

Using competitive intelligence as a strategic tool in a Higher Education context

Miguel Rombert Trigo¹, Luís Borges Gouveia¹, Luc Quoniam², Edson Luiz Riccio³

¹University Fernando Pessoa, Porto, Portugal

²University Sud Toulon-Var, La Garde, France

³FEA-University of São Paulo, São Paulo, Brazil

mtrigo@ufp.pt

lmbg@ufp.pt

quoniam@univ-tln.fr

elriccio@usp.br

Abstract

Nowadays, the importance of information and its correct use is widely accepted. The ability to aggregate information and put it on use for the right person at the right time becomes a critical issue for any organisation.

Taking their own experience, the authors seek to demonstrate how the implementation of information networks can be a competitive advantage for a higher education institution considering its strategic planning and knowledge management.

Following a brief literature review, is presented an implementation proposal of an information network as a tool to improve the institutional performance. Such tool will address the increasing knowledge sharing practices and the organizational innovation potential.

The proposed information network follows a model that is an ongoing work and has been improved for more than a year, but with some results already delivered. The model takes insights from competitive intelligence and knowledge management ideas and proposes the use of working groups for discussing strategic information in order to enhance corporate performance.

In particular, this paper describes in detail the efforts undertaken in a particular higher education institution to foster a community of practice for the sharing of knowledge and to provide a competitive intelligence setting. As a result a number of projects as long as several initiatives were put into move taking advantage of existent but not already used skills.

Keywords: KM in higher education; information networks; communities of practice; knowledge management, competitive intelligence.

1. Introduction

Management and leadership in an organization is an increasing challenge and play a crucial role in our time. As many say, intangible resources are part of the equation, as Bernbom stresses "*Managing a modern organization depends increasingly on managing the information and knowledge of and about that organization*" (Bernbom, 2001).

As Bernbom, we also defend that within our current society – knowledge society – the organisations that make a correct use of information have the best conditions for success. They can do it by creating new knowledge, making more informed decisions, and increase the involvement of human resources in the organisation performance. They also have best changes to match human resource available skills with the organisation needs.

Information gathered is among one of the more important organisation resources. Specially, we must consider quality information both in usable and quantity reasonable portions. The institutions who were able to organise and take advantage of their own operations concerning information as gathering, processing, and dissemination systems are more able to inform their own strategy. Additionally, such

systems must provide better support to greater information quantity and complexity (that in turn will help decision making), and more efficacy and efficient information use.

Creating an information system that fulfils the organisational information needs must take into consideration a setting that supports competitive intelligence. The system must provide a growing awareness of the actions that promote better results and help the organisation to choose the best strategies and innovative processes. Taking into consideration Fuld (2006) that defends the trend of information to repeat itself, an organisation that is able to create its own memory by gathering information in similar organisations, can ease its decision making process.

