Diagnóstico de partida para diseñar un modelo de proyecto que permita implantar el proceso de inteligencia empresarial en las empresas del grupo de diseño e ingeniería de la construcción en Cuba

Diagnosis of initial data to design a project model enabling the implementation of a business intelligence process for design and construction engineering companies in Cuba

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Fecha de recepción: 25/ 08/ 2009
Fecha de aceptación: 01/ 03/ 2010
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Resumen

Disponer de un Proceso de Inteligencia Empresarial ha dotado en los últimos años a un creciente número de empresas en el mundo de la capacidad de monitorear el ambiente externo e interno y crear conocimientos aptos para la toma de decisiones, reorientar la Dirección Estratégica, reducir el margen de riesgo a enfrentar y elevar su competitividad, las empresas cubanas de diseño e ingeniería de la construcción representan un sector de vanguardia en la implantación del nuevo sistema de gestión y dirección empresarial cubano, aspirando a diversificar sus servicios en el mercado nacional e internacional de la construcción. Este artículo tiene el objetivo de mostrar el uso de diferentes herramientas, como el procedimiento de cálculo del índice de experticidad, entrevistas de orientación e informativas, encuestas, correlación de categorías y trabajos grupales que permitieron diagnosticar la situación de partida sobre el enfoque de proyecto para la implantación de dicho Proceso. Como resultados más importantes se logró definir el estadio de estas organizaciones para implantar a través de un Proyecto el Proceso de Inteligencia Empresarial, los elementos que limitan y facilitan el cambio, a partir de los cuales se estructuró el diseño de una investigación científica en desarrollo con el coauspicio de varias universidades y empresas y de la que se esperan como resultados concretos el diseño de un Proceso de Inteligencia Empresarial para dichas empresas y un Manual que sirva de guía para investigadores y directivos que trabajen en la mejora de la Gestión en entidades similares.

Palabras Clave: Dirección de proyectos, construcción, inteligencia empresarial

Abstract

Business Intelligence Process during recent years have provided a growing number of companies all over the world with the ability to control internal and external environments and to create appropriate know-how for decision making processes; to provide a new Strategic Management orientation; to reduce the potential risk margin and to increase competitiveness. Cuba represents a leading sector of Design and Construction Engineering Companies for the implementation of this new Cuban Management and Business Administration System, seeking to diversify services in the national and international construction market. The purpose of this paper is to demonstrate the use of different tools, such as the expertise calculation index procedure, orientation and information interviews, surveys, category correlation and focus groups, which allowed the diagnosis of initial data situation on the project approach for the implementation of such a process. The most important outcomes were the definition of organization stages to be implemented, by means of a Business Intelligence Project, those elements that limit and facilitate the process. From these elements, an on-going scientific investigation design was created, counting with the co-sponsorship from several universities and companies. Concrete results are expected to design a Business Intelligence Process for such companies and a Manual to guide researchers and executive staff involved in the improvement of similar entities of management.

Keywords: Dirección de Proyectos, construcción, inteligencia empresarial

1. Introduction

As a methodological stream, the use of Project Management, for the introduction of new soft or hard technologies, has been expanding all over the world.

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Project Management is an absolute requirement to approach the implementation of new technologies and processes for construction sector in Cuba, since the continuous attempts to develop them, in an empirical or traditional way, have only conducted to partial results or to failures of outlined goals.

Several factors determine whether Project Management is required, however in the case of design and implementation of a Business Intelligence Process for the design and engineering of construction companies, such factors are present. Therefore, it was decided that this process fits this Management system, because of the advantages involved for a modern organization to get orientated towards projects (Heredia R., 1999), provided that:

- Projects help to spread support and comprehension in all directions.
- This new activity will impact the members of all the organization.
- The project will be benefited from all specialization diversity, basis and experiences.
- It enables the optimization of Quality, Costs and Project deadline.

There are a growing number of organizations in the world that are basing their management system on the knowledge and use of products from business intelligence, thus increasing their competitiveness levels.

In Cuba only few organizations have lead this way, however, the ones that have, today show outstanding results that place them among the most advanced in their market specialty in the world.

Cuba, also involved in the present and turbulent global environment, has been affected by events such as the socialism fall down, the globalization process of international economy, the reinforcement of North American blockade together with a growing role of technology and services sectors, which have forced Cuba to develop an economical restructuration policy, where the assimilation of modern management methods and techniques becomes a must.

