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HEIs-Regions Engagement Using Knowledge Management Strategy

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Abstract

Historically, the higher education system was the first knowledge industry. Today however, it no longer stands alone, but is one knowledge industry among many. Now, more than ever before, there is a stronger cooperation between the academia and industry, due to interdisciplinary activities, and because R & D activities are not limited to universities, but performed by industry too. Thus, new knowledge is created not only in universities and research institutes, but also in industry. Also, the implementation of knowledge develops not only in industry, but also within the academia. This means that the boundaries between industrial and academic research have been blurred. However, in spite of this fact, we still have not witnessed the breakthrough that we have been anticipating so keenly. It is highly important that policy leaders and decision makers in both the academia and industry should use "knowledge tools" for better communication between them. In industry, the tremendous value of knowledge strategy for business sustainability has already been realized. But while knowledge management tools that are suited to the current knowledge world have been implemented in industry for some time now, universities have not yet done so.

Keywords

Knowledge Management, Higher Education, Regions, Strategy

1. Introduction

Historically, the higher education system was the first knowledge economy, but today it is no longer alone; it is one knowledge industry among many. Despite the fact that boundaries between industrial and academic research have been blurred and facilitate joint research that goes beyond the boundaries of institution, nation and discipline, we have not yet witnessed the change so keenly expected. Policy leaders should use this knowledge advantage in universities and research centers for creating a common language and communicating tool with industry

which adopts knowledge strategy quicker than universities, realizing its tremendous value for their business sustainability.

Higher education systems need to take action to rationally manage both internal and external knowledge, to structure and organize orderly consolidated learning procedures (some of which exist and are based on the academic culture) into an active, smoothly functioning mechanism which regularly examines the position of the university vis-a-vis its goals, environment and future.

Knowledge management offers higher education and industry infrastructure for planning and managing innovation and change powered by cooperation, collaboration and dissemination of knowledge, as a part of the organization's activity, while relying on and using information technology as a collaborative tool.

Therapy for the "sclerosis" and means for "promoting appropriate strategies for the governance, incentives and conduct of scientific research and of the knowledge transfer between public and private entities" [1] [2] can be achieved, but there is a need to change management tools and strategy used by government and universities. Change is a hard thing to achieve, but in the world we are living in, and the knowledge-era, change should be a way of life for organizations and universities.

In their book, *Dynamic Governance*, *Embedding Culture, Capabilities and Change in Singapore*, Neo & Chen [3], it is observed that "in a world of uncertainty and change, current achievements are no guarantee for future survival. Even if the initial chosen set of principles, policies and practices are good, static efficiency and governance would eventually lead to stagnation and decay".

They state that careful planning is not enough for achieving government and continual relevance and effectiveness, without a proper "capacity for learning, innovation and change in the face of ever new challenges in a volatile and unpredictable global environment".

These quotes describe the essence and the most important values and practice of Knowledge Management: learning, innovation and change. By implementing Knowledge Management strategy we embed the habit to learn and change in the way that people are acting as well as in the way that they are thinking. In a world of rapid, increasing globalization and technological advancements, "if bureaucratic public institutions can evolve and embed the culture and capabilities that enable continuous learning and change, their contributions to a country's socio-economic progress and prosperity would be enormous" [3].

Universities, government agencies, industry and other stakeholders must adapt to daunting social and educational challenges, in which technology is playing a bigger role than ever before—both in inducing changes as well as in providing the means to cope with them (technological innovation, new products, new markets, competitive advantage). Implementing Knowledge Management as the right and adequate management strategy for the knowledge-era could contribute a great deal to "ensure that the route towards increased long-term economic growth and prosperity is the one that is followed" [4].

