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The purpose of this paper is to present some of our research results concerning the intellectual capital of universities. This is an important topic of the intellectual research area since universities are knowledge intensive organizations. They contain basic operations for knowledge generation, knowledge sharing, and knowledge transfer. Their intellectual capital potential is really great, but only some of them are able to transform this potential in operational intellectual capital. Although universities have learning processes as basic production processes, they are not necessarily learning organizations since they do not have high operational intensities for their integrators.

Keywords: intellectual capital, integrator, knowledge, learning organization.

Introduction

Universities are social institutions with long life cycle. In Europe, the oldest universities are about 800 years old. The venerable Bologna University dates from 1088, and the famous Oxford University dates from 1187. Those days universities differed quite a lot from what we consider to be a university today. Main activities associated with those days universities were collecting knowledge, preserving it and passing it on. Generation of new knowledge was not a part of university's mission. A professor was mostly a scholar and not a researcher. Knowledge was considered to be complete and static in time. Thus, the purpose of professors was only to transfer this knowledge body to the students. The first universities were followed by a second generation of universities founded by religious or political powers (Harayama, 1997). Their primarily purpose was to create and train necessary professional elites to serve the institutions of State.

In 1809, Wilhelm von Humboldt established the Berlin University, based on a new paradigm. According to his vision, a university should approach knowledge scientifically. It should *produce* knowledge, not *re-produce* it. Von Humboldt was a revolutionary thinker, who attempted to do away with a whole series of basic components of traditional university education. "According to Humboldt's conception, research progress contributes to the elaboration of a system of values that has an influence beyond the walls of academic institutions." (Harayama, 1997: p.9). By comparison with the new German university model, the French *Grandes Ecoles* and *Polytechnic Institutes* accord a great deal of importance to immediate, concrete, and practical problems. The new university paradigm introduced by von Humboldt is founded on the unity and the complementarity of the functions of teaching and research. "*The subjects to be taught are composed not only of already consolidated knowledge, but also of those elements that remain to be discovered. Therefore, the teaching and learning process through the activities of research.*" (Harayama, 1997: p.13). Knowledge generation transforms the university into a *knowledge intensive organization*, which fits excellently with the new requirements of the creative class and the knowledge society (Florida, 2002; Florida, 2007).

Intellectual capital

Many researchers agree that intellectual capital has a significant importance for obtaining a competitive advantage and for the capacity of an organization to create value (Stewart, 1999; Sudarsanam et al, 2003; Peltoniemi, 2006). The origins of this field appeared with the acknowledgement of the significant differences between the book value and the market value of a company. In the last years, the research efforts intensified, showing the importance of the domain, but also the difficulty of expressing the intangible. Although, in the last decade, knowledge management and intellectual capital mainly appeared in the context of private

companies, there is an increased interest for public organizations, such as universities and research centers. This is mainly due to the fact that universities have as main goals the production and the dissemination of knowledge (Sanchez et al, 2006).

As the competition among universities grows tougher and tougher, focusing both on luring valuable students and professoriate, and on raising funds, these institutions need to perform as close to the excellence level as possible. They should, as well, manage their communications sector as transparently as they can, for the public to know what they should be praised for. For companies, performance communication is usually done by means of traditional financial and accounting mechanisms. The financial report constitutes one of their legally provided obligations. Anyway, it is largely recognized by various specialists that the traditional financial and accounting systems have limitations, mainly because they do not illustrate what happens in the realm of the intangibles, whose proportion goes up these years. That is why many companies initiated systems of intellectual capital evaluation. This is a challenge for universities much more than for other categories of organizations, seeking to properly assign and develop their intelligence. The most valuable resource at a university's disposal is made of its professoriate and students, together with the relationships they establish and the organizational procedures. Universities are knowledge creators and disseminators, by means of the outcomes of the research they perform, of publications and of students which incorporate both explicit and tacit knowledge (Leitner, 2002).

- Considering this context, intellectual capital evaluation is a well chosen starting point for a better academic management of intellectual capital, in order to increase competitiveness, but may serve, in the same time, as a tool for reporting to the stakeholders what has happened in the university from the knowledge development point of view, contributing to transparency and trust increase. These two components constitute the most important reasons why a university should implement an intellectual capital evaluation model.

Literature mentions a variety of models for evaluating intellectual capital, and the list is expanding. This happens because it is quite difficult to design a metrics for something which appears to be rather shapeless, intangible and, not in the last place, because, intellectual capital increases its importance for specialists, who ceaselessly look for trustworthy ways to approach it. More than that, this multitude of approaches signals that there is no universally accepted, adequate enough model (van den Berg, 2002). Among the most used models in the evaluation of the intellectual capital we can mention: Market to Book Value, Economic Value Added, Tobin's Q Ratio, The Balanced Scorecard, EFQM, Skandia Navigator, Sveiby's Intangible Asset Monitor, Intellectual Capital Services' IC-Index, The Technology Broker's Audit, Real Option Theory, Citation-weighted Patents etc. In the last years, more and more attention is paid to the Intellectual Capital Statement, which allows a company to report on its intangible, invisible assets as well. The most well known such statements are the one developed by the Danish Ministry of Science, Technology and Innovation and the one developed in the MERITUM program, a multinational IC research initiative.

