

Research Thesis:

Monitoring Business Intangible Assets During Economic Crisis

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Research Justification

1. Research Justification

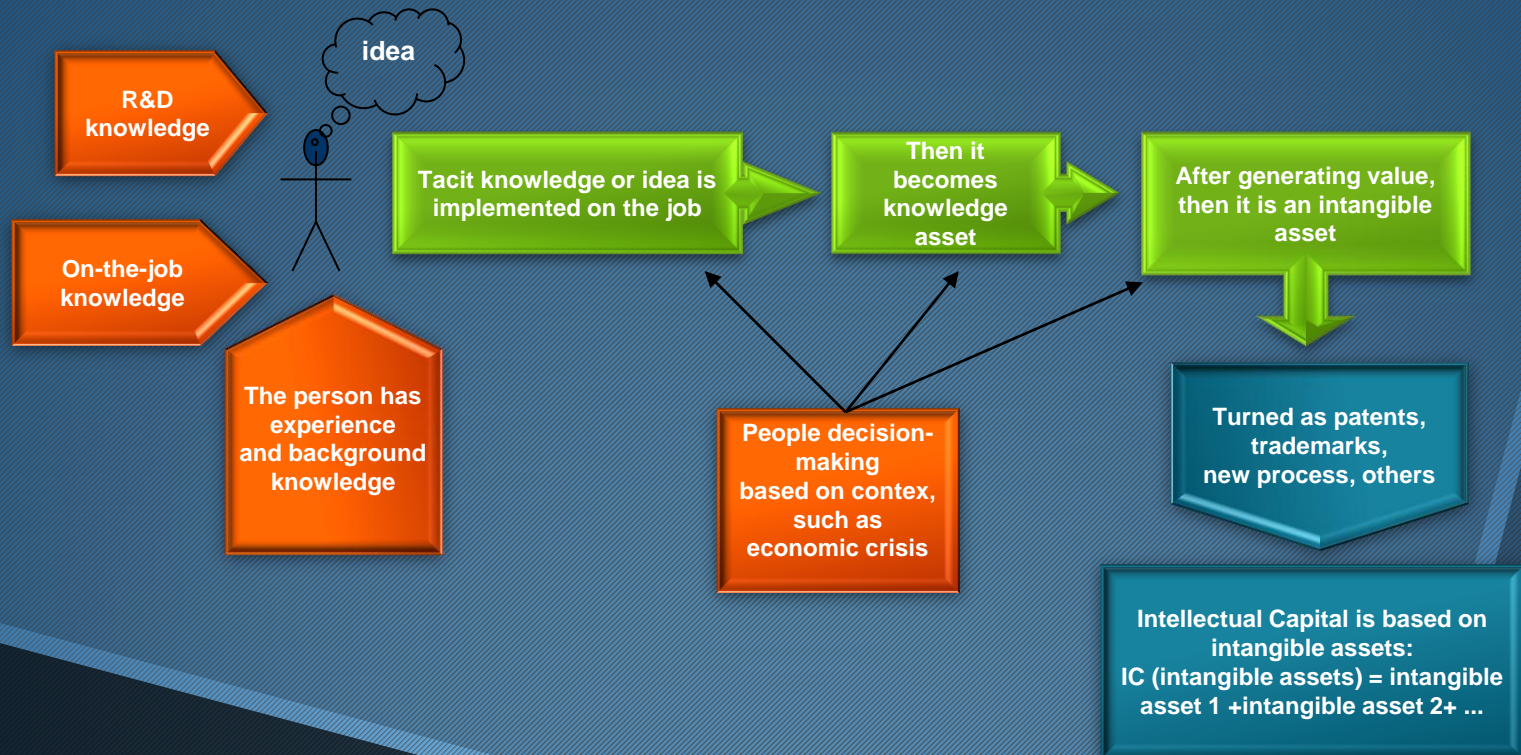
Different type of crisis: economic, security, health, other → common pattern: people make decisions differently than ordinary context and mainly based on experience and intuition (Adrot and Robey, 2008).

People decisions influence on organization behave → decisions made to respond to the crisis, including intangibles such as innovation among others (Adrot and Robey, 2008; Foss, 2010).

2008 international economic crisis → compared to the “perfect storm” (Krugman et al, 2009).

Current international economic crisis affects the industry and the enterprise of this research case study → people inside are making decisions on intangibles (innovation, cut-cost, process optimization, others) to respond to the adverse situation.

Relationship between people decisions and the influence on intangible assets:



(Schenker-Wicki et al., 2009; Eliasson, 2005; Yang et al., 2007; Rudez, 2006; Castro and Lopez, 2008; Bornemann, 2007; Stahle and Bounfour, 2008; Marr and Adams, 2004; Mourtisen et al., 2001; Jennewein, 2004; Lee et al., 2003)

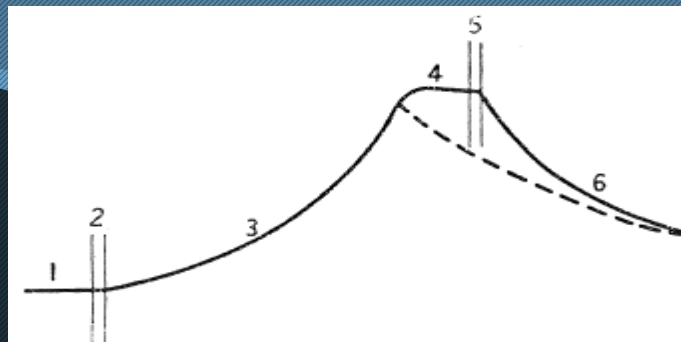
Economic crisis part of a cycle but under different levels: macro, micro and firm → research focus on enterprise level business cycle.

Microeconomic → Industry: same theoretical concepts on business cycle

Industry → Enterprise: mutually affected during business cycle (Ilmakunnas and Topi, 1999; Kawai and Urata, 2002).

Akerman business cycle and the related microeconomic concepts and terms are the same and applicable to Enterprise level (Erixon, 2011).

Akerman's business cycle (1960) identify different phases of the cycle.



Objective and Research Question

2.- Objective and Research Question

Research goal:

To identify and monitor the intangibles assets of a particular organization but under an economic crisis situation.

Research question:

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

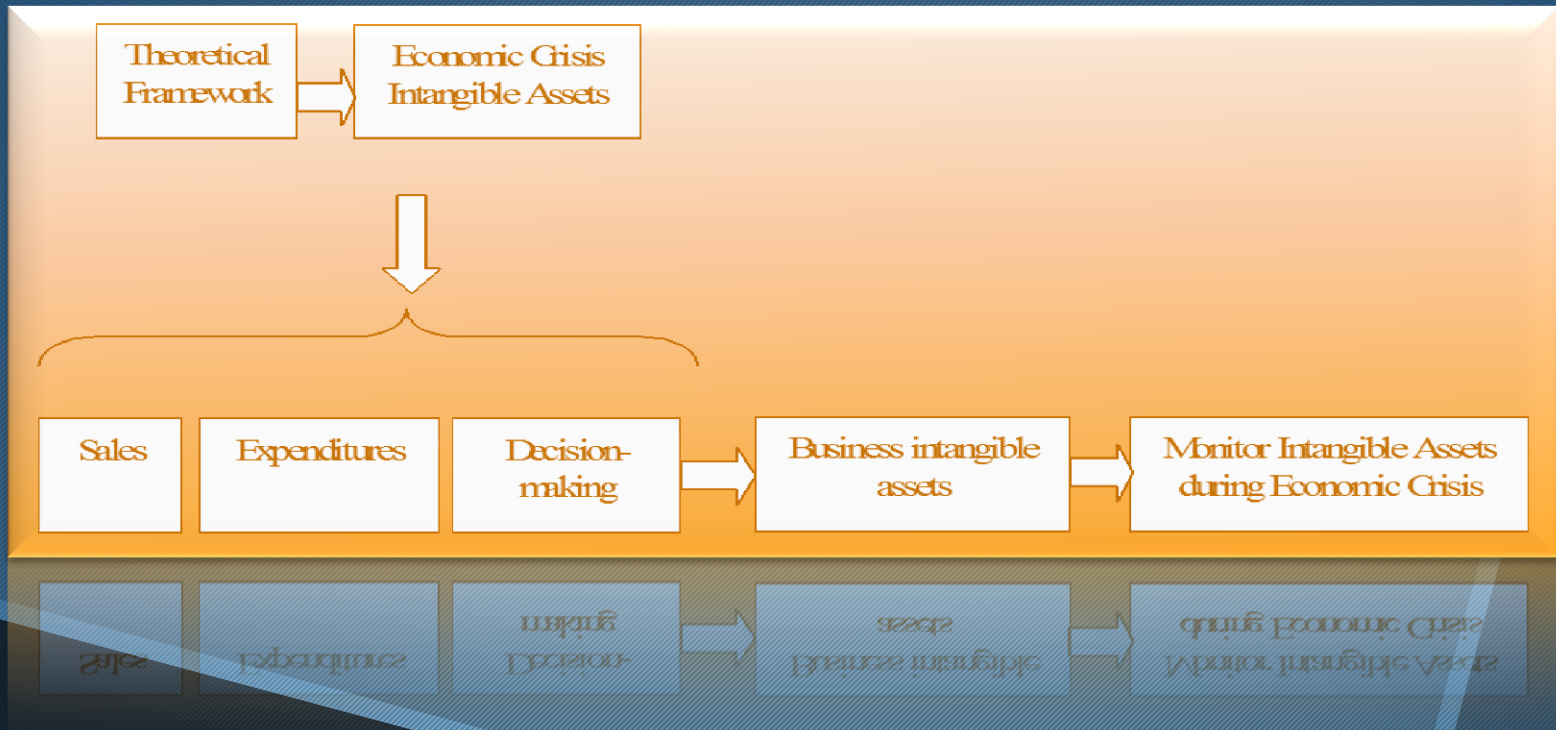
Complementary research questions:

Q1. Which intangible assets are relevant during economic crisis?