In November 1997 the “Economical Resolution” was issued (Periódico Granma, 1997) that outlined one of its main lineaments: “Investment policy and its effectiveness are crucial for the efficiency increase”. Therefore, it is necessary to meet the international regulations in all respects of conception, projection, construction and implementation of investment scope...

The use of modern business administration techniques appropriate to our characteristics, based on the best and most advanced contemporary practices, as well as a wide use of technology, information and telecommunication services, must be a priority in our country in order to guarantee highest efficiency of productive processes management. Financial, advisory and services, together with technical professional services shall undergo a strong development in our national territory and in other countries.

The Construction sector has been affected by the financial contraction during recent years and faces the challenge of finding solutions to finance the minimum requirements of this sector in a short time period. Solutions must be achieved by means of effectiveness, efficiency and internal savings, so as to compete in the international market (Rodríguez Peña, 1998). Therefore, counting with Business Intelligence systems will allow us to face a strong competition in this sector by using the intelligence products obtained.

Over recent years, Cuban Design and Engineering companies methodologically grouped in the Projects Front have been focused in the process of pushing forward business improvement, 18 out of them associated to the Design and Construction Engineering Business Group (GEDIC) of the Construction Ministry intend to conduct this research. Such entities represent a leading sector for the implementation of this new Cuban Management and Business Administration System, having as a latent need the requirement of achieving higher goals. Besides, this is a sector sensitive to any development strategy in the country, where an investment process is required, so most companies aspire to acquire new management techniques to provide services for the national construction market and to launch an increasing number of services into the international market. Of course above is equivalent to count with Project Models that facilitate the incorporation of a Business Intelligence Process (BI) to their daily routine as soon as possible.

This paper presents the results of a diagnosis conducted by 18 entities of Design and Construction Engineering Business Group (GEDIC), with the purpose of sharing the initial data situation of this project approach for the implementation of a Business Intelligence Process in management systems in Cuban design and engineering sector, which will provide them with the ability to capture and analyze data, in an organized and systematic way,

to control, obtain and broadcast relevant information about external environment and internal conditions thus delivering a global vision of economical, financial, historical, regulatory, political, social and technological aspects that allows the creation of a solid knowledge for decision making processes, where Strategic Management will have the best chances for a correct implementation, making a contribution to the proper compliance of outlined goals by reducing potential risk margin and increasing competitiveness.

2. Objectives and development of initial data diagnosis

2.1 Diagnosis objectives

In order to conduct the diagnosis the following work objectives were established:

1. To set up an Expert Committee for the Project Direction, Knowledge Management, and Business Intelligence Development, employing scientific research techniques and tools.
2. To define an initial approach on the stages of the Project Management in Cuban design and construction companies from the study of their management regular practices.
3. To define an initial approach on the stages of the Business Intelligence and to conduct an exploratory analysis on the most relevant aspects.
4. To propose a Scientific Research Design to the Scientific Board.

3. Development

In order to solve the first objective, an Experts selection process took place; a group of specialists from all operational areas in the 18 companies was proposed, those corresponding to all possible segments involved with different processes, interests areas, professional or any other variable that qualifies them after the completion of an expertise survey (see Appendix #1). The survey allowed the selection of candidates meeting the previously established requirements to set up an Expert Committee for the Project Direction, Knowledge Management, and Business Intelligence Development.

For the selection of experts participating in this research, a procedure developed by Dr. MSc. María de Lourdes Artola (Delmás Magalys, Del Sol Orianna, 1998)

was employed. It is notable the Expertise Index calculation (EI) that will be used in the processing phase taking into consideration the report (García H. R., Cuétara S. L, 1996) about this subject.

The expert competence questionnaire, see Appendix #1, is an extremely useful instrument in this stage, particularly because it captures information about the experience and know-how of a group of people related to the evaluation objective. This questionnaire layout together with the group of candidate experts, allows the capture of information useful to calculate the Expertise Index. It is divided in two parts. The first part gathers information about the features that identify the expert. In the second part, the candidate is requested to provide an appraisal regarding his labor background supporting his expert condition on the research study subject.

Before calculating the Expertise Index (EI), it was necessary to homogenize the values of different variables in this study.