2. Knowledge Management

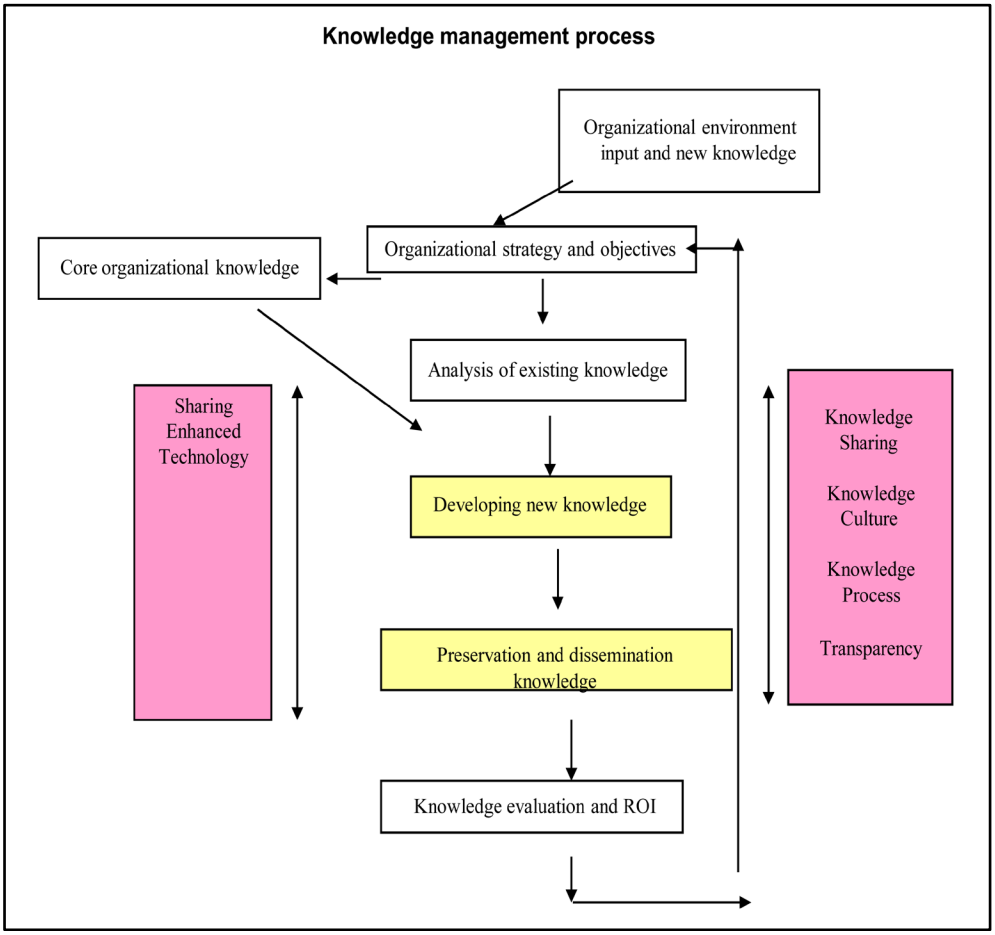
Knowledge management offers a systemic strategic approach to managing complex organizations. This system sets up an infrastructure that makes it possible to integrate interactions and complex structures, occurring on different, even separate, levels in the organization and its environment [5]. Knowledge management requires locating and identifying all of the concealed and open knowledge assets of an organization so that they can be used to attain the organization's goals. For this purpose, it utilizes organizational agents, technologies, actions, processes, products and values that result from them, including all of the interactions between them. Research universities were the cradle for many types of technical knowledge that have been created and developed by knowledge companies in the 21st century. The paradox is that these organizations lack the consistent ability to use that knowledge and information technology for organizational innovation and creating cooperation with the society and economy who value learning and research.

"Knowledge management" is a concept that was coined as an advanced management concept which deals with the most important of all organizational resources-knowledge. Financial organizations, computer companies and high-tech corporations recognized the tremendous importance of knowledge and believed that developing and investing in it are the critical stages for the organization's success. Unlike the traditional assets of an organization, the quality of an organization's knowledge is evidence of its future ability to earn profits, competitive edge and maintain an ongoing relative advantage that distinguishes the organization from its competitors. Organizations that understand the importance of knowledge learn to identify, map, nurture and preserve it.