- Up to this moment, references regarding the evaluation of intellectual capital in a Romanian university are almost missing. The countries which developed such methodologies, considering the particularities of their higher education systems, are, selectively, Austria, Spain and Germany. Anyway, although some of the indicators they use may be illustrating some specific elements of their higher education system, they may be adapted to some other national education systems. Starting with 2001, the Austrian Ministry of Education, Science and Art has initiated a study on the possibility of IC reporting for Austrian Universities (Leitner, 2002). In 2002, the aforementioned Ministry issued a new law in higher education (UG 2002), whereby they provide that

every Austrian university should publish Intellectual Capital Reports (Wissensbilanz), starting with 2006. The details are to be established by means of a decree.

The proposed model for the Austrian universities is illustrated in fig.1. Up to 2005, two Austrian universities and five research centers have published this sort of statements. Several Spanish universities and research institutes are, as well, preoccupied to evaluate their intellectual capital and to publish statements. The Autonomous University of Madrid got involved in a project on this theme, whose results will be made public at the International Conference on Science, Technology and Innovation Indicators (Lugano, November 15-17, 2006). The paper which is going to be presented reflects the experience of the Spanish University aforementioned with respect to the Strategic Matrix, a tool developed in a more complex program, the Observatory of European Universities. The Autonomous University of Madrid was the only university actively involved in the five thematic dimensions defined within the Observatory: Funding, Human Resources, Academic Outcomes, Third Mission and Governance. Sanchez et al. (2006) argue that this matrix can be adapted in an IC format, with small adaptations, but with greater impact and utility. Therefore, in order to develop an IC report with indicators, the research team used as starting point this strategic matrix, selecting intuitively some indicators that observe the characteristics of IC indicators according the MERITUM project.

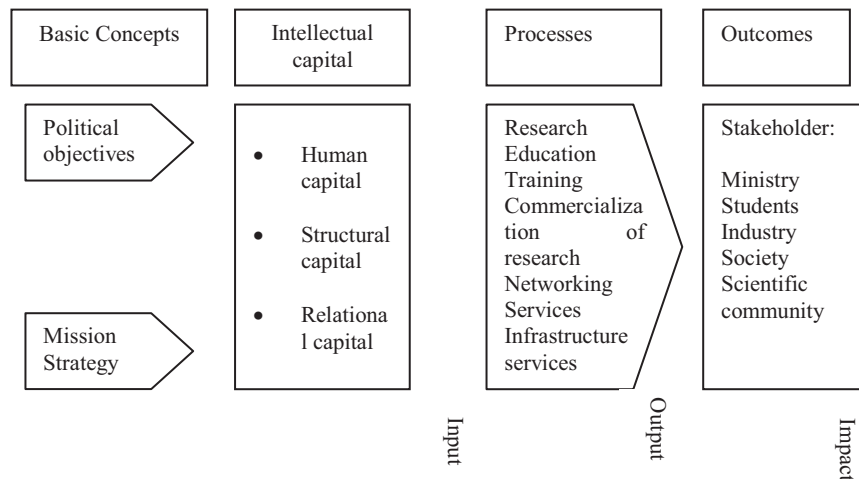


Figure 1 – Intellectual capital model for universities
(Source: Leitner, 2005)

Knowledge dynamics

Knowledge is one of the most important component of the intellectual capital. Knowledge is the result of processing information. Since it is a concept with a complex semantic, it is difficult to be defined. Some authors prefer to use metaphors in order to give the meaning of knowledge (Andriessen, 2006). Some others prefer to work with operational definitions, which are good enough to be used, but remain fuzzy and incomplete. One of the mostly used one is the following: “*Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the mind of knower. In organizations, it often becomes embedded not only in documents or repositories, but also in organizational routines, processes, practices, and norms*” (Davenport & Prusak, 2000: p. 5).

In any organization, there are two distinct types of knowledge: individual knowledge and organizational knowledge. Individual knowledge belongs to every organization member and it can be accessed only with the individual acceptance. By organizational knowledge we understand all the knowledge which can be integrated at the organization level from individual knowledge of

its members and from incoming knowledge fluxes from the external environment. Even if the human resources of any organization is composed of the total number of its employees, the organizational knowledge is not the sum of all individual knowledge.

