
2. Structural Capital	2.1 Investment in R&D
	2.2 Process and procedures
	2.3 Innovation process
	2.4 Intellectual property
	2.5 Cut cost process
	2.6 Culture
	2.7 Administration and management
	2.8 Information technology
	2.9 Routines and practices
	2.10 Publications
	2.11 Business strategy
	2.12 Other

Source: Rudez, 2006; Castro and Lopez, 2008; Bornemann, 2007; Stahle and Bounfour, 2008; Marr et al, 2004.

1.3.1 Relational Capital

In the next Table 3 is the group of intangibles that have a direct relation to the activities outside the organization that involves customer, government authority relationship and international operations, among others (Ordoñez, 2003).

Table 3: Relational capital taxonomy

Intellectual Capital	Intangible Assets
3. Relational Capital	3.1 International and local providers
	3.2 Customer
	3.3 Government participation
	3.4 Partners
	3.5 Stakeholders
	3.6 Stockholders
	3.7 International policies
	3.8 International operations
	3.9 Consultants and assessors
	3.10 Other

Source: Rudez, 2006; Castro and Lopez, 2008; Bornemann, 2007; Stahle and Bounfour, 2008; Marr et al, 2004.

1.4 Intellectual capital under economic crisis

Modern economic theory recognizes that intangible assets have an important role on firms' competitiveness and help these to prevail over economic crisis, particularly with those intangibles related to technology development and innovation, because they are a stream of future benefits (Barro, 1989; Pate and Narain, 2008; Johanson et al., 2001, Power, 2001).

Table 4: Intangible assets for economic crisis context

Intellectual Capital	Intangible Assets
1. Human Capital	1.1 Knowledge
	1.2 Skills
	1.3 Innovation
	1.4 Values
	1.5 Experience
2. Structural Capital	2.1 Investment in R&D
	2.2 Process and procedures
	2.3 Innovation process
	2.4 Intellectual property
	2.5 Cut cost
3. Relational Capital	3.1 International and local providers
	3.2 Customer
	3.3 Government participation

Santoro and Gaffeo, 2009; Schenker-Wicki et al, 2009; Pate and Narain, 2008; Harvey and Lusch, 1997; Jennewein, 2004; Lee et al, 2003; Eckstein, 2004; Ernst, 1998 ; Tan and Mathews, 2009 ; Akerman, 1960; Chin et al, 1999 ; Eliasson, 2005; Lafrenz, 2006; Lee and Makhija, 2009; Chung and Beamish, 2005; Mudd et al, 2002; Kalyuzhnova and Vagliasindi, 2006.

During an economic crisis, people from organizations make decisions that change and adapt intangibles to help respond to the critical context (Harvey and Lusch, 1997; Jennewein, 2004, Lee et al., 2003). People make decisions over intangible assets that are part of the human, structural and relational capital and those intangibles that become relevant during an adverse context are enlisted in the next Table 4, where the three groups and their content are from the previous tables:

1.5 Intangibles as accounting concept

As described previously, the concept of asset is more related to accounting terminology (Lev, 2001). Due to the purpose of this research, Table 5 enlists some expenditures from the accountability list and groups these in the general intellectual capital taxonomy. However, only those that have a direct relationship to intangibles are listed but, because of the quality of information coming from the research case study, the expenditures related to human capital are considered only in terms of personnel headcount (number of active employees within the organization).

Table 5: Expenditures on intangibles

Intellectual Capital	Intangible Assets
1. Relational Capital	1. Meetings
	2. Expos and Conferences
	3. Travel Expenditures
	4. Marketing and Promotion
	5. Assessors and Consultants
	6. Inscription to Public Bids
	7. Clubs and Associations Fees
	8. Technical Assistance for Imports
2. Structural Capital	1. Non-Deductive Expenditures
	2. Variable Expenditures
	3. Services and Taxes Related to the Product
	4. Telephone and Computer
	5. Rent of Special Equipment

2 Research Question

The research problem this investigation addresses is: to identify, using descriptive methods such as case study (Creswell, 2011), how the decision makers of an organization are making their decision on intangibles in order to enable them to change their behavior to help the organization better respond to an economic crisis context.