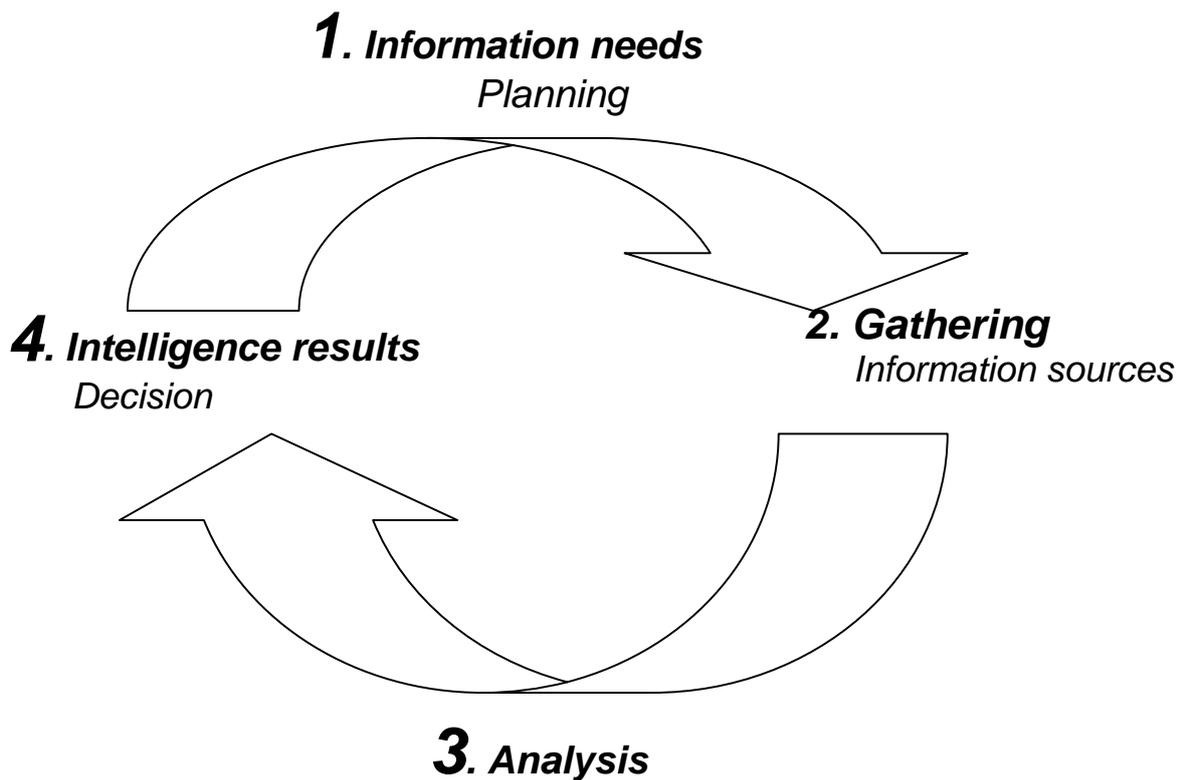


Figure 1. Competitive Intelligence Cycle (Taborda and Ferreira, 2002)

Fuld (2006) defends that business is pure competition. It is not possible to compete without strategic information as well without also the competitive knowledge generated by them. Information gathering must be a task of all the organisation staff, from the porter until its chairman. The managers need to learn how to incorporate the major lessons from competitive intelligence in daily business, as a resource to increase the organisational ability to analyse its competitors.

As a result of the theoretical background and the results gathered by the authors, our goal is to show in what way a competitive intelligence system was envisage for a higher education institution (HES), and how it can be considered as a strategic tool for tracking its performance.

The competitive intelligence theory allows us to advance a working proposal to develop a networked system to engineering strategic information in a higher education institution context – University Fernando Pessoa. Its use in the university in a similar way of other organisation types can help to improve the organisational performance, by letting a large number of his academic community to access information that may become critical to get competitive advantages: *“The challenge is to convert the information that*

8th European Conference on Knowledge Management (ECKM).
Consorci Escola Industrial de Barcelona (CEIB), Barcelona, Spain. 6-7 September 2007

currently resides in those individuals and make it widely and easily available to any faculty member, staff person, or other constituent” (Bernbom, 2001).

2. Strategic positioning for the XXI century Higher Education Institutions

The Higher Education Institutions (HEI) are currently facing a huge pressure to better respond in a number of dimensions that provide some conflicting interests and constitute each one, great challenges, considerable financial investment, and possess change potential (Fincher, 1998):

- increase both efficacy and efficiency;
- become excellent in their areas;
- support a balance between gender, minorities rights and the same opportunities for everyone;
- operate under the principle of shared authority;
- support centralised decision policies that are effective.

Civil society waits that HEIs demonstrate the importance of their daily work. One of the more relevant demonstrations is provided by knowledge transfer incorporated into products and services that have been really useful for the society in a reasonable time. As Debackere et al. (1996) state “...*universities are demanded not only to play an active role in science and technology development, but also in turning those developments into useful innovations whenever possible and desirable*”.