Individual knowledge is composed of tacit knowledge and explicit knowledge. Tacit knowledge can be obtained from the direct individual experience and it is kept in the unconscious zone of the brain. Explicit knowledge can be detached from its owner and processed at the group or organizational level. At the individual level, each concept becomes clearly defined when there are both components, tacit and explicit knowledge (Bratianu, 2006). Tacit knowledge is non-rational because it is used without being conscious of it (Polanyi, 1983). Tacit knowledge is similar to practical knowledge and it is the “knowing what” of a knowledge body, meanwhile the explicit knowledge approached the theoretical knowledge and it is the “knowing how” face of the same knowledge body. Explicit knowledge is transferred through communication and it can be explained. At the organizational level, only the explicit individual knowledge can be integrated into a new body of knowledge. The tacit knowledge remains at the individual level due to its implicit nature and it can be used only as much as its holder can do it and only as much as its holder is a member of this organization.

Universities as knowledge intensity organizations

In achieving the *Lisbon Strategy*, the universities play a crucial role, based on knowledge. As the studies show, the European universities are not ready to fulfill their role in achieving the *Lisbon Strategy* (2007). In this moment, the European universities are characterized by a low innovation rate, weak connections with the business environment and unsatisfactory politics of human resources management, making their situation more complicated. Although Europe is a society with a high level of education, only 21% out of the working population are graduates, less than the USA (38%), Canada (43%) or Japan (36%).

In this new context, an important challenge for universities is that of increasing the demand by ensuring the excellence and the quality. The culture of excellence should be created in universities. Excellence is a rarely characteristic of a whole university, but often of a certain group. The nature and intensity of the research varies among countries, types of organizations and universities. Each university has to value its potential and has to identify and improve it. This means financing not only the centers that already achieve the excellence, but also of those who have the potential to become an excellence center. The main factors that can determine the demand's increase are:

- Increasing the flexibility and the adaptability. Universities have to become learning organizations, in order to adapt to the changes of the external environment (Bratianu, 2007a). They have to increase flexibility in order to ensure a high level of education and to respond promptly to the changes in the labor force. The graduates' integration represents a major social responsibility of universities. Education should ensure not only knowledge acquisition, but also the creation of certain abilities, such as: team work and entrepreneurial spirit. In the process of education, the technology potential should also be used.
- Ensuring the education access. The main ways to do this are: increasing the education diversity and mobility, improving the professional orientation, creating personalized learning directions and so on. Credit systems for studies and social spaces for accommodations make universities more attractive (Bologna Declaration, 1999).
- Ensuring a better communication. Universities have to communicate better to the society the values that they offer, investing more in marketing, both in and outside the country.
- Improving the human resources. Universities have to improve the human potential, the most important factor of quality in the high education system and in research. This improvement has to be both qualitative and quantitative. In order to do this, they have to

attract, develop and keep talents in a university career. Excellence can be ensured only in an open, transparent, competitive atmosphere. Effective mobility, just as the virtual one and innovation should be encouraged and rewarded.

- Increase diversity. Universities are and should stay diverse regarding the language, the culture, the systems and the traditions. In the same time, they have to ensure the compatibility between national regulations, not to induce barriers. Mutual recognition of qualifications and competences show a minimum level of organization through common standards.

Universities have to create a new type of social contract in order to strengthen the public responsibility of the universities for the programs they offer, for the personnel and own resources, meanwhile the public authorities are responsible for the strategic orientation in the education field. Universities have to have the autonomy that allows them to adopt the necessary changes. In this way, universities can adapt to the society's changes and to assume their responsibility for achieving the objectives. Autonomy implies control of major assets such as estates, and of staff; it also implies a readiness to be accountable both to the internal university community – both staff and students – and to society as a whole (Lisbon Declaration, 2007).

Universities should develop its intellectual capital and transform it into a competitive advantage. Intellectual capital has three main components: *human capital, structural capital and relationship capital* (Stewart, 1999; Sveiby, 2001). Human capital consists of knowledge, experience, competence, intelligence, creativity, cultural values and attitudes. Structural capital includes management relationship, organization structure, development and the relationship capital refers to the marketing relationship and it is very important for any organization. Creating the knowledge management in universities is vital, just as it is for other organizations in other fields (Kermally, 2002). Knowledge management ensures the performance increase in the decision making process, the time reduction of achieving the “products” (for example, a new educational program or a research) and determines the improvement of academic and administrative services. Knowledge management determines the improvement of knowledge sharing. In this way, the individual knowledge of a certain person can add value to an organizational level. Still, it is difficult to convert personal knowledge and to make them available for the other members of the organization.