In the reviewed relevant literature, it was found that during an economic crisis organizations such as businesses or enterprises, the people inside them sometimes behave and make decisions differently than in other context such as previously to the crisis and this affects the “process” intangible asset (Santella et al. 2009; Pressman, 2011).

So, to monitor the intangible assets during the crisis, the research question is stated as follows:

What is the performance of intangible assets from the enterprise’s intellectual capital during an economic crisis context?

To clarify the intangibles trends and organization priority on them and also to have a broad perspective and answer to the research question, there are three additional complementary questions as follows:

- Q1. Which intangible assets are relevant during an economic crisis?
- Q2. How is the organization spending on intangibles during a downturn?
- Q3. How are managers making decisions during the economic crisis and recessions to influence on intangible assets?

2.1 Theoretical assumptions

Q1. *Which intangible assets are relevant during an economic crisis?*

Intangibles related to human capital should remain secure inside the organization. (Harvey and Lusch, 1997; Schenker-Wicki at al., 2009; Eliasson, 2005; Heylen and Pozzi, 2007).

Intangibles associated to relational capital have relevance due to the need of the organization to access public economic resources and promote laws and economic rules to facilitate the commerce and reactive local economy (Chin et al., 1999; Ernst, 1998). Intangibles from structural capital should focus on activities that create differentiators and innovations to the current portfolio of products and services, while coming from R&D activities and cost-out projects (Tan and Mathews, 2009; Pate and Narain, 2008; Moore, 2009).

Q2. *How is the organization spending on intangibles during a downturn?*

Assumption: In the reviewed relevant literature, those organizations that experienced a downturn tended to cut the majority of costs that are not directly related to the value generation such as organization imaging or other non-productive activities. Additionally, organizations spend only on activities that reinforce competitive

advantages. The business focuses on high profit products and services while eliminating those with low revenue or those with a longer-term profitability (Lafrenz, 2006; Blausten, 2009).

Q3. How are managers making decisions during the economic crisis and recession to influence on intangible assets?

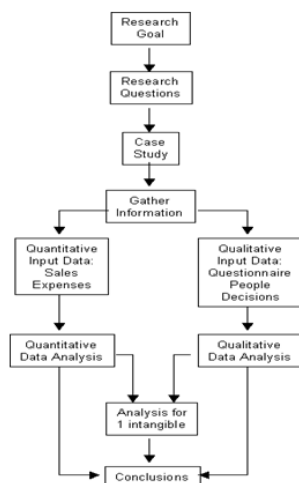
Assumption: The relevant literature around decision-making during economic crisis mentions that organizations' decision-makers put together conclusions faster than at ordinary times and the decisions are based primarily on their instinct and experience. This means that during expansion or growth time, decision-makers have more time to analyze the situation and choose considering the majority of information and data available (Bonn and Rundle-Thiele, 2007; Sayegh et al., 2004; Lee et al., 2008; Santella et al., 2009).

2.2 Methodology

As described on the relevant literature, the case study is considered as a research strategy to the investigation's aim (Yin, 1981). Also and per Yin (1981), the case study could provide the required answers while using qualitative and quantitative evidence. This research uses the method of case study as a research strategy, and also the research question considers both evidences to handle relevant data (qualitative and quantitative).

In the next Figure 3, there is a graphical representation of the methodology used in this research to get the answers to the established questions. As mentioned previously, the strategy used was the case study and the information gathered was qualitative and quantitative. This information is analyzed individually per intangible of the organization in order to clarify its behavior during the economic crisis and its contribution to the organization to respond to the crisis.

Figure 3: Research methodology



2.3 Quantitative Analysis

The quantitative data used for this research to identify how the organization is investing on intangibles during an economic crisis is primarily the account expenditures. In order to have a framework to identify the crisis phase of Akerman's business cycle, the sales are employed to represent the firm's economic cycle as described next.

Sales: The total sales of the product manufactured in the organization case study are reported in thousands of US Dollars gathered in a monthly basis. This information came from the marketing databases and started as of January 2005 until May 2010.