Other factors are also important ones, as the case of the business opportunity for education in an Information Society context, as defended by Morgan (2005) “*As we move into the new «information economy» knowledge becomes the critical resource, and the educational sector the key to unlocking its full potential. By all accounts a vibrant educational system should prove to be one of the main growth sectors of the future.*”

Turner and Perry (2002) summarise that a HEI, in order to promote its own sustainable and competitive role, need to create and maintain academic and administrative systems that follows the technologic transformations and help the institution to respect its mission and accomplished its goals.

3. Competitive Intelligence

We can define Competitive Intelligence (CI) as a systematic process of information gathering, processing, analysis and decomposition. The process is conducted within the context of the external environment of the organisation activities, with the major goal of supplying the right information, at the right moment, in the correct structure, to the right person, in order to support the best decision possible.

The decision making is an increasing high risk process. Thus, it is fundamental that organisations enhance their systems in order to diminish the risk in decision taking. Any process of decision taking must be based on the resources that the one who decides can have, and that can influence her/him using a particular strategy among several possible. On that sense, they must be aware of some concerns in knowing whose technologies area available and what are the general business trends that may support the people who decide – such systems need to allow a deep analysis of a high number of factors, before a given path is choose. To increase the CI process efficacy, the execution time is crucial because the decision making does not need a high quantity of information, but the correct one.

4. A Competitive Intelligence proposal for a Higher Education Institution

HEI represent a very specific type of organization. As stated by Morgan (2005): “*To be effective, organizations need to structure themselves through models that are appropriate (...)*” thus, this section discuss the basic components that are important for providing a competitive intelligence proposal for Higher Education Institution.

4.1. Choice of strategic areas

A CI system has its roots from the information needs felt by an organisation. On that sense, the first step to be followed was the definition of the areas considered as having more strategic value, and considered them as priority ones to be considered. The choice of strategic areas that implies the creation of efficient processes for information gathering, analysis, processing is among the frequent ones to be chosen. Their choice must take into consideration the following factors:

1. areas that can provide more potential growth for the institution;
2. areas more sensitive to the daily operation of the institution;
3. areas that can improve the institution strengths.

4.2. Operacional model

The next step is the operational model that allows the support of the CI system implementation. We need to take into consideration that such competitive intelligence system needs to include people, technology and processes.

There is no obligation to an organisation to have a minimal size to have a CI system or some special staff requirements. To follow the proposed model within the UFP context (University Fernando Pessoa can be considered as a medium size enterprise), it was decided to involve several people in part time. The team is composed by teachers, administrative staff and old students in order to cover all the considered strategic areas also chosen taking into consideration the high level of human capital that exists: *"in order to make effective use of knowledge, a network must be built up in which the knowledge and experience of employees are available."* (Seufert et al, 1999).

4.3. Governance

Taking a similar path to the one followed by business world, it was considered the importance of the gathering of strategic information and its correct management, as well as the associate knowledge management practices involved to obtain strategic advantages for the institution. As a result, it is proposed the creation of the Information Office or the Knowledge Office with the nomination of a Chief Knowledge Officer (CKO) or Chief Information Officer (CIO) that provides the required human leadership.

As defended by Queyras and Quoniam (2006) *"The implementation of a CI system (...) is just possible of being conducted from a top-down perspective."* As a result, the system manager must be appointed by the university board. Among his/her qualifications (both academic and professional) must be include the area of competitive intelligence. The person must have a clear knowledge of the goals that must be met, and also must have a strong notion of the work that each working group must perform. The CI leader is also the one who must have a global vision of the project and impose itself as the leader of all the groups involved. Among his/her skills are a strong leadership sense and soft skills that enable him/her to extract all the potential from the available resources, not just people, but also the other types of institution resources that allow to accomplish the specified goals.

The CKO or the CIO will be responsible for the goal definition, for the group coordination, and for the results presentation and assessment. This position will allow him/her to work directly with the institution board, in order to develop his/her work according the strategic goals established for the organisation.

4.4. The creation of middle units and area managers

One of the group components that need to take extra attention on the design of a CI system is the relationship between people, technology and the processes – the information system. Lauer (2006) reinforces this by stating that “Action teams have helped move organizations ahead and will help even more in the future. They focus on priority initiatives and harness the best talent in the organization to do the job.”