Managing knowledge is different from managing other resources; it requires a different kind of thinking: thinking about thinking (meta-cognition) and breaking out of standard management frameworks. Unlike tangible resources, knowledge is very difficult to capture and define, not to mention manage. The concept "knowledge-richorganization" is generally applied to hi-tech organizations even though the ultimate knowledge organization has existed for centuries and it is none other than the university and research centers. Universities, by their very essence, were intended to meet exactly the needs that the prophets of knowledge management spoke of in the 1990s.

Knowledge Management is a management strategy and thinking framework which has been an established discipline since 1995 with a body of academic courses and both professional and academic journals dedicated to it. Most large companies have resources dedicated to Knowledge Management, often as a part of "Information Technology" or "Human Resource Management" departments, strategic planning and sometimes reporting directly to the head of the organization.

The following is a simplified model of Knowledge Management Process [6]:



Knowledge Management is a strategy for achieving organizational vision and objectives, for enhancing sustainability, survival, or market-leadership using knowledge, innovation and organizational learning. Knowledge Management is taking into account organizational environment demands and circumstances. Knowledge Management programs are typically tied to organizational objectives and are intended to achieve specific outcomes which can include, improved performance, competitive advantage innovation, transfer of "lesson learned" (for example between projects) and the general development of collaborative practices. These invite varied leaning opportunities to create new knowledge as well as Knowledge Transfer and sharing. Examples include on-the-job peer discussions, formal apprenticeship, discussion forums, corporate libraries, professional training and mentoring programs. However, with technology becoming more widespread, adaptations of technology such as

knowledge bases, expert systems, sharing enhancement tools have been introduced to facilitate Knowledge Management process and culture.

One of Knowledge Management's common tools is the CoP. "Community of Practice" is a professional term from the field of knowledge management. This is a new organizational framework created in knowledge-based organizations, which changes the manner in which information flows in the organization and the way in which learning and change occur. Within the Community of Knowledge people are connected through informal ties of shared knowledge, experience and enthusiasm for cooperative work. The community gathers for several reasons: in order to build a foundation for meeting with colleagues and networking on the basis of mutual interests, in response to changes external to the organization or to new challenges. Unrelated to the circumstances of such community gatherings, members of the community share knowledge without boundaries and barriers, creating new methods for learning new subjects and making use of innovative approaches to solving problems and improving the organization. Examples include the World Bank, the automotive industry, the United States government and the hi-tech industry [7].

3. KM in HE-KM Strategies and Tools for HE

Historically, the higher education system was the first knowledge economy but today it is no longer alone; it is but one knowledge industry among many. Academia is currently facing many challenges, including new laws (such as those relating to intellectual property) and competition from electronic commerce and biotechnology for the best brains. Furthermore, the boundaries between industrial and academic research have blurred. Internal challenges such as the financial problems of the academic publication system, technological learning that makes it difficult to develop standards and the development of joint research that goes beyond the boundaries of institution, nation and discipline.

The higher education system needs to take action to rationally manage both internal and external knowledge, to structure and organize orderly, consolidated learning procedures (some of which, as noted, exist and are based on the academic culture) into an active, smoothly functioning mechanism which regularly examines the position of the university in comparison to its goals, environment and future. A mechanism of this type will manage the change process in the continuous manner required for organizations to survive and succeed in the long term.

Knowledge management offers higher education an infrastructure for planning and managing innovation and change powered by cooperation, collaboration and transmission of knowledge, as part of the organization's activity, while relying on and using information technology and supporting cooperation. Reference [8], notes that institutions of higher education can develop knowledge management strategy with a defined policy so as to explicitly encourage change and progress. Proper management makes it possible for an organization to build its ability to deal with long-term, wide-reaching changes. Accountability, which is repeatedly mentioned as a demand made of universities, is the added value that accrues to organizations that adopt the knowledge management strategy, which can also help educational organizations create the ability for reflective thinking in all areas of their activity, provide them with the means for substantiating their positions and with an organizational culture that encourages ongoing research and learning [9].