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

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

Research approach



Research boundaries → economic crisis and business area of the enterprise case study

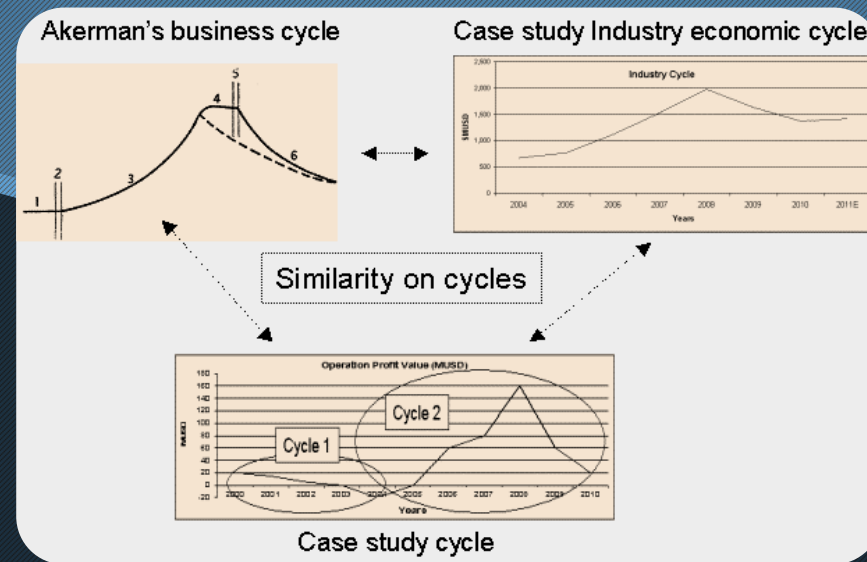
Theoretical Framework

3.- Theoretical framework

Economic crisis:

The majority of authors focus on macroeconomic models but Schumpeter's and Akerman's. Both authors have included the microeconomic perspective on their business cycle (both were members of the 1920's-1930's Stockholm School).

Akerman included on the business cycle the firm economic performance, moreover the business cycle concepts apply to the firm level (Erixon, 2011).



Akerman's (1960) business cycle 6 phases.

Phase 1: The beginning of the economic cycle. This is not necessary due to an innovation or technology breakthrough.

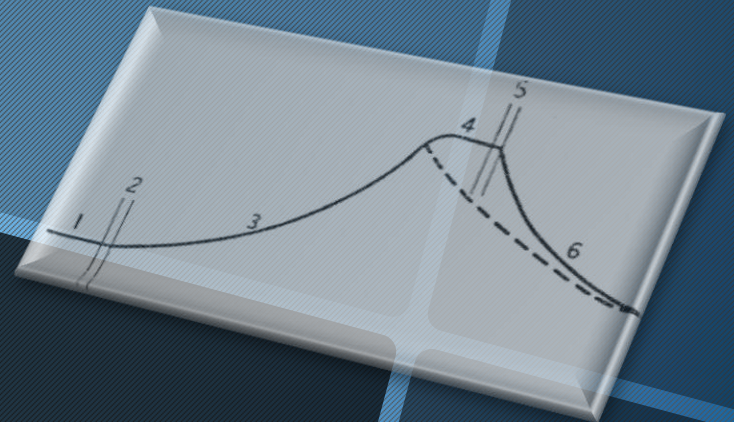
Phase 2: Transition between phase 1 and 3 where the growth starts.

Phase 3: Accumulative and growth period of the microeconomic model.

Phase 4: Previous to the economic crisis and it is just right after the growth ends.

Phase 5: The crisis per-se and the recession starts.

Phase 6: The slope down of the economy.



Intellectual capital:

Intellectual capital of any organization could be considered as a method to group and measure the contribution of the intangible assets and they could be collected as of: Human, Relational and Structural Capital (Bounfour, 2003; Ordoñez, 2003; Andriessen, 2004)

General IC taxonomy:

(Rudez, 2006; Castro and Lopez, 2008; Bornemann, 2007; Stahle and Bounfour, 2008; Marr et al, 2004)

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
2. Structural Capital	2.1 Investment in R&D 2.2 Investment in technology 2.3 Process and procedures 2.4 Innovation process 2.5 Intellectual property 2.6 Cut cost process 2.7 Culture 2.8 Administration and management 2.9 Information technology 2.10 Routines and practices 2.11 Publications 2.12 Business strategy 2.13 Other
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

Intellectual capital under economic crisis:

As mentioned in previously, hereinafter the Akerman's economic cycle is used as referral to identify the economic crisis and recession (Ackerman, 1960).

After considering relevant factors that influence on decisions made during economic crisis, next are the intangibles that are relevant during an economic crisis.

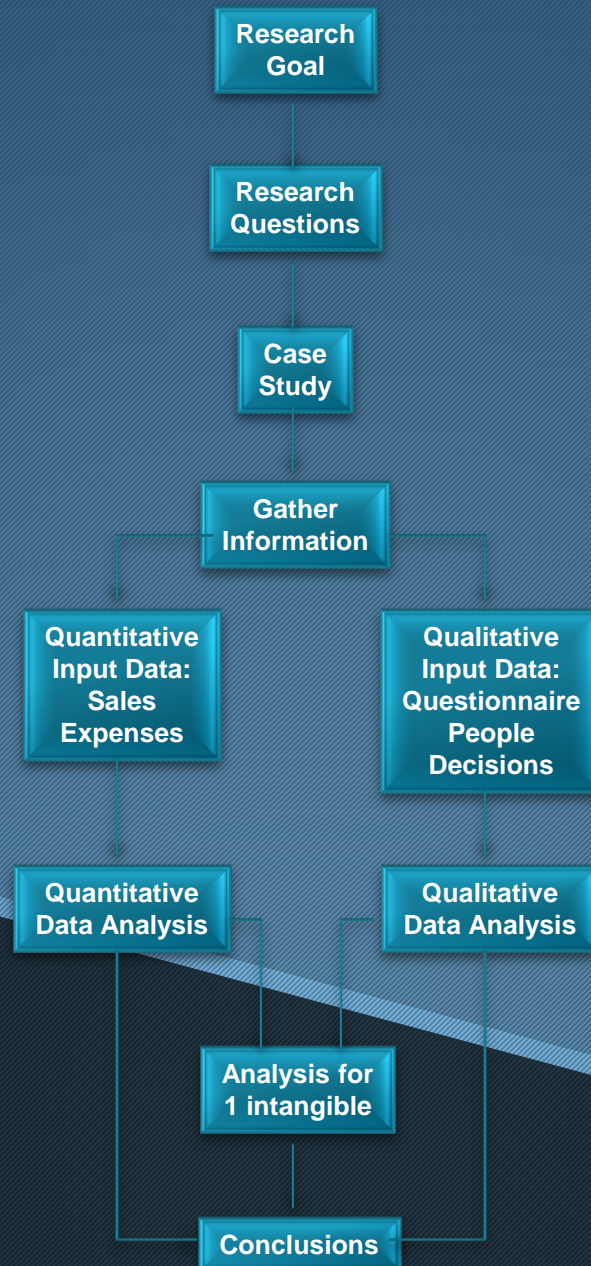
Economic crisis IC taxonomy:

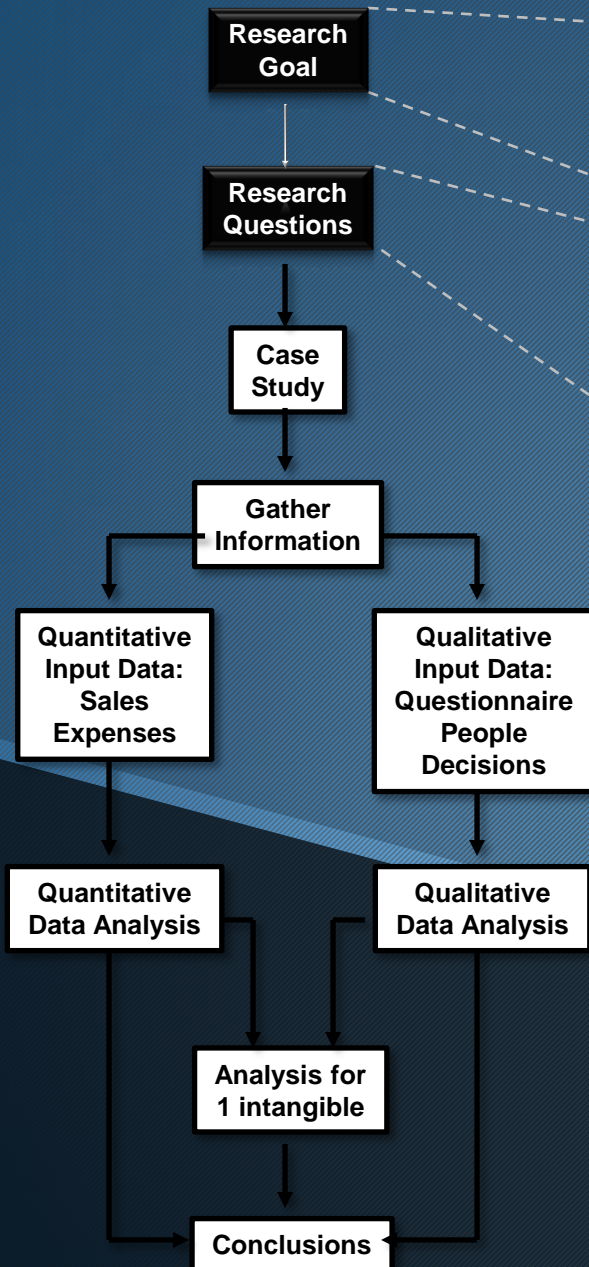
(Santoro and Gaffeo, 2009; Schenker-Wicki et al, 2009; Pate and Narain, 2008; Harvey and Lusch, 1997; Jennewein, 2004; Lee et al, 2003 et al, 2008 ; Eckstein, 2004; Ernst, 1998 ; Eckstein, 2004; Tan and Mathews, 2009 ; Akerman, 1960; Chin et al, 1999; Eliasson, 2005; Lafrenz, 2006; Lee and Makhija, 2009;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

Intellectual Capital	Intangible Assets for Economic Crisis
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 Investment in technology 2.3 Process and procedures 2.4 Innovation process 2.5 Intellectual property 2.6 Cut cost
3. Relational Capital	3.1 International and local providers 3.2 Customer 3.3 Government participation

Research Methodology

4.- Research Methodology





Research goal:

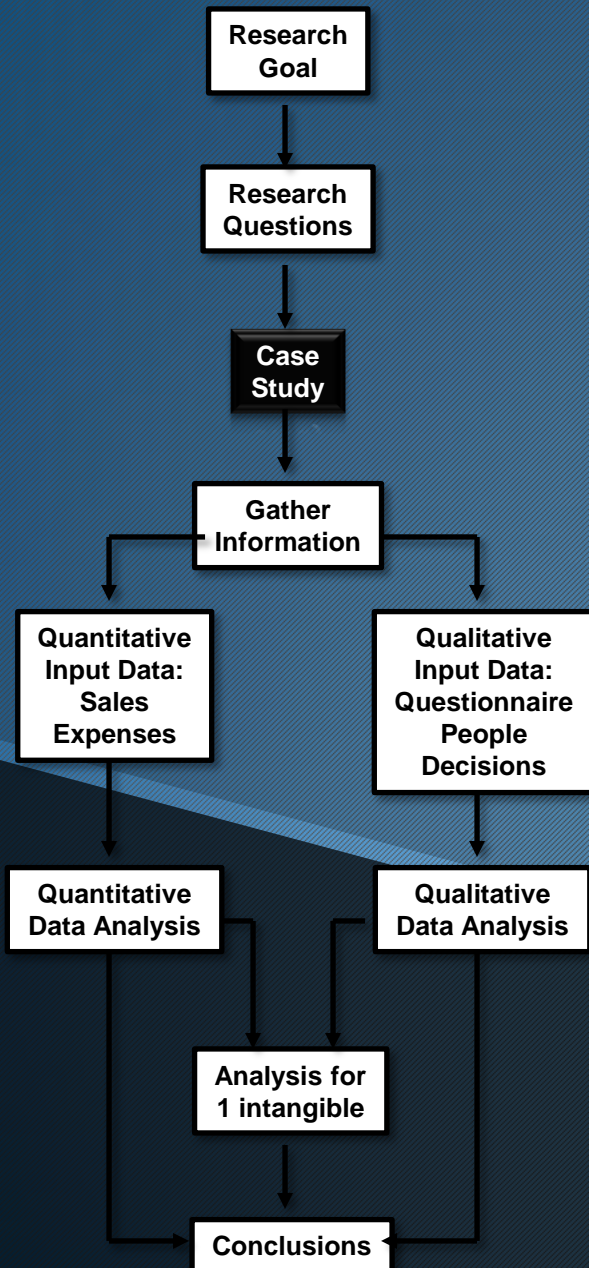
To identify and monitor the intangibles assets of a particular organization but under an economic crisis situation.

Research question:

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

Case Study Results and Analysis

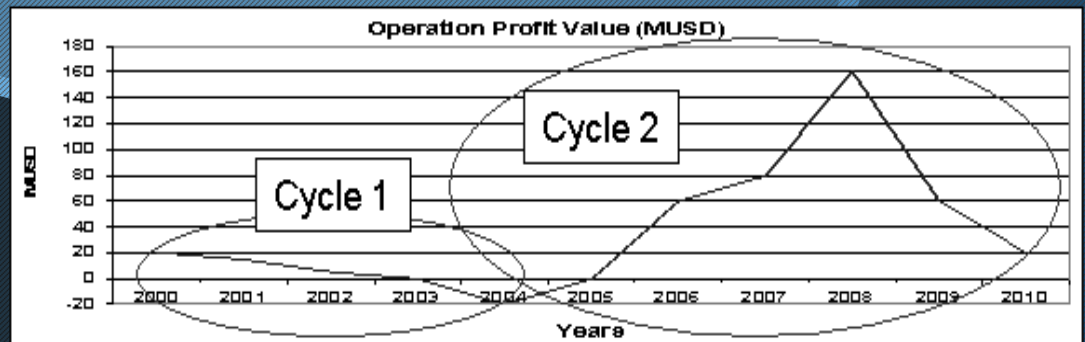
5.- Case Study Results and Analysis



Organization located in Mexico that it is not exempt of international crisis due to its natural market relationship to USA.

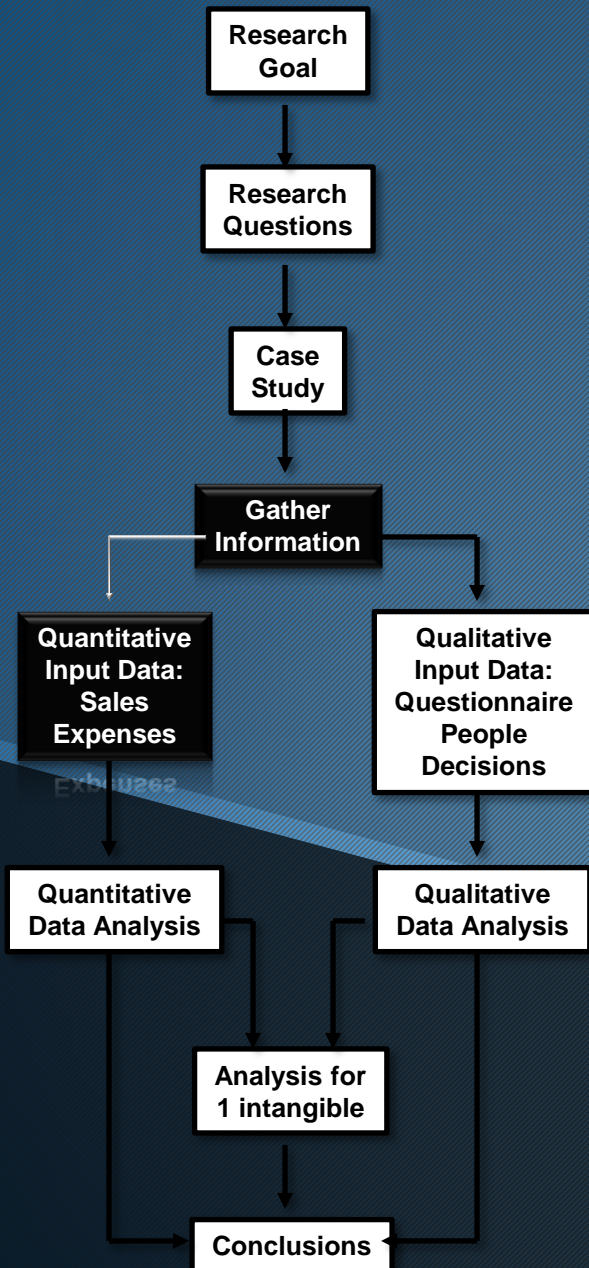
The organization is experiencing a slope-down of its own business economy. However and previously, the enterprise was experiencing an impressive growth that allowed to expand its operations to India and also to expand its portfolio of products and services.

This case study is narrowed to a business organized as follows: one business director, some managers and more than 20 employees distributed among the management areas.

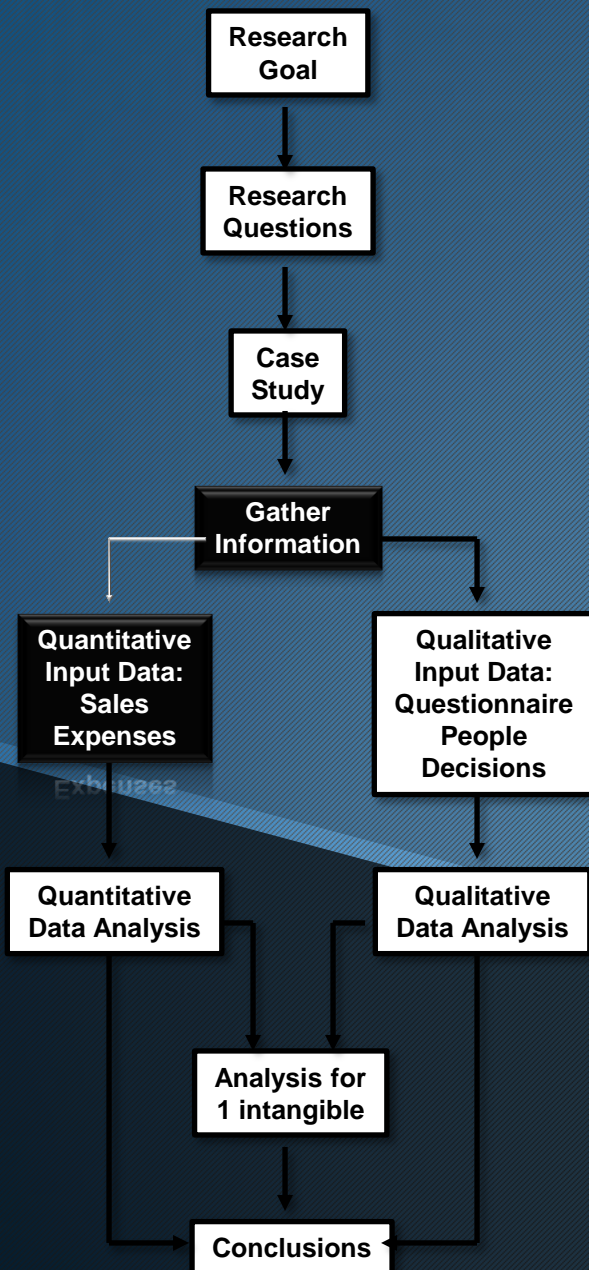


Accounting expenditures concepts for intangible assets.

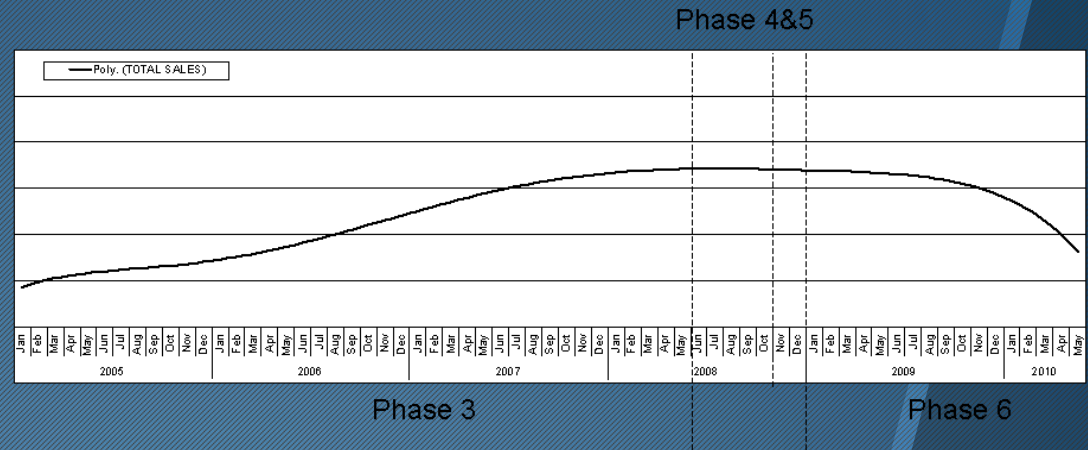
Note that some of these concepts might imply expenditures on tangibles as well, and human capital is excluded from this list.