Following the literature, we defend the creation of strategic groups (SG), named this way because those groups are responsible to deal with the areas of the HEI strategic development already presented. The SGs have their activity based on the following tasks:

- the accomplish of their work on competitive intelligence and knowledge management in their specific area;
- the promotion of interaction between the different services and areas that exist in the University Fernando Pessoa organisation;
- the involvement of human resources highly qualified that develop research work as part of their professional activity. The research is related with knowledge areas considered strategic for the institution.

The SG must be created based on the following requirements:

- based on group work: the groups must be composed by people that have the skills to work in the group and have a motivation for sharing knowledge as well to perform their activity within a cooperative and collaborative framework;
- develop information and knowledge networks: strategic group members must promote networking with the highest number possible of people and institutions witch allow them to gather information in diversity and quality to its own group and for the institution;
- multidisciplinary: by its participation, people with different background and qualifications (even know that certain profiles must be mandatory to support the group activity), experiences, interests, and cultures provide the multidisciplinary needed to turn the group richer and increase its *know-how*;
- articulate institution needs with personal subject interests as a main strategy to motivate people;
- foster the importance of advancing knowledge, gather intelligence and the willing of being competitive.

We believe that must considered two different types of strategic groups: internal ones (that group type only with people belonging to the institution), and blended (where some of the group members are externals to the institution).

The internal strategic groups are composed by teachers, specialists/researchers in the areas where the group has its activity, administrative staff that within the context of its own daily activity can be influenced by the group work. The blended groups are composed by teaching staff, administrative staff, old and current students of the institution, by institution external members from different society sectors (that may contribute with relevant information at the information needs level in the areas of training, research and development).

As pointed out by Damaskopoulos (2002), the described groups can be of help because “...*innovation is not something that is happening «inside» firms but rather at the interfaces of firms with markets, structures of competition, and the regulatory and institutional environments within which firms operate. Open-source networks of cooperation are composed of teams of company employees and entrepreneurs outside the official structures of companies as well as within such structures.*” Community source models often found with the context of open source software development projects can be of use in our context.

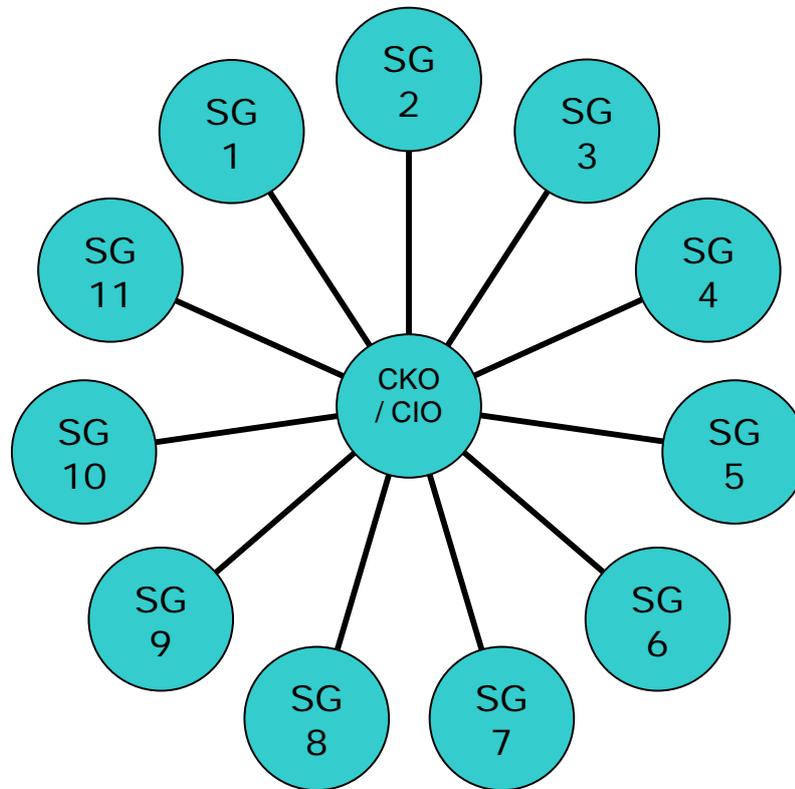


Figure 2. Organisational diagram for the proposed CI system

4.5 People

A critical issue to the model success is the correct selection of the people and their placement. Regarding the placement, human resources must perform their work where they can add more value for the community, promoting efficacy in the competence management as defended by Tarapanoff e Aguiar (2006): *“Defining the competitive strategy, an enterprise identifies the business core competences and the competences needed for each individual function.”*