Knowledge Management has driven and set the foundation for more flexible organizational structures that better suit knowledge workers, global markets in our "flat world". Knowledge Management programs attempt to facilitate the process of creation and identification of new knowledge, dissemination and implementation. For example after researchers enter a new subfield or focuses on a specific niche, this information would be known only to them and their students. Once a collaboration opportunity on this issue arises, the university's staff won't be able to help, because they would be unaware of such knowledge. Knowledge Management support in accumulation and application of knowledge across an organization is frequently linked to the idea of the learning organization and strives for innovation and change in the organizations functioned and structure. The university has its own knowledge accumulation mechanisms such as: faculty seminars, colloquiums, and students input-but are these enough?

A lot of senior personnel's knowledge is not shared because no one drives them to do so; neither is knowledge about teaching methods and technologies, knowledge about ways in which the curriculum is developed, know-how regarding internal processes that can be more efficient and less time consuming. For this purpose, it utilizes organizational agents (who do what), organizational environment agents and networks, technologies, actions, processes, products and values that result from them, including all of the interactions between them.

Knowledge Management can provide university with the means for substantiating their positions and with an organizational culture that encourages ongoing research and learning [9]. In this case study the answer is probably not.

There is ahuge debate regarding the extent to which one can really "manage" knowledge. Some would say "knowledge is not manageable at all", but there is fundamentalconsent about the need to manage a "knowledge environment" in a methodological and systematic way in order to gain all the advantages mentioned above. Furthermore, Knowledge Management deals with knowledge cycle as a whole, not only with selected components, viewing the big picture as a complex of systems and connected global networks in the organization and its environment: community, regional, stakeholders, government, colleagues HE organizations and industry.

Knowledge Management ideas seems somehow obvious, but reality avidness show that without systematic actions sharing culture and process are not to materialize by themselves.

4. KM-Regions Engagement-Implementing Steps

Identifying and mapping the university's knowledge regarding experts and expertise is vital: knowledge (not only information) about funds specifications, expertise in applying and winning regional funds, federal and governmental financing opportunities. Knowledge regarding international research projects management skills and experience, collaboration with big companies and industry. All these are examples of important university's information that would be very valuable to share and transfer within the university.

Other valuable actions that can take place in a systematic Knowledge Management framework within universities include: nurturing new scholars in the department and sharing existing knowledge regarding the teaching process, technology enhancing tools and organizational internal processes. Establishing "organizational pipes" to facilitate flow of insights and "success stories" regarding knowledge transfer process, and researchers' role in this process. Disseminating important contact points in governmental offices, projects and community to pave research collaboration channels, and providing entrepreneurial education and skills for researchers and business support for spin-offs.

Usually Knowledge Management actions use technological tools for better knowledge dissemination. Technologies such as knowledge bases and expert systems for gathering information about possible collaborations with industry or past experience of some years ago can help initiate old-new contact. See for example "Knowledge RICH" in Leeds University which is a free service, connecting the technological needs of industry to expert network of over 1000 commercially experienced technical experts within the region's ten universities.

Data base about university contacts with a specific organization or company can open doors for cooperation regarding expected and future customer or beta-site for technology, knowledge or products. Help desks, corporate intranets and extranets, Content Management, wikis and Document Management drive personal learning process and organizational learning process which require new knowledge from outside, change behavior respecting approaching innovation with openness and transparency. Knowledge Management strategy encourage and support learning process such as recommended in the OECD reports: "improving intangible skills such as entrepreneurship abilities, communication skills, adaptability […] learning strategies and self concept" [10].

"Communities of Practice", can enable organizational practices for researchers' interests (not academic fields) such as in the case of experienced entrepreneurs researchers meeting newcomers. This can enable acquisition of new knowledge from the university business and academic environment, nurturing new networks connections by meeting venture capital investors and industry R & D directors. Networks involve colleagues, consultants or others interests groups from the community can facilitate process understanding and maintaining a new and vital culture of sharing, innovation and will open new opportunity for "out of the box" collaboration and better understanding of end user's needs.

Sharing best practices and disseminating insights gained from one unit or organization to the others and from one expert to newcomers can contribute to more effective processes and a sense of sharing culture [10].