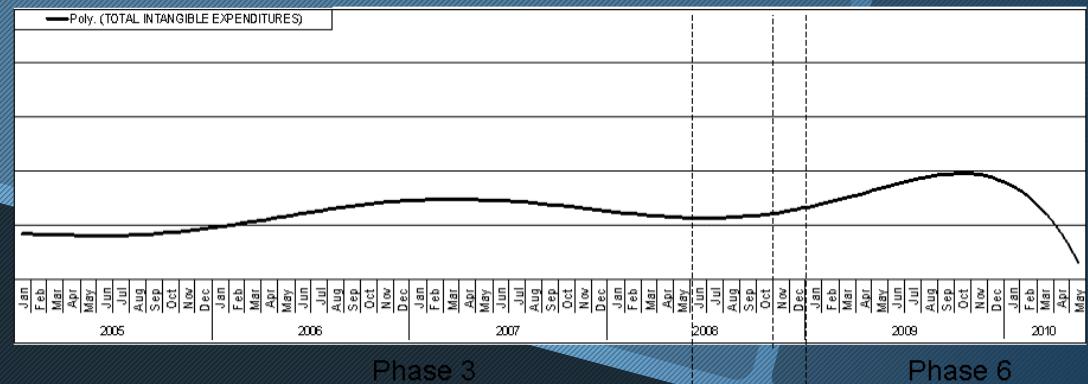
Intellectual Capital	Expenditure Category	Description
1. Relational capital	1. Meetings	Internal and external working sessions
	2. Expos and Conferences	Marketing activities
	3. Travel Expenditures	Travel expenditures
	4. Marketing and Promotion	Marketing activities
	5. Assessors and Consultants	Interaction with external experts to the organization
	6. Inscription to Public Bids	Interaction with external entities to increase sales
	7. Clubs and Associations Fees	Fees for external organizations
	8. Technical Assistance for Imports	Interactions with external experts to the organization but related to import matters
2. Structural capital	1. Non-Deductive Expenditures	Other taxable expenditures that are not directly related to the business
	2. Variable Expenditures	Other non classified expenditures
	3. Services and Taxes Related to the Product	Intangibles related to the selling product
	4. Telephone and Computer	Expenditures related to It infrastructure
	5. Rent of Special Equipment	Rent of special equipment

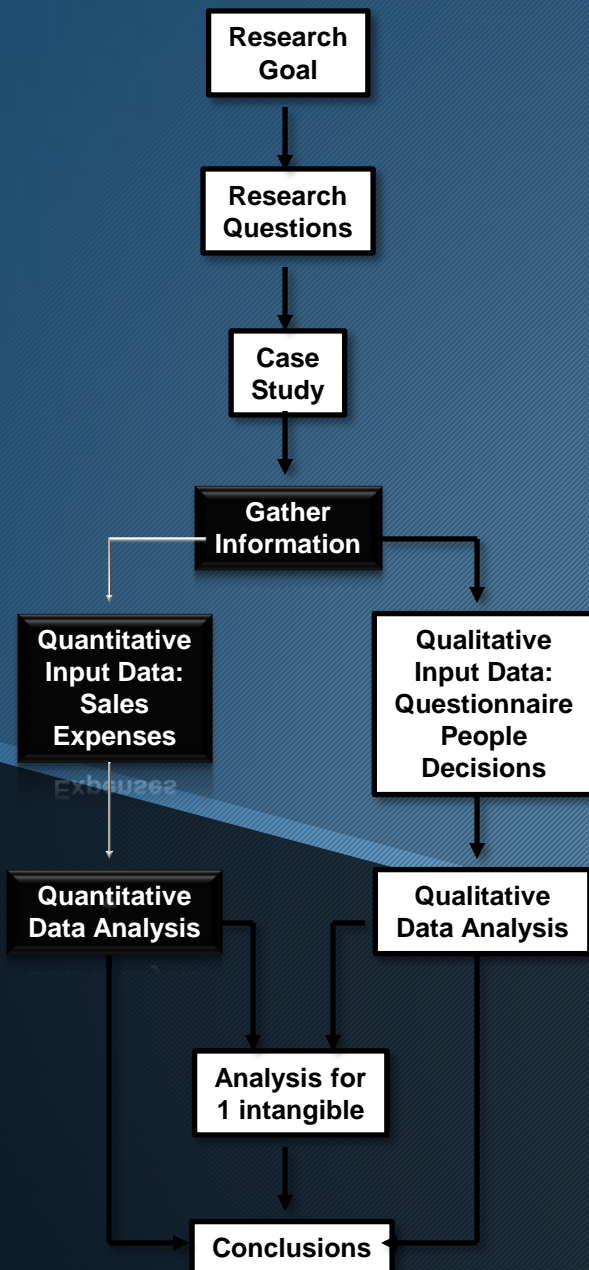


Organization sales from 2005 to 2010.
(Also are included the Akerman's phases related to crisis and recession)



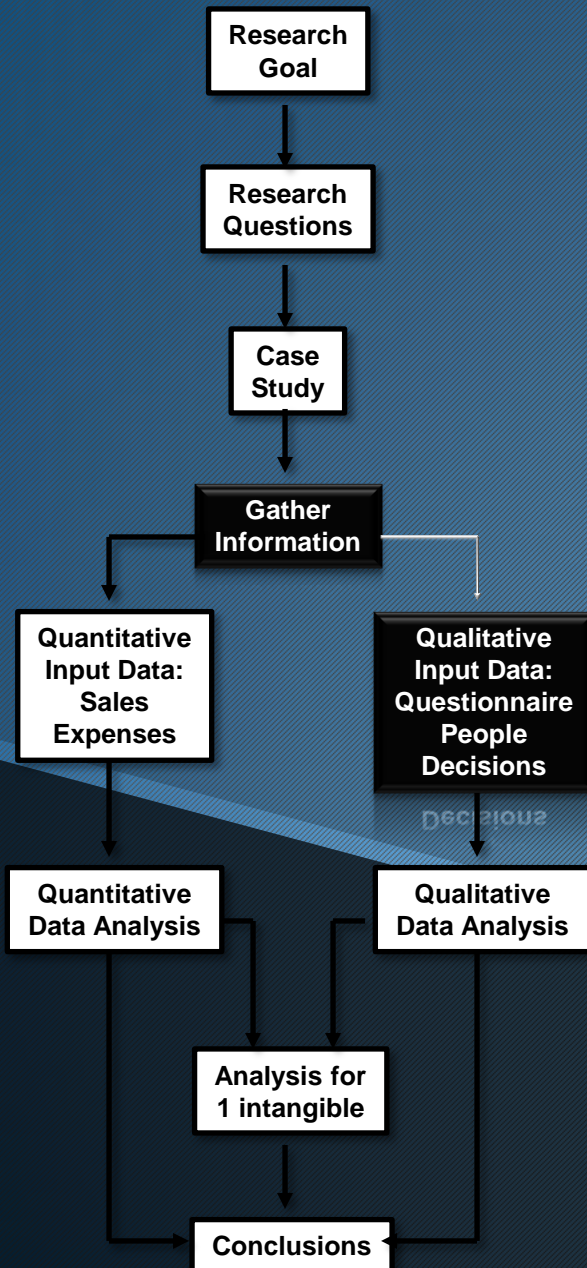
Organization expenditures from 2005 to 2010.
Phase 4&5





Quantitative approaches to identify relevant expenditures during crisis and recession (only for structural and relational capital):

1. **Standard deviation:** data normalized to the maximum value and then calculated median, average, max and min → T-test, F-test and ANNOVA to compare standard deviations between sales and expenditures at the crisis phase.
2. **Pearson correlation:** to compare correlation between sales and expenditures at the same period → relevance if close to +1 (running the same way) during growth and -1 (running opposite way) during recession.
3. **Polynomial approach:** data series turned as polynomial equation, like $y = ax^6 + bx^5 + \dots + (n-1)x + n$ → surface under the are is compared between growth vs. recession.

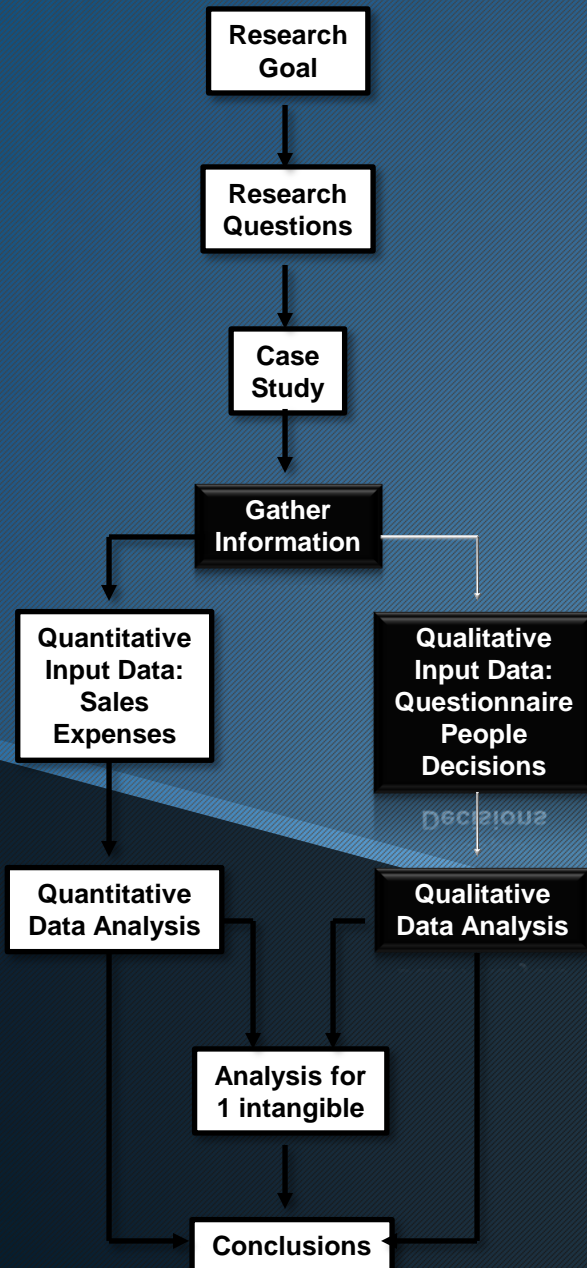


People interviewed:

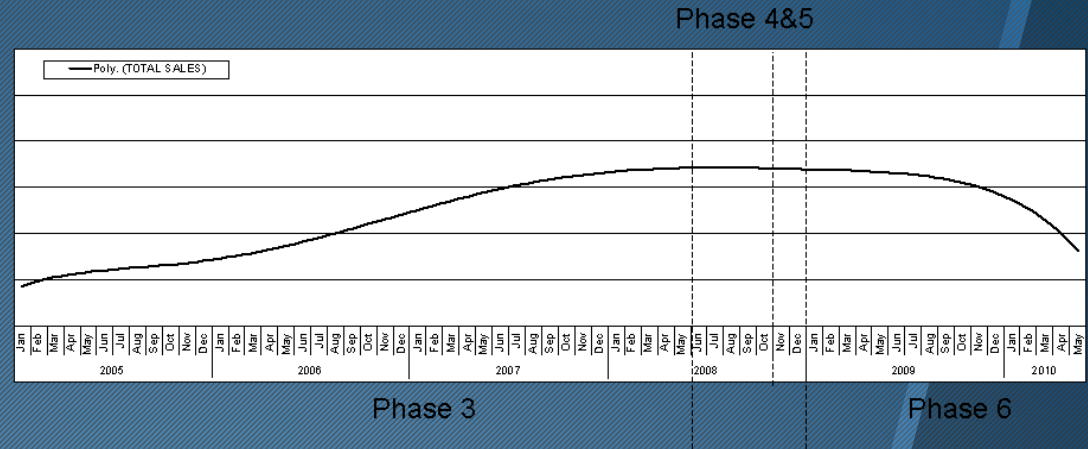
Area Director
Marketing Manager
Commercial Manager
Sales Manager
Quotation Manager

The interviews were performed on a monthly basis, on an individually fashion and in a period of time of 30 to 60 minutes, depending on people availability and amount of information to be shared. The conversation was performed on a relaxed environment and under colloquial language.

Moreover, the managers' team member were interviewed and asked with similar questions. The idea was to confirm the application of decisions made.



Organization sales from 2005 to 2010.
(Here is used as reference to identify crisis and recession)

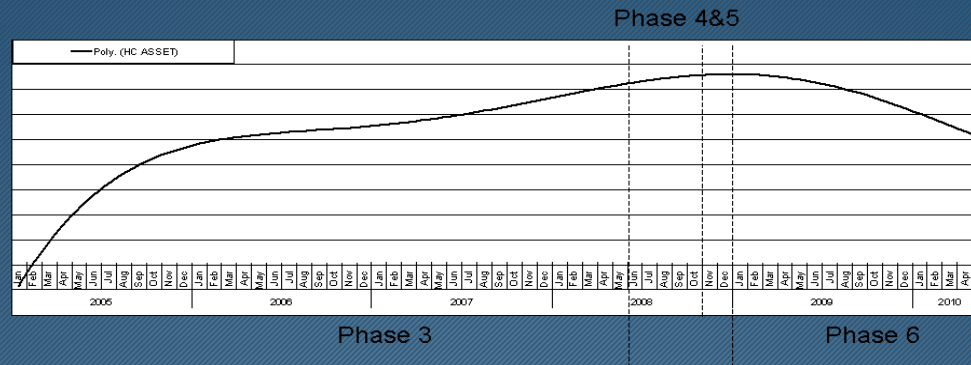


Relevant decisions made during 2005 to 2010.
Phase 4&5



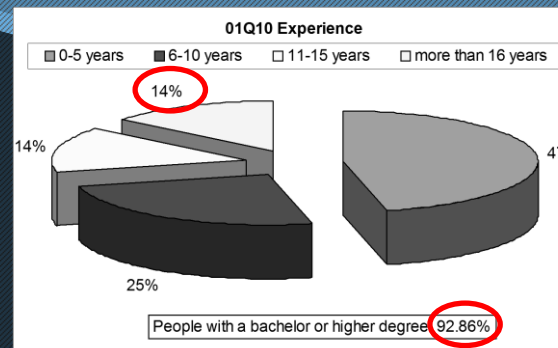
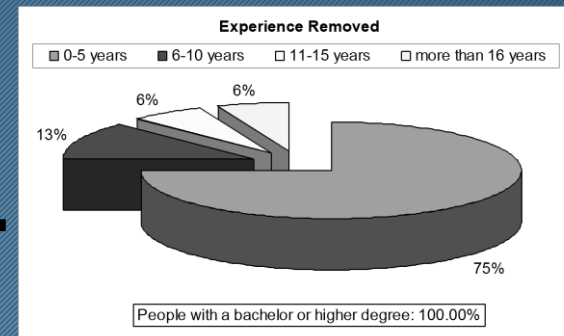
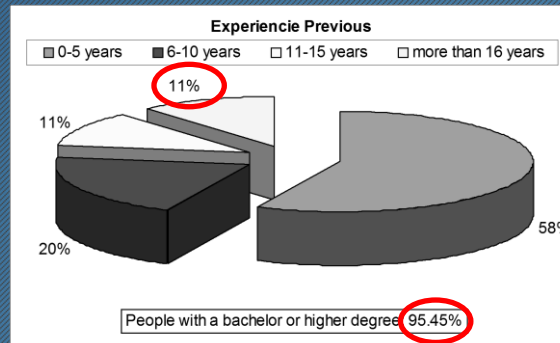
Human Capital Results and Analysis

Human Capital: Quantitative Analysis based on headcount



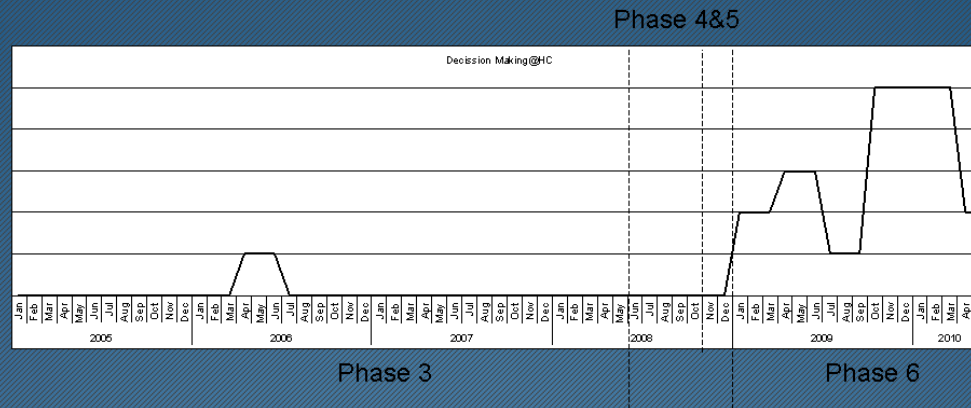
Experiences and people knowledge (education) after layoff during crisis and recession:

Before

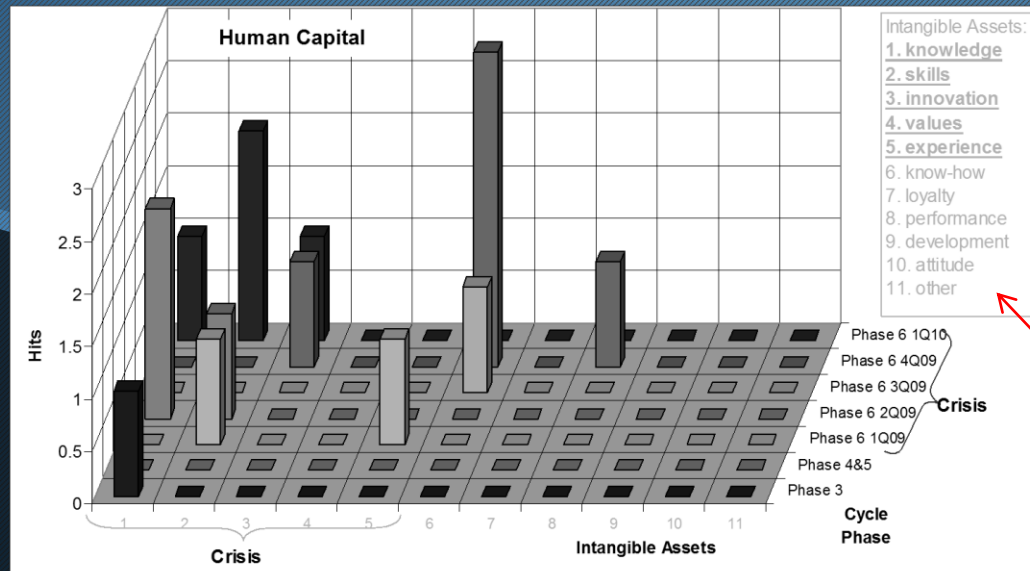


After

Human Capital: Qualitative Analysis based decisions made



Relevant decisions made and related to intangible assets of the IC taxonomy:

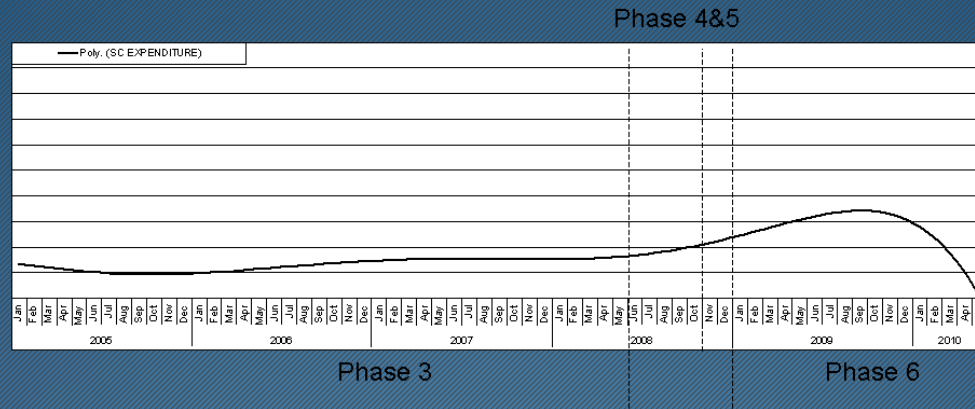


Crisis intangible assets

General intangible assets

Structural Capital Results and Analysis

Structural Capital: Quantitative Analysis



Relevant data calculated from growth and recession

	Phase 3 (Jan05-May08)					Phase 4&5 (Jun08-Dec08)					Phase 6 (Jan09-Apr10)				
	Mean	Median	Std.Dev	Min	Max	Mean	Median	Std.Dev	Min	Max	Mean	Median	Std.Dev	Min	Max
1. Non-Deductive Expenditures	0.1579	0.1322	0.1807	0.0021	1.0000	0.7553	0.7362	0.1371	0.6012	1.0000	0.4547	0.3930	0.2404	0.1296	1.0000
2. Variable Expenditures	0.2954	0.1954	0.2532	0.0000	1.0000	0.3897	0.3623	0.3550	0.0516	1.0000	0.0925	0.0268	0.2517	0.0000	1.0000
3. Services and Taxes Related to the Product	0.1766	0.0875	0.2307	0.0000	1.0000	0.2636	0.0402	0.4198	0.0057	1.0000	0.2373	0.1395	0.3058	0.0059	1.0000
4. Telephone and Computer	0.4862	0.4532	0.1684	0.2300	1.0000	0.7730	0.7561	0.2044	0.4227	1.0000	0.2687	0.2282	0.2191	0.0807	1.0000
5. Rent Of Special Equipment	0.3200	0.2797	0.1902	0.0030	1.0000	0.4738	0.4381	0.2933	0.0039	1.0000	0.3169	0.1595	0.3519	0.0010	1.0000
TOTAL SC EXPENDITURE	0.2653	0.1721	0.2142	0.0605	1.0000	0.3103	0.0983	0.3952	0.0484	1.0000	0.2800	0.1525	0.3020	0.0398	1.0000
TOTAL SALES	0.5121	0.5121	0.2427	0.1200	1.0000	0.6891	0.7808	0.2247	0.4065	1.0000	0.6043	0.6064	0.2345	0.2750	1.0000

Structural Capital: Quantitative Analysis

Standard deviation results

Structural Capital: Phase 3 (Jan05-May08) F-Test (ALPHA= 0.05)				
F-test	2. Variable Expenditures	3. Services and Taxes Related to the Product	4. Telephone and Computer	5. Rent Of Special Equipment
1. Non-Deductive Expenditures	35.46401	0.00919	1.78517	28.05838
2. Variable Expenditures	-----	0.00026	0.05034	0.79118
3. Services and Taxes Related to the Product		-----	194.18582	3052.10763
4. Telephone and Computer			-----	15.71746

Structural Capital: Phase 4&5 (Jun08-Dec08) F-Test (ALPHA= 0.05)				
F-test	2. Variable Expenditures	3. Services and Taxes Related to the Product	4. Telephone and Computer	5. Rent Of Special Equipment
1. Non-Deductive Expenditures	0.01021	0.00000	0.00797	0.03237
2. Variable Expenditures	-----	0.00019	0.78043	3.16920
3. Services and Taxes Related to the Product		-----	4126.99096	16759.07859
4. Telephone and Computer			-----	4.06085

Structural Capital: Phase 6 (Jan09-May10) F-Test (ALPHA= 0.05)				
F-test	2. Variable Expenditures	3. Services and Taxes Related to the Product	4. Telephone and Computer	5. Rent Of Special Equipment
1. Non-Deductive Expenditures	0.00235	0.00001	0.00228	0.00689
2. Variable Expenditures	-----	0.00324	0.97126	2.92933
3. Services and Taxes Related to the Product		-----	300.17856	905.34705
4. Telephone and Computer			-----	3.01603

Structural Capital			
T-test one-tail (alpha=0.05)	Phase 3 vs Phase 4&5	Phase 3 vs Phase 6	Phase 4&5 vs Phase 6
1. Non-Deductive Expenditures	0.00007557	0.00001705	0.00268288
2. Variable Expenditures	0.08487285	0.18409160	0.37603687
3. Services and Taxes Related to the Product	0.19868667	0.04383034	0.40545923
4. Telephone and Computer	0.01705450	0.35851238	0.23128826
5. Rent Of Special Equipment	0.33664306	0.02673506	0.04126404

Pearson correlation results

Structural Capital: Phase 3 (Jan05-May08)					
Pearson correlation	1. Non-Deductive Expenditures	2. Variable Expenditures	3. Services and Taxes Related to the Product	4. Telephone and Computer	5. Rent Of Special Equipment
0.- Sales	0.42383	-0.07369	0.39127	-0.37114	0.21714
1. Non-Deductive Expenditures	1.00000	0.06211	0.26283	-0.24157	-0.07376
2. Variable Expenditures		1.00000	0.01360	-0.20825	-0.31049
3. Services and Taxes Related to the Product			1.00000	-0.17122	0.05964
4. Telephone and Computer				1.00000	-0.08974

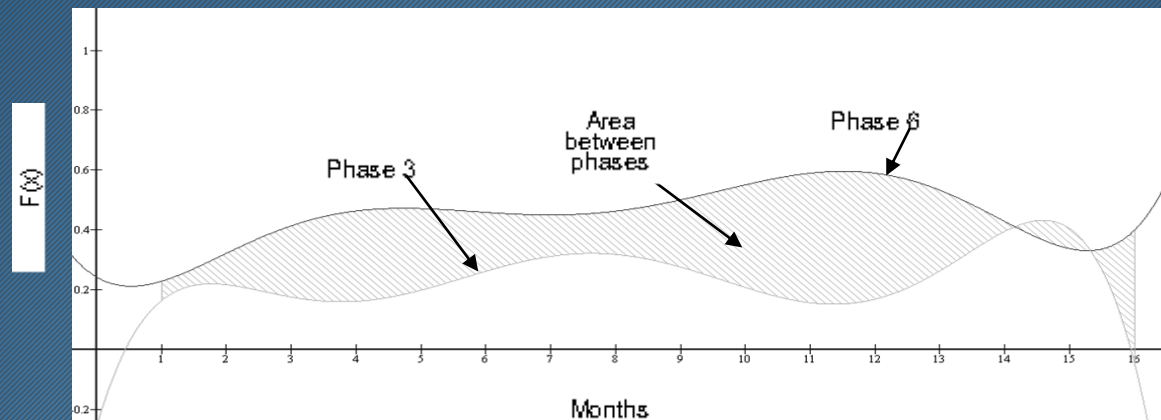
Structural Capital: Phase 4&5 (Jun08-Dec08)					
Pearson correlation	1. Non-Deductive Expenditures	2. Variable Expenditures	3. Services and Taxes Related to the Product	4. Telephone and Computer	5. Rent Of Special Equipment
0.- Sales	0.39615	0.39943	-0.04015	-0.24819	-0.47633
1. Non-Deductive Expenditures	1.00000	0.00638	0.64954	-0.74688	-0.03452
2. Variable Expenditures		1.00000	-0.09637	-0.01665	-0.13469
3. Services and Taxes Related to the Product			1.00000	-0.36546	0.12182
4. Telephone and Computer				1.00000	0.41185

Structural Capital: Phase 6 (Jan09-Apr10)					
Pearson correlation	1. Non-Deductive Expenditures	2. Variable Expenditures	3. Services and Taxes Related to the Product	4. Telephone and Computer	5. Rent Of Special Equipment
0.- Sales	0.18632	0.20980	0.10689	-0.14817	0.11400
1. Non-Deductive Expenditures	1.00000	0.63101	0.51682	0.00628	0.47779
2. Variable Expenditures		1.00000	0.45279	0.01580	0.52051
3. Services and Taxes Related to the Product			1.00000	0.01632	0.12011
4. Telephone and Computer				1.00000	-0.02147

Preliminary results do not help to identify relevant intangible expenditures.

Structural Capital: Quantitative Analysis

After converting expenditures data series on 6th degree polynomial equations next are the results of applying the difference of surface under the curve (integral function) between each expenditure concept respect to phase 3 and phase 6 of the economic crisis corresponding to the 16 months period described from 2005 to 2010.



Example of expenditure graph during phase 3 and phase 6

Note that the surface difference has negative result → organization is expending more during recession than growth.