Taking as reference Carneiro (2004) *“the secret of the competitive advantage is in the capacity of making a competitive advantage of both people intelligence and its competencies...”* that make the institution what really is and is capable to react to.

4.6 Technology

Like Gilliland-Swetland (2001), we defend that at the moment of deciding which the technology support to be used for the CI system, representatives from each area must be involved as a workgroup to develop the storage and data management issues. This group has a mission of establishing the software development requirements to the data gathering and its storage. Additionally, the group members must promote good practices for dealing with the data lifecycles.

At the strategic level, as proposed in a strategic plan from the year 2000, *“UC 2010: a New Business Architecture for the University of California”* is defended the need for an academia that follows the trends existing in the business world. This result also on the need of making investments in technologic platforms that allows the development of Internet based systems, designed to support self-service

8th European Conference on Knowledge Management (ECKM).
Consorci Escola Industrial de Barcelona (CEIB), Barcelona, Spain. 6-7 September 2007

facilities, with administrators and administrative staff having at their will, a group of tools that allow them to perform their job in an autonomous and informed way.

As stated by Lyman (2001) HEI institutions, although historic centres for knowledge discovery, they have been traditionally not very prone to use information and communication technologies to increase organisational innovation or to increase its relationship with society. Even considered that current economy values promote and acknowledge more and more learning and research practices. To the same author, one of the main reasons to this phenomena is related with the way information is considered in a HEI – normally as a requirement and a resource available as part of the infrastructure, and not as a strategic resource to inform the decision process.

Lyman (2001) point out three main strategic landmarks for the use of technologies in a HEI context: efficiency; productivity; and innovation. Once again it is stressed the importance of networked links as described by the author as the infrastructure key master, as they are crucial to provide organisational flexibility. Lyman (2001) asserts that one of the information technology main contributions to knowledge management is to provide virtual communities support, allowing networks operate independent from time and space restrictions. Virtual communities can contribute as:

- efficiency enhancers (by allowing to change production processes which, in turn, allow the increase on quality of the performed work);
- productivity advantages (by facilitating the information access, productivity indexes also have potential to increase);
- innovation (the new social relations developed can facilitate the creation of new projects).

Gilliland-Swetland (2001) argues that information management systems must have a number of characteristics: being large scale databases, having index and cataloguing system that help identifying existing resources recover, and are structured as networked based, develop activities relations with data collections, a network based structure, and the sharing of open activities in the institutional context.

Wallace e Riley (2001) defend that, considering a decision making support and knowledge management perspective, there is only added value to information when more than data storage software, analytical processes online highly complex, are fundamental and allow a fast and flexible access to storage data.

This way, the design of information systems to support decision making and knowledge management must be considered a priority in a higher education institution, such as the case of University Fernando Pessoa, which has the conditions and the willing to be among the first to adopt the described practices.

4.7. Processes

As an operational principle, we defend the creation of a networked based organisation with people sharing information and knowledge. Those people develop their daily activity taking proper attention to the gathering, processing and offering of strategic information in order to provide a better academic community performance in strategic areas for the institution, and thus by consequence, fostering the quality and performance of the university itself as an institution.

Base on Pacheco (2001) *“A network is defined by their nodes and its links... although the nodes number in a network grows arithmetically, the value of the net grows exponentially...”*. The same author says that *“A structure networked based allows that the information can be distributed at the same time for every nodes, which allows in turn instantaneous information for those who are linked with the covered nodes...”*.