University's Yellow Page directories for accessing key personnel regarding a specific issue or needed know-how or gaining insights can contribute a great deal to establishing new "knowledge pipes" in the university. These tools can activate the flow of existing knowledge for the benefit of knowledge workers and the organization as whole.

In order to set up Knowledge Management infrastructure many organizations (and universities) have generated new roles and responsibilities, an early example of which was the CKO—Chief Knowledge Officer.

An Australian experience to create innovative regions in order to leverage economic prosperity and regional development was described by [11]. The Australian believes regions need to systematically address their knowledge needs and identify tools that maximize their effectiveness. They recognize ICT initiatives are not enough and there is a need for Knowledge Management (KM) strategies. These strategies must respond to the regional economic and social environments and stockholders. Mason emphasis the importance of KM for supporting regional cluster development and Communities of Practice (CoPs) as one of the most important KM tools for regional development [11].

The CoP's is a the formation of communities of practice which are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis [12]. An earlier term—"clusters" which refer to a geographical location was conceptually setting the region importance. The term clusters was coined by Porter emphasizing the importance of agglomeration, which occurs where firms group together in close local proximity such as a region. "Clusters are geographic concentrations of interconnected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition."

Another initiative using KM strategies to regional development is the World Bank GDN's. In [13] initiated a pilot program to strengthen knowledge management capacity and research dissemination skills in research institutes and networks in Africa. The targeted:

- Synergy between knowledge management as a technocratic process and the need to understand knowledge management as a social practice, one which is crucially based on people to people contact.
- Prioritizing resources: as governments in the region face increasingly daunting challenges such as high illiteracy rates, unemployment and poverty, in efforts to alleviate poverty and deliver economic growth, how can knowledge management and related strategies of e-governance and ICT be positioned to assume roles of importance?
- **Ownership of the knowledge creation process:** An effective knowledge management strategy highlights the importance of developing home grown solutions to development strategies. Thus, knowledge management is closely linked to building capacities to generate knowledge which resonates of local realities and hence has more chance of policy success.
- **Sharing knowledge sharing experiences:** How do we synthesize the experiences of multiple stake holders involved in the knowledge management—government, corporate organizations, civil society networks, non-governmental organizations to name but a few. How can the experiences of other countries be used as an impetus to further KM practices in Africa?
- **Equity in knowledge:** Whose knowledge counts? How can both the processes of knowledge creation and utilization for change be equitable?
- **Partnerships:** Sharing experiences and importance of cooperation in the quest for innovative and creative knowledge management strategies etc.

A Netherland experience is reported in [14] suggest that regional knowledge-center provides an "office" where innovators can ask questions about knowledge and knowledge-utilization, physical space for meetings, sharing and collaborating point. The regional centers are to be facilitated by a national knowledge-center in order to calls attention to good and bad practices, coaches and informs regional knowledge-managers, deliberates with national and provincial governments, consultants and research institutions.

Dammers stress that creation of knowledge and dissemination, is affected by knowledge-management and knowledge facilitating but also by some contextual factors which require more knowledge in order to defend fundamental views and value and adopt new ways of thinking and acting. For instance: social trends, changing of economic tide, policy-changes. "Knowledge-managers are supposed to call these factors into attention. This enables the innovators to cope with the opportunities and threats they may generate in the region and beyond [14]."

One can imagine university X trying to commercialize a specific patent in a local bio tech company named "Bio-KM". The company decides to play a "tough game" and maintains intensive negotiations with other universities, across the country that has a less mature patent. The Technology Transfer Officer is not aware of this "implicit organizational knowledge":

The faculty emeritus dean has been sitting on Bio-KM's board of directors for the past ten years and Bio-KM's founder is the biggest donator (two years ago he inaugurated a new lab in his late mother's name). One of the senior business school faculties is setting Bio-KM's strategy for academia co-operating and the university is

purchasing lab materials for thousands of dollars every year from "Bio-KM". Furthermore, in the past there were joint ventures between the two organizations that resulted in sending graduates to work in industry, and it appeared that one of the inventor's doctoral students had his internship at the same Bio-KM's lab and took part in successful commercialization process (but he is out of the country doing his post-doc, so who would know!). Do you think this is surrealistic picture? Think again…

Now think how the negotiation might have run with all the above knowledge in the hands of the Technology Transfer Officer?