72 proposed candidates, representative of different areas and work groups from 18 companies, were evaluated by determining their expertise index by means of Survey Nr.1. Experts with an EI <0.4 were disregarded and eventually only 65 candidates were considered.

3.1 Survey Processing and Application (Miller and Freud, 2004)

By using the Guidance interviews, Informative interviews, and different analysis methods Surveys # 2 and 3 were created. See Annexes 2 and 3 that facilitated the approach to the initial data situation in these companies as far as Project Management and Business Intelligence Processes are concerned.

For the statistical processes in surveys # 2 and 3 professional SPSS 10.0.6 software was employed by conducting a frequency descriptive and statistical analysis on the responses according to the evaluation scale, being in this case from 1 to 9 in order to achieve a higher average.

Responses from survey #2, including evaluations between 7 and 9, demonstrate that these organizations have a strong culture regarding Project Management techniques and tools, based on their own implementation methodology (Group of Authors of the Construction Ministry Cuba, 2006) as well as processes and they have achieved their service certification by the Buro Veritas, the Lloyd Register and the National Standardization Office of Cuba.

Besides, for better displaying the obtained results, graphic outlet of frequency histograms were employed, as seen in the following pictures.

However the statistical process in survey # 3, proved some other different situations as far as Business Intelligence Process is concerned, as shown by frequency histograms in below pictures.

Figura 1. Resultados pregunta No.1
Figure 1. Results Inquiry #1

56% of the polled experts confirm to know few or nothing about Business Intelligence, while the remaining 44% claim to have some kind of knowledge about it.

Figura 2. Resultados pregunta No.2
Figure 2. Results Inquiry #2

75% of polled experts indicate that the degree of implementation of Business Intelligence Process is low inside the organization.

Figura 3. Resultados pregunta No.3.
Figure 3. Results Inquiry #3

81.4% of polled experts grant higher importance to the implementation of Knowledge Management, while a 12.3% considers it is not important.

Results Inquiry #4, responses in decreasing order is the following.

- Improves the Competitive Intelligence – Innovative Capability relationship in their organization.
- Improves the Strategically Orientation in their organization.
- Detects competitive advantages.
- Implements tools facilitating and speeding up a better management of Productive Processes.

82% of polled experts agreed on the first aspect, so we decided to deal it in depth.

Figura 4. Resultados pregunta No.5
 Figure 4. Results Inquiry #5

87.5% of polled experts consider themselves as highly motivated to face the culture change inside the organization.

Since 82% of polled experts considered that counting with a Business Intelligence Process will, in first place, lead to an improvement of the relationship Competitive Intelligence-Innovation Capability inside the organization, it was decided to conduct an exploratory analysis on this subject in order to deepen our knowledge on the current condition of Competitive Intelligence of the Design and Engineering companies in the Construction Sector in relation to their innovative capability.

- In effect, do they correctly use Competitive Intelligence to keep more competitive products?
- Does the culture support Competitive Intelligence practices?
- Is the management administering the processes correctly?

Taking as a reference the method developed by Dr. David Güemes and Dr. Marisela Rodríguez from Quality and Manufacture Technological Center of Monterrey (Güemes and Rodríguez, 2007; Hernández, Fernández, Baptista, 1997), the following correlation was established obtaining results expressed in below graphs.

Tabla 1. Correlación Inteligencia competitiva- capacidad de innovación en las empresas de diseño e ingeniería del sector de la construcción
Table 1. Correlation competitive intelligence-innovation capability in design and engineering companies in the construction sector