With this model, we believe that it is easier the creation of new knowledge – *“What is of prime importance is that creation and sharing processes are encouraged, not just the accumulation of data as in a data-warehouse...The openness and richness of networks are believed to foster a fertile environment for the creation of entirely new knowledge, while also accelerating the innovation rate”* (Seufert et al, 1999).

We want to propose an organisation that bets on the wisdom sharing, which in turn can facilitate individual work. This can be started by creating a small network to distribute information and knowledge (both explicit and tacit).

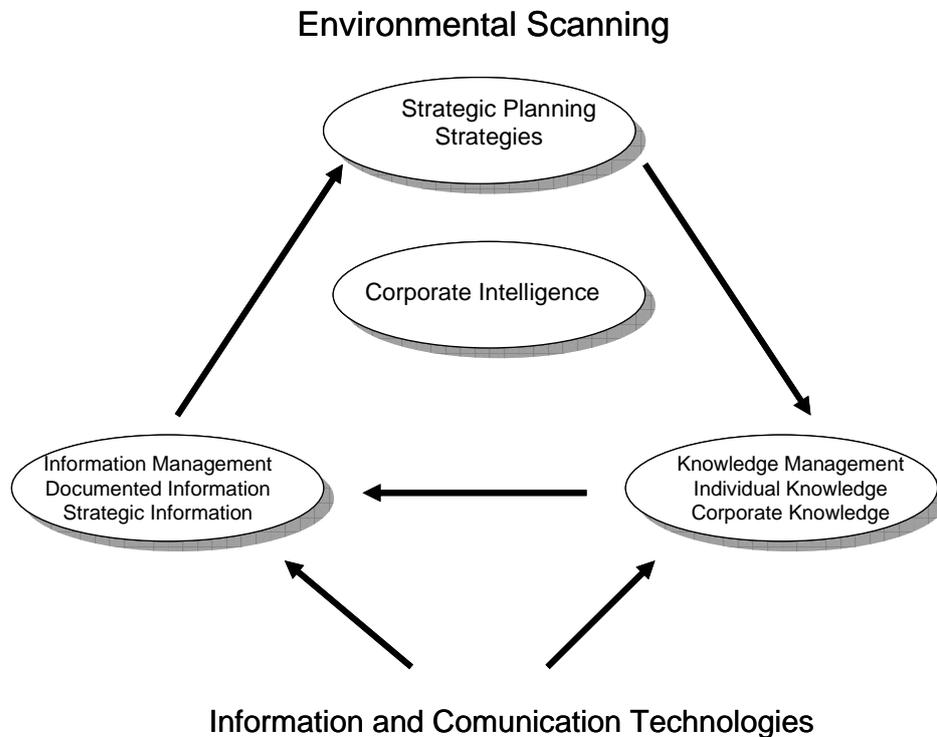


Figure 3. Integration of information management and knowledge management in the strategic planning, source: Tarapanoff (2006)

Also, a number of processes are required to be considered as represented in figure 4. The model has four parts, and for each, must be verified the existing of the associated areas in the particular order as they are represented. This means that before implementation, we need to specify the system, and even before consider of list of the existing resources, and first of all, what are the information needs to fulfil.

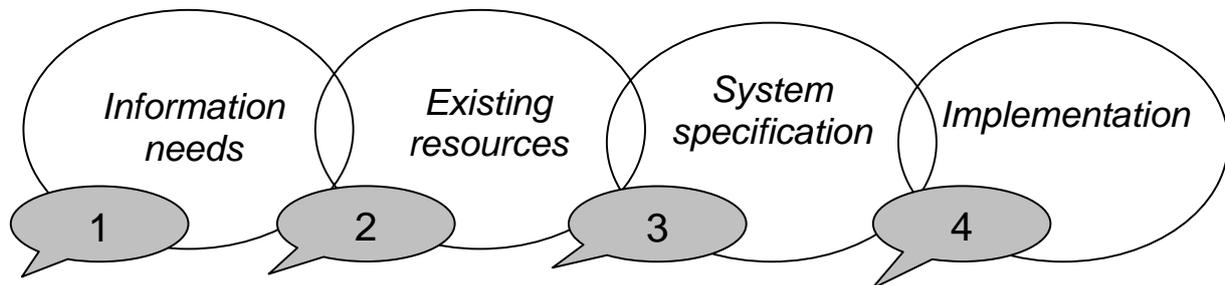


Figure 4. Implementation process of a CI system, adapted from (Taborda and Ferreira (2002)