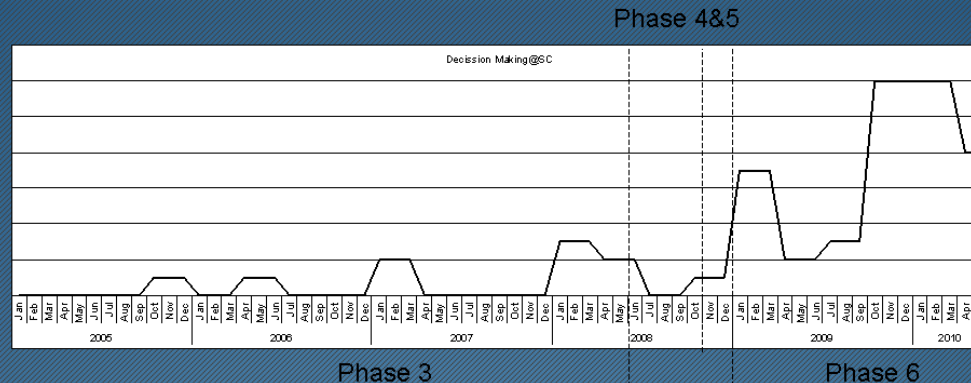
Structural Capital: Quantitative Analysis

Surface result

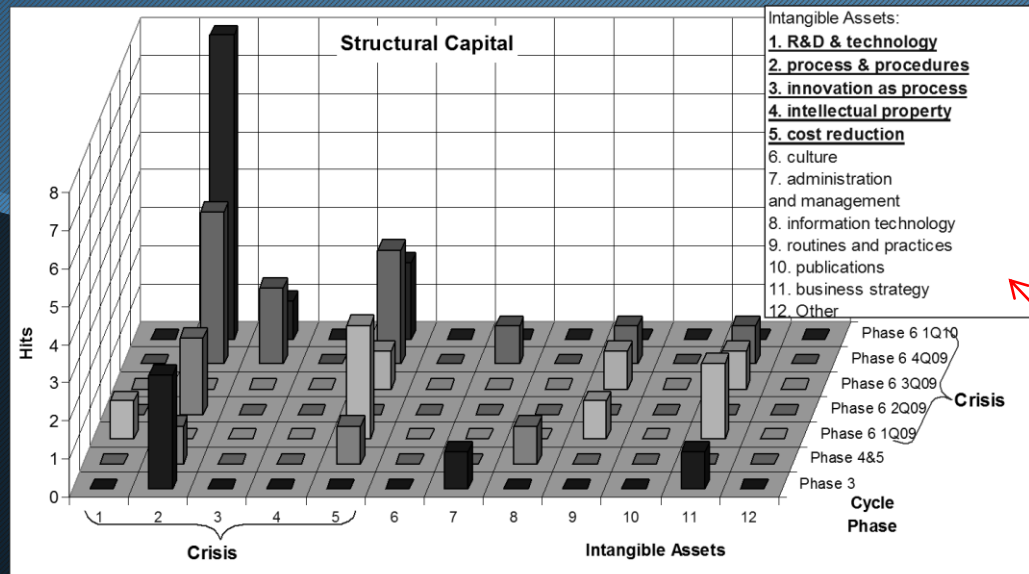
Structural Capital				
Intangible Expenditures	Phase 3 Surface	Phase 6 Surface	Surface between	Result
1. Non-Deductible Expenditures	3.6536	6.8708	-3.2172	Significant
2. Variable Expenditures	5.0922	1.3002	3.792	Not Relevant
3. Services and Taxes Related to the Product	3.8273	3.5162	0.3111	Not Relevant
4. Telephony and Computer	9.1265	4.1897	4.9368	Not Relevant
5. Rent Of Special Equipment	6.9872	4.6218	2.3654	Not Relevant

Expenditure relevant during crisis and recession.

Structural Capital: Qualitative Analysis based decisions made



Relevant decisions made and related to intangible assets of the IC taxonomy:



Crisis intangible assets

General intangible assets

Relational Capital Results and Analysis

Relational Capital: Quantitative Analysis



Relevant data calculated from growth and recession

	Phase 3 (Jan05-May08)					Phase 4&5 (Jun08-Dec08)					Phase 6 (Jan09-May10)				
	Mean	Median	Std.Dev	Min	Max	Mean	Median	Std.Dev	Min	Max	Mean	Median	Std.Dev	Min	Max
1. Meetings	0.3562	0.3342	0.1883	0.0000	1.0000	0.4186	0.2160	0.4054	0.0000	1.0000	0.2875	0.1786	0.2971	0.0000	1.0000
2. Expos And Conferences	0.2388	0.1718	0.2538	0.0000	1.0000	0.3803	0.3709	0.3255	0.0605	1.0000	0.3839	0.3440	0.2891	0.0305	1.0000
3. Travel Expenditures	0.2773	0.2401	0.2270	0.0000	1.0000	0.1901	0.0000	0.3778	0.0000	1.0000	0.0874	0.0000	0.2579	0.0000	1.0000
4. Marketing and Promotion	0.2415	0.1279	0.2657	0.0000	1.0000	0.2160	0.0518	0.3523	0.0016	1.0000	0.2315	0.2119	0.3504	-0.4943	1.0000
5. Assessors And Consultants	0.0625	0.0000	0.1850	0.0000	1.0000	0.3479	0.1013	0.4534	0.0000	1.0000	0.0941	0.0000	0.2545	0.0000	1.0000
6. Inscription To Public Bids	0.1804	0.0607	0.2359	0.0000	1.0000	0.3742	0.3049	0.3078	0.0585	1.0000	0.2750	0.2621	0.3042	0.0000	1.0000
7. Clubs And Associations Fees	0.1611	0.0193	0.2581	-0.4514	1.0000	0.1605	0.0000	0.3730	0.0000	1.0000	0.1063	0.0000	0.2737	0.0000	1.0000
8. Technical Assistance For Imports	0.0300	0.0000	0.1594	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0835	0.0000	0.2574	0.0000	1.0000
TOTAL RC EXPENDITURE	0.2558	0.1797	0.2028	0.0259	1.0000	0.4276	0.3781	0.2843	0.1506	1.0000	0.4605	0.4256	0.2444	0.1231	1.0000
TOTAL SALES	0.5121	0.5121	0.2427	0.1200	1.0000	0.6891	0.7808	0.2247	0.4065	1.0000	0.6043	0.6064	0.2345	0.2750	1.0000

Relational Capital: Quantitative Analysis

Standard deviation results

Relational Capital: Phase 3 (Jan05-May08) F-Test (ALPHA= 0.05)							
F-test	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
1. Meetings	0.22469	0.02965	0.96562	0.00953	1.46436	10.45099	33134.78681
2. Expos And Conferences	-----	0.13196	4.29755	0.04242	6.51720	46.51255	147467.58688
3. Travel Expenditures		-----	32.56608	0.32888	49.38620	352.46382	1117483.00432
4. Marketing and Promotion			-----	0.00987	1.51649	10.82303	34314.31396
5. Assessors And Consultants				-----	153.62323	1096.39180	3476099.19885
6. Inscription To Public Bids					-----	7.13688	22627.43157
7. Clubs And Associations Fees						-----	3170.48993

Relational Capital: Phase 4&5 (Jun08-Dec08) F-Test (ALPHA= 0.05)							
F-test	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
1. Meetings	0.00427	12.91547	0.02632	0.36949	0.23297	5.59516	65535.00000
2. Expos And Conferences	-----	3019.74152	6.15395	86.39062	54.47089	1308.19454	65535.00000
3. Travel Expenditures		-----	0.00203	0.02860	0.01803	0.43321	65535.00000
4. Marketing and Promotion			-----	14.03823	8.85136	212.57798	65535.00000
5. Assessors And Consultants				-----	0.63051	15.14278	65535.00000
6. Inscription To Public Bids					-----	24.01639	65535.00000
7. Clubs And Associations Fees						-----	65535.00000

Relational Capital: Phase 6 (Jan09-May10) F-Test (ALPHA= 0.05)							
F-test	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
1. Meetings	0.00265	2.13549	0.26774	0.02177	0.02247	0.39391	123.69336
2. Expos And Conferences	-----	805.16028	100.95081	8.20818	8.47270	148.52160	46636.95899
3. Travel Expenditures		-----	0.12537	0.01019	0.01052	0.18446	57.92257
4. Marketing and Promotion			-----	0.08130	0.08392	1.47122	461.97702
5. Assessors And Consultants				-----	1.03220	18.09433	5681.76376
6. Inscription To Public Bids					-----	17.52941	5504.37612
7. Clubs And Associations Fees						-----	314.00791

Relational Capital			
T-test one-tail (alpha=0.05)	Phase 3 vs Phase 4&5	Phase 3 vs Phase 6	Phase 4&5 vs Phase 6
1. Meetings	0.00000279	0.00000000	0.26215388
2. Expos and Conferences	0.03043716	0.00066978	0.38238082
3. Travel Expenditures	0.00000000	0.00000000	0.41012379
4. Marketing and Promotion	0.24803076	0.02320273	0.14107322
5. Assessors and Consultants	0.04074827	0.06793364	0.32653006
6. Inscription to Public Bids	0.11159300	0.01533935	0.08935388
7. Clubs and Associations Fees	0.10906733	0.44518738	0.20702511
8. Technical Assistance for Imports	0.11747536	0.14061695	0.11485116

Pearson correlation results

Relational Capital: Phase 3 (Jan05-May08)							
Pearson correlation	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. Sales	-0.09616	0.10880	0.19705	0.29646	0.17055	0.12798	-0.29694
1. Meetings	1.00000	0.03612	0.38339	-0.00620	-0.12823	-0.01962	0.18036
2. Expos And Conferences		1.00000	0.20494	-0.04376	-0.00039	0.22280	-0.06346
3. Travel Expenditures			1.00000	0.21080	-0.03028	0.13397	0.06495
4. Marketing and Promotion				1.00000	0.51603	-0.00263	-0.18411
5. Assessors And Consultants					1.00000	-0.00772	0.04437
6. Inscription To Public Bids						1.00000	0.17798
7. Clubs And Associations Fees							1.00000

Relational Capital: Phase 4&5 (Jun08-Dec08)							
Pearson correlation	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. Sales	0.29863	0.31114	0.05912	-0.34913	0.31941	0.25930	0.13880
1. Meetings	1.00000	-0.36821	-0.49630	-0.29784	-0.19669	-0.17681	-0.39846
2. Expos And Conferences		1.00000	0.03640	-0.28962	0.67934	0.95131	0.81417
3. Travel Expenditures			1.00000	0.28529	0.52255	0.74721	0.93004
4. Marketing and Promotion				1.00000	-0.17804	-0.31452	-0.07342
5. Assessors And Consultants					1.00000	0.68103	0.64486
6. Inscription To Public Bids						1.00000	0.97955
7. Clubs And Associations Fees							1.00000

Relational Capital: Phase 6 (Jan09-May10)							
Pearson correlation	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. Sales	0.13636	0.62062	0.51514	-0.32402	-0.20393	-0.11182	0.24155
1. Meetings	1.00000	0.28599	0.65352	-0.25034	-0.19703	0.63788	-0.12842
2. Expos And Conferences		1.00000	0.30480	-0.52844	-0.05937	-0.09048	0.11996
3. Travel Expenditures			1.00000	-0.57856	-0.05922	0.38313	-0.13969
4. Marketing and Promotion				1.00000	-0.19064	-0.16482	-0.02923
5. Assessors And Consultants					1.00000	-0.23350	-0.07595
6. Inscription To Public Bids						1.00000	-0.25591
7. Clubs And Associations Fees							1.00000

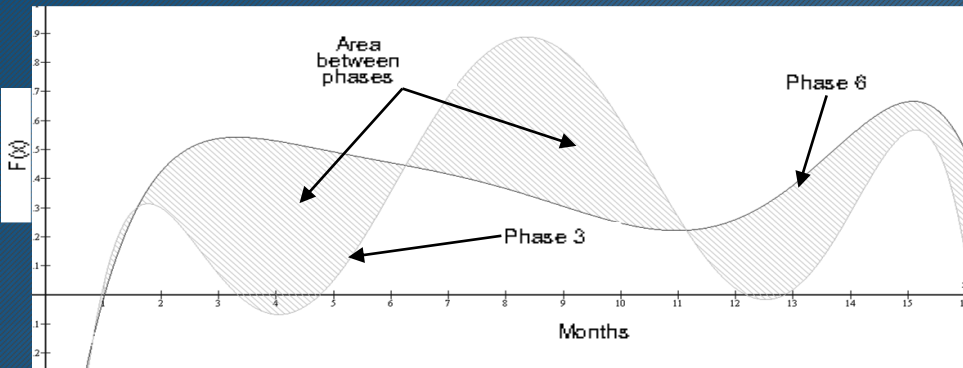
Similar to structural capital, the preliminary results do not help to identify relevant intangible expenditures.