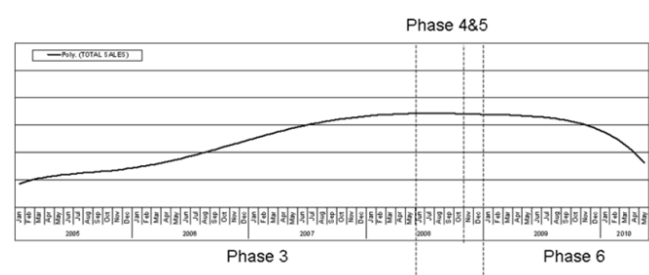
Expenditures: The information was collected in thousands of US Dollars on a monthly basis during the same time frame as of January 2005 until May 2010. The expenditures were considered from the accounting databases and accordingly to the intellectual capital group of intangibles expenditures described previously.

The information gathered was analyzed primarily using Polynomial approach as described next.

During this research, the next statistical tools were used to identify those intangible assets that are relevant during the crisis context: F-Test, T-Test, ANNOVA and Pearson correlation, but due to the poor quality of the results, the insufficient amount of data and the highly dispersed data series, they were not considered in this analysis. However, the polynomial analysis was considered because it changes the data series into $f(x)$ equation that was compared using mathematical functions (such as the integer) to calculate the surface under the curve. In the next Figure 4 is the representation of the sales of the organization as an $f(x)$ expression and also there are marked the Akerman phases of the economic cycle.

The equation $f(x)$ per intangible expenditure and for the sales is obtained after considering the 16 data samples of Phase 6; this refers to the 16 months between January 2009 and April 2010. To make a consistent comparison, the Phase 3 of the economic cycle and its respective polynomial equations also consider the same amount of samples as the last 16 months of growth from February 2007 to May 2008.

Figure 4: Business case study business cycle



Then and per expenditure data series a polynomial equation is calculated and compared between phases. This means that expenditure 1 at Phase 3 is compared only to expenditure 1 at Phase 6 and so on.

The relevance per expenditures is obtained after making the subtraction of the Integral calculations corresponding to the Phase 3 minus those of Phase 6.

2.4 Qualitative Analysis

After reviewing relevant literature about ground theory and qualitative research (Glaser and Strauss, 2009) the qualitative part required interactions with people to interpret their experience and comments that were verbally expressed. So, this was considered as social research (Glaser and Strauss, 2009; Burck, 2005).

Interviewed Employees: The interviews were performed on a monthly basis from September 2008 to April 2010, individually and in a period of time of 30 to 60 minutes, depending on people's availability and the amount of information to be shared. The conversations were performed on a relaxed environment and under a colloquial language. The interviewed people were primarily those regarded as key respondents. It was necessary to build a trusted environment in order to allow them to share as much information as possible (Carlson et al., 1995)

Applied Questions: Before applying the questions, the incumbents were introduced with the research goal and the analysis of the previous month. Also, they were informed about the partial results regarding the quantitative analysis. Then the set of questions was applied looking to match the intangible assets identified in the theoretical framework. For example, if the decision-maker talked about changing such process to see the new performance and the way it contributes to the value generation, then this was considered as a matching to the intangible asset of Process and Procedure.

3 Research case study

In order to address the answers to the research questions, the case study is based on an organization located in Mexico that it is not exempt of the international financial crisis due to its natural market relationship to the USA.

The organization is experiencing a slope-down of its own business economy. Previously, the enterprise was however experiencing an impressive growth that allowed it to expand its operations internationally and also to expand its portfolio of products and services. This case

study is narrowed to a business organized as follows: one business director, five managers, and more than 20 employees distributed among the different management areas. During this research, the interviews were conducted with the business director, five managers and two employees. These last two were considered only as reference of the decisions made.

3.1 Research case study analysis

3.1.1 Quantitative data for human capital

The information considered and gathered for this part of the analysis includes the following elements:

Headcount of the area: this concept means total amount of people working in the area, to consider the complete human capital of the organization. With this, any lay-off could be accounted for.