5. Conclusion: critical success factors and corresponding goals

The authors believe that the system can only have success if a number of requirements are met. Such requirements are considered critical success factors as they need to be fulfilled in order to achieve the initial goals for the project. As a result, a number of Critical Success Factors were identified:

- Involving a remarkable number of people: composed by the university staff, but also by students and stakeholders. In such way, is created a competitive advantage to the university based on the interest of several people;
- A special care in the human resources activity assuring that each member must have knowledge qualifications and become part of a strategic group;
- Provide training in competitive intelligence and knowledge management to group members. In order to turn the work more efficient (using existing tools and the related with the Internet). One of the relevant competences is that the several members of a given group are close together, for what they need a strong culture of continuous information;
- The work of several strategic groups must occur in a systematic and orderly way: the existence of different groups will allow the information gathering by the organisation from different areas. Additionally, it possibly to gather know-how (seen here as knowledge resulting from all the members of a group). These activities can have some impact in the organisation economy as they provide new ideas, innovations and simple improvements in the organisation work activities. It is also one of the CI system goals, increase the distribution of the generate knowledge, by the strategic sectors of the institution;
- Existence of excellent leadership, considering the management level of the group of strategic groups and at the group level. As a result we need have a valid and optimal process to nominated leaders. Some of its requirements are: they must be good listeners; they need to know how to foster activity; they need to have the ability to turn each others work more easy; they must be able to control and follow projects and they must be concerned with their own projects;
- Benefit the group work and the network: the strategic group members must felt as part of all, beyond their own concerns. All the members from each interest group must contribute to the success of the other group whit information sharing among them. Take into consideration such values it is possible to fulfil the proposed goals, faster and easier.

As a conclusion, we may say that the institution that can put into practice a CI system in its organisation can get a more closed and friendly community, more informed and with a strong sense of the skills setting that may enhance its own success. Decision makers can felt themselves safer with less decision risk, as they have more information. Additionally, they also benefit from a higher number of people that have information about the institutional strategic goals and thus, a higher number of workers that are focus on accomplished those goals.

"The future belongs to organizations that learned to truly unleash the creative powers of self-organizing project communities, knowledge networks, open source teams, and other new ways of work and learning...The challenging task of leadership is to encourage a fundamental re-organization of work so that it can be truly inspiring to people to invest their attention in it." (Pór e van Bekkum, 2003)

The university that will be able to organise itself to innovate, has the opportunity to gain competitive advantages when compared with other higher education institutions, in a way as defended by Porter (1998), who says that *"enterprises can obtain some competitive advantage through innovative actions, including the use of technology as providers for news models to accomplish goals."*, such ideas are also shared by Canongia *et al*, (2004), saying *"the organisation innovation potential is actually considered as one of the most important features of the competitive organisations."* Thus, we strongly believe that the

8th European Conference on Knowledge Management (ECKM).
Consorti Escola Industrial de Barcelona (CEIB), Barcelona, Spain. 6-7 September 2007

adoption of competitive intelligence practices in higher education institutions will help them to become more prepared for dealing with its activity within higher quality standards for customer service.

In that sense, it urges to use such ideas on the higher education institutional strategic plan. For that, we need to rethink the way information systems, and above all, information management is conducted in a higher education setting.

References

Bernbom, G. (Editor). (2001) *Information Alchemy "The Art and Science of Knowledge Management"*. Jossey-Bass Inc., San Francisco 128p.