Discussions

Theoretically, universities should be considered the main knowledge intensive organizations. Teaching and learning represent knowledge transfer processes, and research is the necessary background for knowledge generation. Also, professors and students represent the most important resources of tacit knowledge. Taking into account these above arguments, the level of individual knowledge and intellectual capital should reach its maximum level. Moreover, a generic university should be a learning organization. Our research shows that most universities, especially those from the former socialist countries are not such learning organizations. “*The paradox may be formulated as follows: although a university is an organization based on learning processes, it is not necessary a learning organization. It can become a learning organization if and only if there is at least a strong integrator to assure the transition from individual learning to team and organizational learning.*”(Bratianu, 2007a: p. 375). Also, it would be important to advanced from adaptive learning to generative learning. Most universities are far from being learning organizations due to some mental and functional barriers. Identifying and evaluated these barriers would help in designing adequate solutions to transform these universities in successful learning organizations, able to complete on the new global market of higher education.

A key argument in understanding this paradox is the university intellectual capital. Our recent research shows that we can shift the perspective from which we look at *intellectual capital*, in such a way that its generation process can be analysed and improved. Thus, by placing intellectual capital in a central position, we look at its roots, rather than at its branches. In this way, the value of intellectual capital depends on some organizational mechanisms which we will name *integrators*. They have the power to bring together primary constituents and to integrate them in the intellectual capital of the entire organization, using synergy, as if it were the process of projecting a system. By introducing the concept of *integrator* (Bratianu, 2007b; Bratianu et al., 2007) we opened new ways of researching the *dynamics* of organizational intellectual capital, as well as the practical ways of developing it as a potential, respectively, of turning it into a managerial action.

We defined the *integrator* concept as follows: “*An integrator is a powerful field of forces capable of combining two or more elements into a new entity, based on interdependence and synergy.*” (Bratianu et al., 2007: p.273). The synergy effect can be generated only when there is a field of forces able to align them in a perfect timing and rhythm. This field of forces is capable of integrating individual knowledge, individual energy and power and individual motivation. The final energy and motivation effect represents more than just the summation of individual motivation and knowledge. The interdependence property is necessary for combining all elements into a system. The synergy property makes it possible to generate an extra energy or power from the working system.

Management is by its own nature an integrator, more than that, it is a generic and rather flexible one. It acts upon the individual knowledge transforming it into organizational knowledge, and upon the individual intelligence transforming it into organizational intelligence. The management integrator can act upon both explicit and tacit knowledge, generating explicit organizational knowledge and tacit organizational knowledge (Andriessen, 2004; Baumart, 2001; Davenport & Prusak, 2000; Debowski, 2006; Nonaka & Takeuchi, 1995). A university is a highly nonlinear value system. If the academic management is based on linear thinking patterns (Bratianu and Murakawa, 2004), and linear decision making processes, the integration effect will be very small. We are considering especially universities from the former socialist countries, where the linear thinking and decision making is still very powerful and very inefficient. In these situations, the academic management is a poor integrator with very little synergy effects on the organizational intellectual capital.

Just continuing this above idea, the vision and mission statement of universities make them knowledge organizations. Vision or the strategic intent is the “*leveraging of an organization’s internal resources, capabilities, and core competencies to accomplish the organization’s goals in the competitive environment*” (Hitt, Ireland & Hoskisson, 1999: p.24). Vision means a projection into the future of the organization, a projection capable of a strong motivation and inspiration for all members. An application of this vision in terms of products to be offered and markets to be served constitutes the company mission. Thus, the strategic mission is externally focussed. An effective strategic mission establishes an organization’s individuality, and it should be inspiring, exciting and relevant to all stakeholders (Dess, Lumpkin & Eisner, 2006; Thompson & Strickland, 2001). Together, the vision and mission constitutes a powerful integrator, which acts especially on the emotional intelligence and core values of all the members.

Conclusions

The fundamental competences of a generic university are: teaching, learning and research. All of these are knowledge dynamics processes. Moreover, a university may have activities of technology transfer and consulting for the external business environment, which means also knowledge processes. Thus, a university is a knowledge intensive organization, and its

intellectual capital has a very high potential but a rather low operational intensity, due mostly to its management.

The individual knowledge should be integrated within a university. This integration process can be done by some powerful fields of forces, we call *integrators*. They are based on two main characteristics: interdependence and synergy. This new concept we introduced helps us to understand the generation process of the intellectual capital, and thus how to proceed in order to increase the synergy effect in the final output. This field of forces is capable of integrating individual knowledge, individual energy and power and individual motivation. The final energy and motivation effect represents more than just the summation of individual motivation and knowledge.

Knowing all this, how can it be explained that a university, having the highest density of knowledge, is not necessarily an intensive knowledge organization? The answer can be found by identifying the significant integrators in the respective university and by evaluating their impact on the process of generation and developing of intellectual capital. In every university, the management is by its own nature an integrator, more than that, it is a generic and rather flexible one. It acts upon the individual knowledge transforming it into organizational knowledge, and upon the individual intelligence transforming it into organizational intelligence.

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