Capacidad innovadora de la empresa Company Innovative capability										Variables de inteligencia competitiva Competitive Intelligence Variables					
Coeficientes de Correlación Correlation coefficients		Liderazgo/Leadership	Nuevos Conceptos/New Concepts	Nuevos Productos/New Products	Procesos Productivos/ Productive Processes	Organización para la innovación/ Innovation Organization	Administración del Conocimiento/ Knowledge Management	Estilo de Gestión y Cultura de la Información/ Management Practices and Information Culture	Conocimiento Explotación de Fuentes de Información/ Knowledge Exploitation Management of Information Sources	Explotación Sistemática de las Fuentes de Información/ Systematic Exploitation of Information Sources	Evaluación y Análisis de la Información/ Evaluation and Analysis of Information	Difusión de la Información/ Information Delivery	Hábito del uso de la información para la Toma de Decisiones/Employment Practices of Information for Decision Making Processes		
Correlación fuerte/Strong correlation (correlaciones mayores a 0.7) (Correlations greater than 0.7)															
Correlación mediana/Average correlation (correlaciones entre 0.6 y 0.7) (correlations between 0.6 and 0.7)															
Correlación débil/Weak correlation (correlaciones menores a 0.6) (correlations less than 0.6)															
Capacidad innovadora de la empresa Company Innovative Capability	Liderazgo/Leadership	1.00	0.74	0.68	0.74	0.66	0.70	0.51	0.51	0.48	0.52	0.50	0.51		
	Nuevos Conceptos/New Concepts		1.00	0.63	0.70	0.52	0.65	0.48	0.48	0.37	0.42	0.43	0.44		
	Nuevos Productos/New Products			1.00	0.78	0.66	0.66	0.47	0.47	0.52	0.49	0.40	0.39		
	Procesos Productivos/Productive Processes				1.00	0.76	0.79	0.55	0.47	0.49	0.45	0.35	0.41		
	Organización para la innovación/Innovation Organization					1.00	0.77	0.59	0.56	0.48	0.52	0.46	0.43		
	Administración del Conocimiento/Knowledge Management						1.00	0.69	0.63	0.60	0.56	0.45	0.58		
Variables de inteligencia competitiva Competitive Intelligence Variables	Estilo de Gestión y Cultura de la Información/Management Practices and Information Culture							1.00	0.77	0.64	0.54	0.56	0.67		
	Conocimiento Explotación de Fuentes de Información/ Knowledge Exploitation Management of Information Sources								1.00	0.72	0.63	0.62	0.74		
	Explotación Sistemática de las Fuentes de Información/ Systematic Exploitation of Information Sources									1.00	0.64	0.64	0.74		
	Evaluación y Análisis de la Información/ Evaluation and Analysis of Information										1.00	0.75	0.65		
	Difusión de la Información/ Information Delivery											1.00	0.70		
	Hábito del uso de la Información para la Toma de Decisiones/ Employment Practices of Information for Decision Making Processes												1.00		

Analysis Results

- Businessmen's leadership has not influenced a better performance or competitive intelligence inside the companies yet.
- Companies do not own a process to create concepts from a systematic organization supported on the competitive intelligence practices yet.
- Although companies are considered as innovative organizations, they are not employing the whole potential from competitive intelligence to create better products.
- If companies are focused on the innovation/improvement of productive process, it is very likely they will be competing based on the cost, since products innovation usually takes place before innovation of production process and a motivation to improve the productive process is given by the advantages obtained from an economy of scale.
- Competitive intelligence does not directly influence innovation for the organization, including the practices of information uses for decision making processes.
- The knowledge management is the link that joints variables of innovative capabilities and competitive intelligence variables in companies, however the quality of knowledge management is still very poor in the organizations.

- The organizations are acquainted with available information sources; however, information is not evaluated or delivered.
- Companies are in fact using the information systematically, though they have not discovered the need to link information to innovative opportunities.
- Companies do not use information systematically to feed their innovative capability.
- There is only a culture of delivering only what it was required = “ Analysis is conducted only on requested items and this information is delivered only to whom has demanded it”
- Information is delivered only to people requiring it. The innovation culture still does not exceed the paradigm “The one that possesses/accumulates more information is worthier than the one who shares/delivers more information”
- In fact, information is being used... but it is not dully employed for innovation (it is not used in function of increasing innovative capability).

Besides, a group activity was conducted by using a combination of techniques from Focus Groups and Force Fields in order to determine the elements that restrict and facilitate the change inside these organizations (Hernández, Fernández, Baptista, 1997) that began by designing a graph of the passage from present condition to the desired condition, which finally resulted as shown in the figure below.

Figure 5. Gráfica del cambio
Figure 5. Graphic of change

Once the situation is proposed, the experts were required to provide their opinions, restrictive forces (limitations) that restrain the achievement of the desired condition and the fostering forces (potentialities) that would facilitate the achievement of the desired condition. An analysis was developed in order to determine the forces arrangement. Fostering forces were kept and described as they were initially. Restrictive forces were grouped reaching a number of 10.