Canongia, C., Santos, D. M., Santos, M. M. et al. (2004) "*Foresight, inteligência competitiva e gestão do conhecimento: instrumentos para a gestão da inovação.*" [online].
http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-530X2004000200009&lng=pt&nrm=iso

Carneiro, R. (2004) Os Recursos Humanos e o Comportamento Organizacional. In: Educação Corporativa: fundamentos e práticas. Mundim, A. P. and Ricardo, E. J. (Org.). Qualitymar, Rio de Janeiro, 167 p.

Damaskopoulos, T. (2005) "*From Knowledge to Innovation Ecology, white paper.*" [online].
http://www.knowledgeboard.com/library/damaskopoulos_whitepaper_innovation_ecology.pdf

Debackere, K., Clarysse, B. and Rappa, M.A. (1996) "Dismantling the ivory tower: The influence of networking on innovative performance in emerging fields of technology", *Technological Forecasting and Social Change*, Vol. 53, No. 2: 139-154.

Fincher, C. (1998) Quality and Diversity: The Mystique of Process. IHE Perspectives. October.

Fuld, L.M. (2006) *The Secret Language of Competitive Intelligence*. Crown Business, New York, 309p.

Gilliland-Swetland, A.J. (2001) *Revaluing Records: From Risk Management to Enterprise Management*. In: Bernbom, G. (Ed.). *Information Alchemy: The Art and Science of Knowledge Management*. Jossey-Bass Inc., San Francisco, 128 p.

Lauer, L. D. (2006) *Advancing Higher Education in Uncertain Times*. Council for Advancement and Support of Education, New York, 255 p.

Lyman, P. (2001) *Knowledge Discovery in a Networked World*. In: Bernbom, G. (Ed.). *Information Alchemy: The Art and Science of Knowledge Management*. Jossey-Bass Inc., San Francisco, 128p.

Morgan, G. (2005). "*Six Models of Organization.*" [online].
<http://www.imaginiz.com/provocative/metaphors/models.html#model1>

Morgan, G. (2005). "*The Art of Mobilizing Small Changes to Produce Large Effects.*" [online].
<http://www.imaginiz.com/provocative/concept/find.html>

Pacheco, A. (2001) *Das Estrelas Móveis do Pensamento*. Civilização Brasileira, Rio de Janeiro, 299p.

Pór, G. and Van Bekkum, E. (2005) "*Innovation and Communities of Practice The Great Symphony Paradox.*" [online].
http://www.knowledgeboard.com/download/3059/Communities_and_Innovation_kb.pdf

8th European Conference on Knowledge Management (ECKM).
Consorci Escola Industrial de Barcelona (CEIB), Barcelona, Spain. 6-7 September 2007

Porter, M. E. (1998) A Vantagem Competitiva das Nações. In: Montgomery, C. A., Porter, M. E. "Estratégia – A Busca da Vantagem Competitiva". Harvard Business Review Book, 1979 a 1991, pp.145 - 179.

Queyras, J. and Quoniam, L. (2006) *Inteligência Competitiva*. In: Tarapanoff, K. (Org.). *Inteligência, Informação e Conhecimento*. IBICT, UNESCO, Brasília, 456p.

Seufert, A., Von Krogh, G. and Back, A. (1999) "Towards Knowledge Networking", *Journal of Knowledge Management*, No. 3, pp. 180-190.

Taborda, J. and Ferreira, M. (2002) *Competitive Intelligence: Conceitos, Práticas e Benefícios*. Editora Pergaminho, Lda., Cascais, 221p.

Tarapanoff, K. and Aguiar, A. (2006) *Avaliação em Educação Corporativa*. In: *O Futuro da Indústria: educação corporativa – reflexões e práticas: coletâneas de artigos*. Ferreira, J. R. and Benetti, G. (Coord.). MDIC/STI:IEL, Brasília.

Turner, L.A. and Perry, S. (2002) *Campus Human Resource Leadership: A Mandate for Change*. In: Hawkins, B.L., Rudy, J.A., Wallace Jr, W.H. (Ed.). *Technology Everywhere: A Campus Agenda for Educating and Managing Workers in the Digital Age*. Jossey-Bass, San Francisco, 137p.

UC 2010: A New Business Architecture for the University of California. The Regents of the University of California (2000)