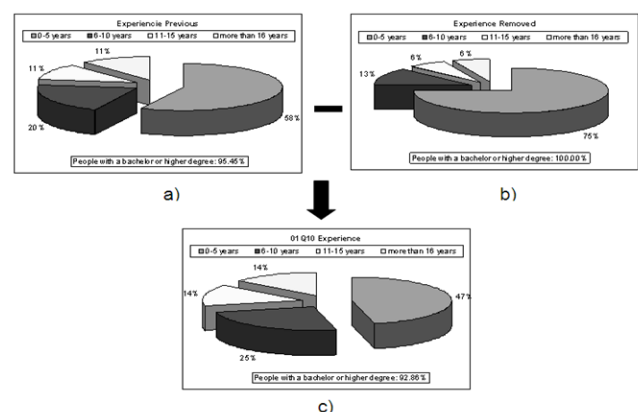
Personnel certified on core competences: to identify the additional value contribution of employees to their functions after achieving their certification of performance on their competence.

Years of experience in the organization: to consider the knowledge, experience and people backlog.

Scholar level from the people: considering bachelor as baseline.

So, the case study had the following performance described in the next Figure 5. In this figure is shown how the organization made some headcount reductions in order to reshape it and be more agile to respond to the economic crisis.

Figure 5: Human Capital quantitative analysis



It is relevant to mention that after cutting the personnel, the organization remains with a similar amount of experienced people and those "less" experienced are removed from the organization. This is because, prior to the crisis, 58% of people had less than 5 years, while during the layoff they represented the 75% of the removed personnel in order to let the organization have this type

of personnel amount to 47%. Meanwhile the most experienced personnel represented formerly the 11% and then they added to 14%.; during the headcount reduction, they only represented the 6% of the removed employees.

3.1.2 Qualitative data for human capital

As described previously, the information considered for this part came from the interviews conducted on a regular basis. In the next Table 6, there are the decisions matching to the intangibles related to human capital, but the organization’s decision makers considered not only those found for the economic crisis context but also to the general context taxonomy.

Based on the highest amount of matching provided by the decision makers during the interviews, it can be affirmed that the organization is concentrating their efforts on those assets related to employees’ knowledge, skills, innovation and experience; all of them from the economic crisis taxonomy, but the organization is also concentrating on other intangibles from the general taxonomy such as know-how and employee performance.

Table 6: Human capital matching

Note: 1.1 to 1.5 are for the crisis context

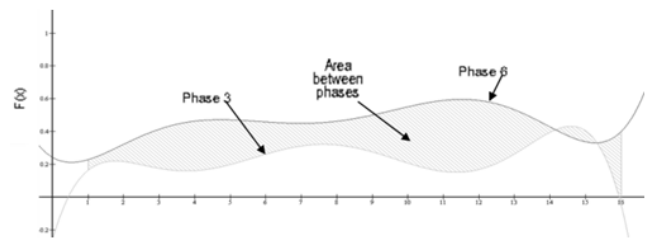
Intangible Assets	Matchings
1.1 Backlog Knowledge	3
1.2 Skills	4
1.3 Innovation	2
1.4 Values	0
1.5 Experience	1
1.6 Know-how	4
1.7 Loyalty	0
1.8 Performance	1
1.9 Development	0
1.10 Attitude	0
1.11 Other	0

3.1.3 Quantitative data for structural capital

As mentioned previously, the information used to this analysis is the $f(x)$ per expenditure the organization made during the growth and recession phases of its economic cycle. In the next Table 7 are the results of the integral subtraction per expenditure and after comparing Phase 3 to Phase 6. Moreover, in Figure 6 the graphical interpretation of such operation is presented.

As shown on Figure 6, the organization is expending more on Non-deductible Expenditure assets during the crisis phase. This concept is related to activities that are not tax deductible expenditures that providers do not facilitate a fiscal invoice according to Mexican fiscal laws, for example: taxi receipts, tips, or expenses while abroad.

Figure 6: Structural capital $f(x)$ representations



3.1.4 Qualitative data for structural capital

Table 8 enlists those matchings that decision makers made during the interviews. Similar to the human capital group, those intangibles belonging to the general taxonomy are included because the interviewed people considered some of them as part of the relevant activities to respond to the crisis.