According to the methodology of this exercise, one point is given to each restrictive and pulling force, then divided by two and finally added to the total amount. In this case, there are 10 restrictive forces; half is 5, then $10 + 5 = 15$ total points for restrictive forces; those total points are distributed among each one of restrictive forces, individually, according to priority order assigned by every member of the group. The same operation was developed for fostering forces, so as to create a priority order among them in accordance with the group criteria.

The following tables show individual vote recorded by each member of the group.

Tabla 2. De votación para las fuerzas restringentes
Table 2. Voting for restrictive forces

Votantes/Voters	Preguntas/Inquiries										Total
	1	2	3	4	5	6	7	8	9	10	
1	0	2	5	0	3	0	0	0	2	3	15
2	0	0	7	2	2	0	0	0	4	0	15
3	1	3	3	1	2	1	1	1	1	1	15
4	1	1	1	1	1	1	3	2	2	1	14
5	2	3	1	1	2	1	1	1	2	1	15
6	4	0	2	0	2	0	0	0	5	2	15
7	3	2	1	1	3	1	1	1	1	1	15
8	5	5	1	4	0	0	0	0	0	0	15
9	1	1	1	2	3	1	3	1	1	1	15
10	3	4	0	2	2	0	2	0	2	0	15
11	2	0	3	0	3	1	2	2	1	1	15
12	0	1	1	2	2	1	2	0	3	3	15
13	3	2	2	1	2	1	1	0	1	2	15
Total	25	24	28	17	27	8	16	8	25	16	

Tabla 3. De votación para las fuerzas impulsoras
Table 3. Voting for fostering forces

Votantes/Voters	Preguntas/Inquiries										Total
	1	2	3	4	5	6	7	8	9	10	
1	3	0	5	0	0	0	0	5	0	2	15
2	0	4	5	2	0	0	0	1	0	3	15
3	1	2	2	1	1	1	2	2	1	2	15
4	1	1	2	1	1	1	1	3	1	2	14
5	2	2	2	1	1	2	1	1	2	1	15
6	0	0	0	0	0	5	2	3	2	3	15
7	1	0	3	2	4	4	0	1	0	0	15
8	1	1	3	3	3	0	4	0	0	0	15
9	2	1	1	2	2	1	1	2	2	1	15
10	2	2	1	1	2	0	2	1	1	3	15
11	2	3	3	1	0	1	2	2	1	0	15
12	4	1	1	0	3	0	2	3	0	1	15
13	1	2	2	2	1	1	2	2	1	1	15
Total	20	18	30	16	18	16	19	26	11	19	

Forces were placed according to the score, starting with the highest; the first five of them are selected and go into a second phase of the exercise, which corresponds to the action plan to be performed so as to minimize the scope of restrictive forces and to boost fostering forces, then finally move from present condition to desired condition. The first five of each:

Restrictive Forces:

1. Lack of knowledge about the importance of Business Intelligence by the organization.
2. Absence or weakness of technological and prospective surveillance systems.
3. Lack of completion of data base records, collection of further information and integral connection between data bases.
4. Executive Staff shall support the specialists work developing information and knowledge management.
5. Lack of fluid internal communication, presence of duplicate interests and absence of support from involved staff.

Pulling Forces:

1. High performance of Information and Communication Techniques by the company.
2. It is an objective for Strategic Planning, for technological development by the Business Group and counts with the support from Top management.
3. Company staff is acquainted with the subject and is interested in its development.
4. High technical level of human capital resource.
5. Availability of a trained group in technological and prospective surveillance.

4. Conclusions

The outlined objectives were satisfactorily fulfilled since:

1. It was possible to measure the expertise level of candidates and the Expert Committee for Project and Knowledge Management and Business Intelligence was established.
2. Definition of a first approach on the Project Management, Business Intelligence and most relevant aspects in Cuban design and engineering companies from construction sector was achieved, considering daily managing practices and the use they make of created or acquired products and services, which prove the following:

- It is a vital requirement for Cuban design and engineering companies associated to GEDIC to count, as soon as possible, with Project Models that enable the incorporation of Business Intelligence Processes to their daily practices.
- Such companies do not count with a Project Model to implement a BI Process, nor have acquired any other method among their systems providing Business Intelligence Products.