Relational Capital: Quantitative Analysis

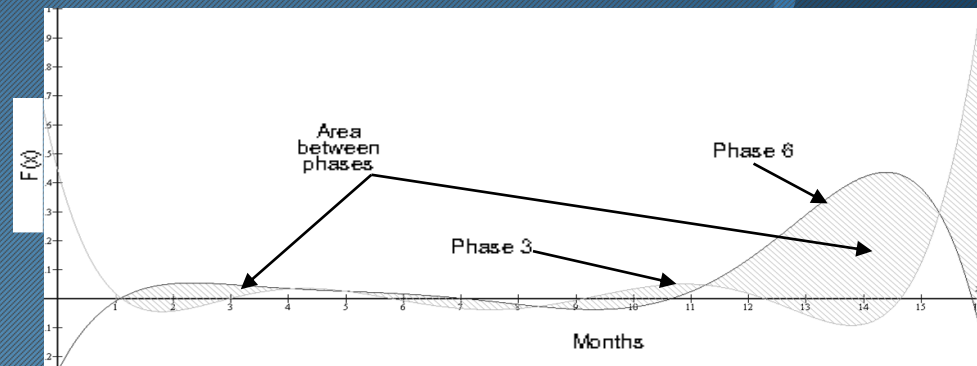
Relational Capital				
Intangible Expenditures	Phase 3 Surface	Phase 6 Surface	Surface between	Result
1. Meetings	5.2958	4.5334	0.7624	Not Relevant
2. Expos And Conferences	5.1	6.1766	-1.0766	Significant
3. Travel Expenditures	5.1698	1.4062	3.7636	Not Relevant
4. Marketing and Promotion	4.4535	1.4057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

Expenditures relevant during crisis and recession.

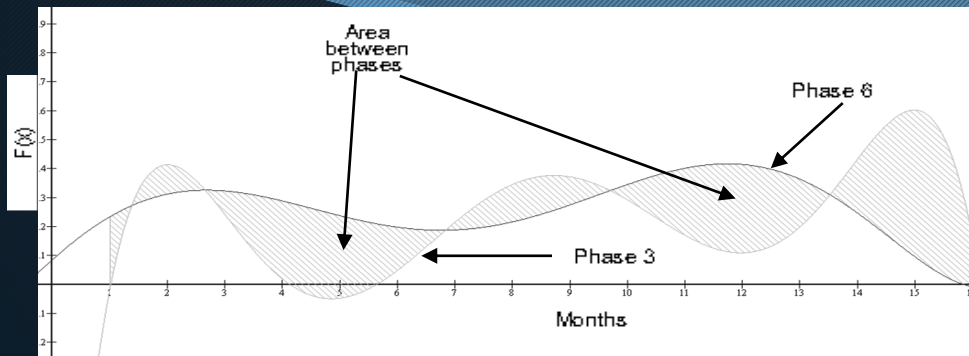
Relational Capital: Quantitative Analysis



Expos and Conferences Expenditures



Technical assistance for Imports Expenditures

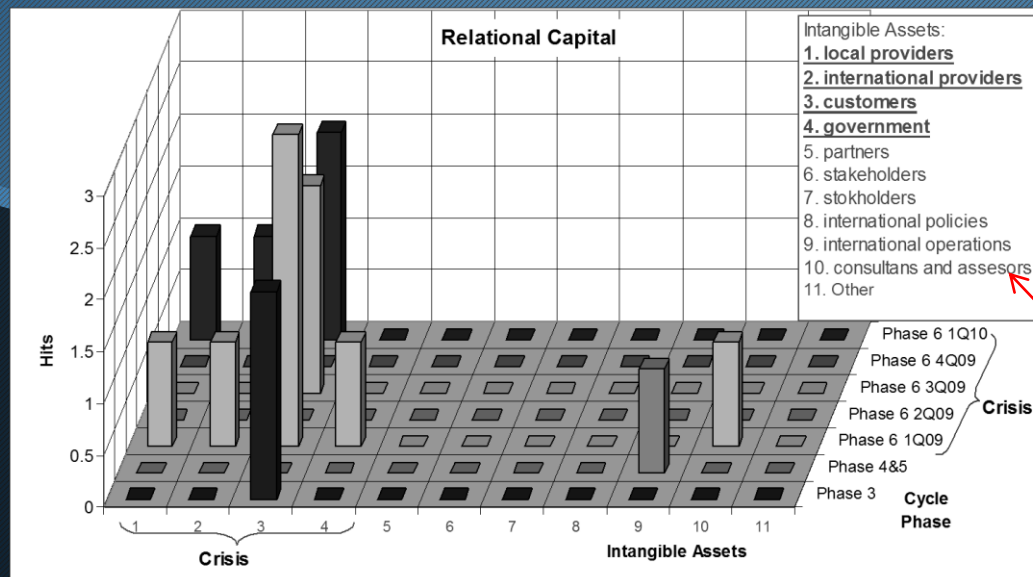


Inscription to Public Bias Expenditure

Relational Capital: Qualitative Analysis based decisions made



Relevant decisions made and related to intangible assets of the IC taxonomy:



Crisis intangible assets

General intangible assets

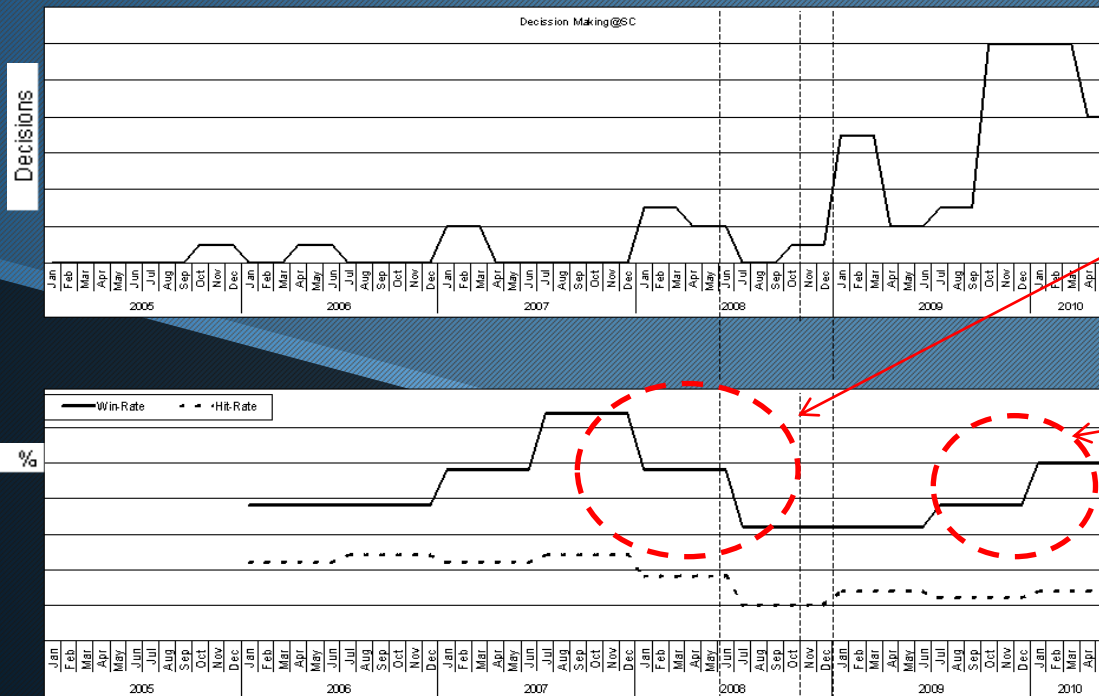
Monitor Relevant Expenditure

Monitor Relevant Expenditure

The asset picked for this activity is the one related to process and procedures of the structural capital group (more specific the quotation process).

The main reason to pick among the rest is because this type of asset is very intensive in the manufacturing industry and also this was the asset with the highest hits during the interviews with the decision makers

Phase 4&5



← Structural capital decisions related.

Win rate (quotations won after bids) diminished right before crisis started.

Many decisions to improve the quotation process are optimizing its performance during the recession.

Phase 3

Phase 6

Conclusion

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

Answer:

Intellectual Capital for Case Study Economic Crisis		
Intellectual Capital	Quantitative	Qualitative
	Intangible assets investment	Relevant intangible assets
1.- Human Capita	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	2.1. Local Providers 2.2. International Providers 2.3. Customers

Case study IC taxonomy under economic crisis context

Q1. Which intangible assets are relevant during economic crisis?

Answer:

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

Which is the performance of the intangible assets from the business Intellectual Capital during an economic crisis context?

Apart to the answers and information provided previously, the intangible assets related to the competitiveness and sales of the organization are being more intense on activity and in some cases they are providing some satisfactory results, such as the quotation and sales process shown here. Also, the other set of intangibles are active but not with the intensity of those mentioned above, but at the end the main idea is to help the organization to complete the current economic cycle as soon as possible and then start a new cycle. The challenge is relevant, because the organization's sales performance, and consequently business operation depends on the outside variables such as the international crisis and other exogenous factors.

Thank you for your attention!

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