From this table, the intangibles with more activity during the crisis phase are R&D, Process and Procedures, Innovation and Cut- Cost Process, but also the intangibles such as Administration Management, Routines and Practices, and Business Strategy became relevant while these last belong to the general taxonomy of this group of the intellectual capital.

Table 7: Structural capital comparisons

Intangible Expenses	Structural Capital			Results
	Phase 3 Surface	Phase 6 Surface	Surface between	
1. Non-deductible expenses	3.6536	6.8708	-3.2172	Significant
2. Variable expenditures	5.0922	1.3002	3.792	Not significant
3. Services and taxes related to the product	3.8273	3.5162	0.3111	Not significant
4. Telephony and Computer	9.1265	4.1897	4.9368	Not significant
5. Rent of special equipment	6.9872	4.6218	2.3654	Not significant

Table 8: Structural capital matchings

Note: 1.1 to 1.5 are for the crisis context

Intangible Assets	Matchings
2.1 Investment in R&D	1
2.2 Process and procedures	15
2.3 Innovation process	3
2.4 Intellectual property	0
2.5 Cut cost process	9
2.6 Culture	0
2.7 Administration and management	1
2.8 Information technology	0
2.9 Routines and practices	3
2.10 Publications	0
2.11 Business strategy	4
2.12 Other	0

Table 10: Relational capital matchings

Note: 3.1 to 3.3 are for the crisis context

Intangible Assets	Matchings
3.1 International and local providers	2
3.2 Customer	1
3.3 Government participation	7
3.4 Partners	1
3.5 Stakeholders	0
3.6 Stockholders	0
3.7 International policies	0
3.8 International operations	0
3.9 Consultants and assessors	1
3.10 Other	0

3.1.5 Qualitative data for relational capital

The group of expenditures related to structural capital has a characteristic behavior during the economic crisis as described in the next Table 9. Here those expenditures that were relevant during Phase 6 after comparing to its respective Phase 3 are enlisted.

The expenditures related to Expos and Conferences, Inscriptions to Public Bids and Technical Assistance for Imports are the expenditures more relevant or significant during the crisis context. Meaning that for this research case study, the focus on intangibles is related to customer relationship and its respective interactions.

3.1.6 Qualitative data for relational capital

In the next Table 10 are shown the matchings provided by the decision makers around relational capital. In this item the decision applied not only to those identified as part of the economic crisis taxonomy, but also to those intangibles that are part of the general situation of the organization.

The relationship with local and international providers, government related activities and the relationship to customers are the decision to intangibles more relevant during the crisis phase and recession. Moreover, the relation to Consultants and Assessors intangible asset was relevant as well.

3.2 Monitor Relevant Intangible

The objective of the performance monitor of each of the intangible assets is to clarify its behavior. The asset of the process of quoting and pricing the product has a direct consequence on the hit-rate and win-rate indicators of the organization, that is to say the organization sales.

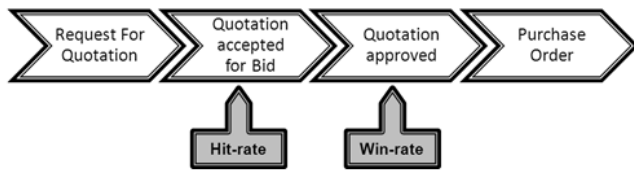
The process of pricing was picked because it is related to process and procedures of the structural capital group; and this intangible is the most relevant considered by the decision makers. In the next Figure 7 there is the pricing and bidding process, where the hit-rate and win-rate are considered. The hit-rate expresses the ratio between the quotations submitted respect to those accepted by customers, while the win-rate depicts the ra-

Table 9: Relational capital comparisons

Intangible Expenses	Relational Capital			Results
	Phase 3 Surface	Phase 6 Surface	Surface between	
1. Meetings	5.2958	4.5334	0.7624	Not significant
2. Expos and Conferences	5.1	6.1766	-1.0766	Significant
3. Travel Expenditures	5.1698	1.4062	3.7636	Not significant
4. Marketing and Promotion	4.4535	1.4057	3.0478	Not significant
5. Assessors and Consultants	2.2894	1.5606	0.7288	Not significant
6. Inscription to Public Bids	3.6474	4.0251	-0.3777	Significant
7. Clubs and Associations Fees	2.7416	1.6727	1.0689	Not significant
8. Technical Assistance for Imports	0.3848	1.3756	-0.9908	Significant

tio between the quotations accepted in respect to those accepted by customers that ends in a purchase order.