3. This diagnosis allowed an structural creation of a research design being jointly developed by the Higher Polytechnic Institute "José Antonio Echeverría" (ISPJAE), the University of Matanzas "Camilo Cienfuegos" (UMCC), the Projects Company of Architecture and Engineering of Matanzas (EMPAI), the Project Company of Civil Works (EPROYIV), the Business Group of Construction Design and Engineering under the Science and Technological Innovation Program for Development Management conducted by the Construction Ministry in Cuba under the Construction Branch Program 03, from which specific results are expected.

- a. Design of a Business Intelligence Process for Design and Engineering Companies of construction sector in Cuba, where the following aspects will be clearly defined: Implementation of a functional structure by the companies, know-how to be acquired by the necessary staff and creation of work groups, kind of reports, regular recurrence and whom they are sent to; Budget of implementation, Process Objectives, main users: internal customers, the legal sources of BI information, required capabilities and methods to be followed; Mathematical methodologies, techniques and tools to be controlled, information systems enabling an effective use of intelligence products, to define the most suitable means to deliver BI products, to establish parameters to evaluate an effective BI Process support and functionality for Business Strategy.
- b. Proposal of business intelligence products/services required by these Design and Engineering Companies in accordance with the competitive environment they are involved, classified by:

- Type of Strategic Profiles: sector, company, product and personality.
 - Type of Market Studies.
 - Strategic Plans for the introduction of companies or products by a country or region.
 - Evaluation of negotiations, mergers, purchases.

 - Performance Evaluation.
 - Identification of Competitors' hidden potential.

 - Global studies on competitors.
- c. Creation of a Project Model Manual to serve as guidance for researchers and executive staff involved in the improvement of Business Management for the implementation of Business Intelligence Products to be delivered to other entities of similar characteristics in our country.

5. Recommendations

1. Interested entities should continue supporting and collaborating in the development of this research, which already got over the Modelling Design stage. The project and process are currently in the stage of Validation of Project Model and BI Process in order to fit the own characteristics of these entities in the construction sector.
2. Companies in the construction sector must consider the following in order to increase their competitiveness levels:
 - Strategic Planning Models must be implemented taking into consideration the theories developed for Business Intelligence.
 - Business Intelligence is a vital strategic asset for implementing suitable Strategic Management Processes.
 - Emphasis must be focused in outlined strategies based on Business Intelligence Products, mainly on Competitive and Surveillance Intelligence.

 - Strategic Management, favored by Business Intelligence products, will collaborate with a higher management performance and will enable the suitable decision making process.
 - New strategic approaches of the third millennium, as well as the development of information and communication technologies, favor new working methods which must be analyzed for the competitive development of the company.

Appendix #1, survey #1. On the expertise level of the sample

The Management Council of GEDIC requests your collaboration in order to determine your expertise level.

El Consejo de Dirección del GEDIC solicita de usted su colaboración para discernir su nivel de experticidad/The Management Council of GEDIC requests your collaboration in order to determine your expertise level.

- NOMBRE Y APELLIDOS/NAME AND LAST NAME: _____
- PROFESIÓN/PROFESSION: _____
- ESPECIALIDAD/ESPECIALIZACION: _____
- AÑOS DE GRADUADO/YEARS FROM GRADUATION: _____
- AÑOS DE EXPERIENCIA LABORAL/YEARS OF LABOR EXPERIENCE: _____
- AÑOS DE EXPERIENCIA EN ESTA EMPRESA/YEARS OF EXPERIENCE IN THIS COMPANY: _____

CLASIFIQUE EL NIVEL DE EXPERTICIA DEL TEMA/PLEASE CLASSIFY THE LEVEL OF EXPERTISE ON THE SUBJECT:

1.DIRECCIÓN DE PROYECTOS/PROJECT MANAGMENT

0	3	7 10

2.GESTION DE LA INFORMACIÓN/INFORMATION MANAGEMENT

0	3	7 10

3.GESTIÓN DEL CONOCIMIENTO/KNOWLEDGEMENT MANAGEMENT

0	3	7 10

4.PROCESO DE INTELIGENCIA EMPRESARIAL/BUSINESS INTELLIGENCE PROCESS

0	3	7 10

5.USO DE PRODUCTOS DE INTELIGENCIA EMPRESARIAL/USE OF BUSINESS INTELLIGENCE PRODUCTS

0	3	7 10

-0 A 3 BAJO NIVEL/LOW LEVEL

-3 A 7 NIVEL MEDIO/AVERAGE LEVEL

-7 A 10 ALTO NIVEL/HIGH LEVEL

Gracias por su colaboración/Thanks for your cooperation

Appendix #2, Survey #2

The Management Council of GEDIC requests your collaboration in order to determine your knowledge and culture level on Project Direction existing in your organizations.