Figure 7: Pricing process



After asking to the decision-makers about this relevant process, the decision they made are shown in the next Figure 8. It considers the improved performance of the intangible after the recession phase of the complete cycle.

More decisions on this asset of Process and Procedure had a consequence of better performance on the hit-rate and win-rate; providing more opportunities to get more value from customers while having additional chances to sale more.

3.3 Research case study intangible assets

After reviewing those intangible assets that are relevant for this research’s case study, in order to answer the research questions, the next Table 11 considers those intangibles that were found relevant after the two analyses as of quantitative and qualitative for the research case study.

Also, Table 11 shows those intangibles that represented more expenses for the organization during the recession part, after comparing this phase to the growth phase of the Akerman business cycle. There are also shown those intangibles that are becoming relevant for the organization but after the decision makers made their decisions. This people are trying to find the best answer to respond to the critical situation. But they are considering all the intangibles available, regardless if they are part of those belonging to the economic crisis or the general context.

Figure 8: Win-rate and hit-rate performance

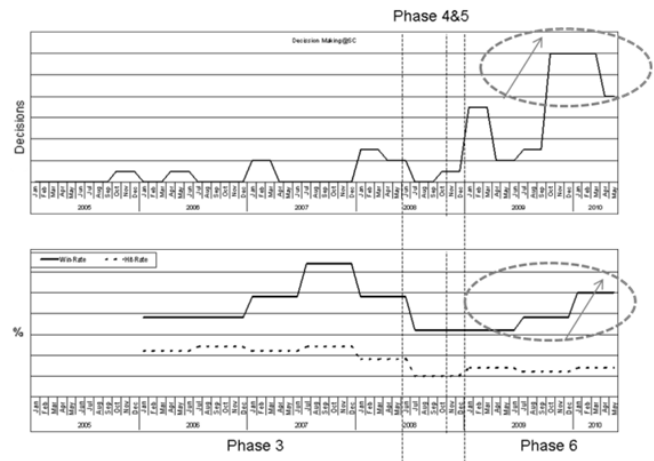


Table 11: Intellectual capital for the research case study

Intellectual Capital for Case Study Economic Crisis		
Intellectual Capital	Quantitative	Qualitative
	Intangible assets investment	Relevant intangible assets
1. Human Capital	1.1. Headcount	1.1. Knowledge 1.2. Skills 1.3. Innovation 1.4. Know-how 1.5. Performance
2. Structural Capital	2.1. Non-deductive expenditures	2.1. R&D & Technology 2.2. Process & Procedures 2.3. Innovation as a Process 2.4. Cost Reduction 2.5. Information Technology 2.6. Administration and Management 2.7. Routines & Practices 2.8. Business Strategy
3. Relational Capital	3.1. Expos and Conferences 3.2. Inscription to Public Bids 3.3. Technical Assistance for Imports	3.1. Local Providers 3.2. International Providers 3.3. Customers

4 Conclusion

The present research provided a set of intangible assets that “behaves” according to the context they are in. If the organization is crossing the growth phase of the business cycle, some of the intangibles have precedence over the others and are more influenced by decision makers than during the growth period. But, if the context changes into an adverse phase such as an economic crisis, then the intangibles behave differently: in some cases those that were relevant during the growth phase would be passive or inactive on the crisis phase, meanwhile others that were not relevant, change to a critical position that try to help to the organization to respond to the critical situation.

So, the intangibles behaves depending on the information and characteristics of the decision makers, but always the intangibles are updated to help the organization to end the recession and start a new growth period as soon as possible.

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