For the evaluation of each criterion, please reply according to the following scale:

Puntuación/Punctuation	Definición/Definition
1	Nada/None
3	Poco/Few
5	Moderadamente/Moderate
7	Aceptable/Acceptable
9	Alto/High
2, 4, 6, 8	Para transar entre los valores anteriores/To mark in the middle of above values

1. ¿Que nivel de conocimiento tiene usted sobre Dirección de Proyectos?/What is your knowledge level about Project Direction?

1	2	3	4	5	6	7	8	9

2. ¿Que grado de implantación considera usted que hay sobre el uso de las técnicas de Dirección de Proyectos en su organización?/In your opinion, what is the extent of Project Direction techniques implemented by your organization?

1	2	3	4	5	6	7	8	9

3. ¿Que nivel de importancia da usted a la implantación de la Dirección de Proyectos en su Organización?/What is the importance level you confer to the implementation of Project Direction in your organization?

1	2	3	4	5	6	7	8	9

4. ¿Qué procesos cree usted que serán mejorados con la implantación de un Sistema que permita trabajar por Proyectos en su organización?/Which are the processes you consider will be improved upon the implementation of a project system in your organization?

- _____ Mejora la orientación Estratégica de su organización/To strategically improve Orientation of the organization
- _____ Mejora la introducción de la Innovación en su organización/To improve Innovation Introduction in the organization
- _____ Mejora la introducción de Transferencias Tecnológicas en su organización/To improve the Introduction of Technological Transfer in the organization
- _____ Establecer herramientas que faciliten y agilicen una mejor gestión de los Procesos Productivos/To create tools facilitating and speeding up a better management of productive processes

5. ¿Está motivado usted para este cambio de cultura organizacional?/Are you motivated with this cultural change in the organization?

1	2	3	4	5	6	7	8	9

Explique las causas/Please explain your reasons

¡Muchas Gracias por su colaboración!/Thanks for your cooperation!

Appendix #3 - Survey #3

The Management Council of GEDIC requests your collaboration in order to determine your knowledge and culture level on Business Intelligence Process (BI) existing in your organizations.

For the evaluation of each criterion, please reply according to the following scale:

Puntuación/Punctuation	Definición/Definition
1	Nada/None
3	Poco/Few
5	Moderadamente/Moderate
7	Aceptable/Acceptable
9	Alto/High
2, 4, 6, 8	Para transar entre los valores anteriores/To mark in the middle of above values

6. ¿Qué nivel de conocimiento tiene usted sobre el Proceso de IE?/What is your knowledge level about BI Process?

1	2	3	4	5	6	7	8	9

7. ¿Qué grado de implantación considera usted que hay del Proceso de IE en su organización?/In your opinion, what is the extent of implementation of BI Process in your organization?

1	2	3	4	5	6	7	8	9

8. ¿Qué nivel de importancia da usted a la implantación del Proceso de IE en su Organización?/What is the importance level you confer to the implementation of BI Process in your organization?

1	2	3	4	5	6	7	8	9

9. ¿Qué procesos cree usted que serán mejorados con la implantación de un Sistema que Gestione el Conocimiento?/Which are the processes you consider will be improved upon the implementation of a Knowledge Management System in your organization?

- _____ Mejora la orientación estratégica de su organización/To strategically improve Orientation of the organization
- _____ Mejora la relación Inteligencia Competitiva – Innovación en su organización/To improve Competitive Intelligence - Innovation in the organization
- _____ Detectar las ventajas competitivas/To find out competitive advantages
- _____ Establecer herramientas que faciliten y agilicen la toma oportuna de decisiones/To create tools facilitating and speeding up appropriate decision making processes

10. ¿Está motivado usted para este cambio de cultura organizacional?/Are you motivated with this cultural change in the organization?

1	2	3	4	5	6	7	8	9

Explique las causas/Please explain your reasons

¡Muchas Gracias por su colaboración!/Thanks for your cooperation!

7. Referencias / References

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