Can the mentioned university X argue its implements and develop knowledge management strategy and policy in which makes it possible for the university to build its ability to deal with long-term, wide-reaching needs [8]? Is this university used its existing knowledge to bring its knowledge assets to the market? Or it can ensure accountability, which is repeatedly mentioned as a demand made of universities?

Does this university used its added value that accrues to organizations that adopt the knowledge management strategy, which can also help educational organizations create the ability for reflective thinking in all areas of their activity.

5. Hurdles and Incentives—Discussion and Conclusion

Educational organizations are different in essence from business or commercial organizations. The managerial parameters are different; the organization functions differently and the organizational values and methods by which it is judged for its activities are often different in substance. An educational organization fits the definition of a "loosely-coupled" organization. The term "loosely-coupled" is used to describe a situation in which two phenomena share several common variables.

In a loosely-coupled system, the subsystems are partially connected to each other, as their operations while each subsystem maintains its own identity and autonomy. There are only limited relationships of dependence and supervision between the various parts of the system. Loose coupling in an organization is primarily expressed by the limited guidelines provided to direct the activity of any particular unit, yet all of the various units are included in a single and more comprehensive organization, whose instructions do obligate people working in those units, yet the degree of connection between the two systems depends on the activity of the common components.

Researchers have also defined universities as "organized anarchy" [3]. Since a university does not have unequivocal goals but goals that are unclear or even contradictory, standard theories of management, decision-making and control are inapplicable. The goals of the university despite their universal definition do not meet the basic criteria for well-defined goals. Questions regarding the university's goals—Have they been achieved? Are they problematic? Might they be achieved in the future? Do most factions within the university agree to the goals? Cannot be answered. In most cases, overly general definitions of goals are detrimental to clarity but focusing clearly on a defined goal thwarts any possibility of the goal's acceptance by a majority of the university's senior decision makers [3]. The researchers noted that policies of higher education systems are characterized by a lack of consistency that combined with the inability to reach agreement in those cases where operating goals have been defined, making universities difficult to manage.

The changes that are occurring around the world influence not only organizations and government agencies but also universities. The forces of change acting on higher education are varied [15]:

Increased competition: Competition with other domestic universities as well as with foreign universities and private institutions.

Significant decrease in government funding and public scrutiny: This change is primarily a result of a changed perspective that does not see public education as a service but a valuable product. Education is not an investment but an expense that requires strict scrutiny of government spending on it.

Mounting trend towards consumer rights: The high cost of education leads students to insist on receiving a quality product and good service from the university. Students are even willing to initiate legal action.

Increased distribution of communications and information technology in all areas of life: In the past, colleges and universities had a monopoly on up-to-date quality information. Today, this information is available on the Internet and in many other formats, some of which do require payment [16]. The higher education system has been transformed into a complex system that is open to external influences, from domestic and international forces. The system has become dynamic and therefore control, current data and information are needed.

KM strategy is implemented for the past ten years and its contribution to R & D in industry is well established. Rapid change and substantial uncertainty and competitive environment characterize the knowledge industries. Those characteristics convey use of knowledge management methods and tools to coop with those demand and nurture innovation and use of knowledge in order to develop new products and new ideas. Reference [17] notes that research and development organization should address effective knowledge flow among individual researchers, as well as knowledge collaboration across organizational boundaries with customers and partners. KM strategy should facilitate organizational infrastructure for collaboration culture that encourages members of the organization to create and share knowledge and focus for future business using open knowledge creation for task performance and effective knowledge flow [17].

There is a widespread recognition of the growing importance of universities in a knowledge society and a competitive economy, and of their required role in stimulating growth through University-Industry-Government interaction. As in [18], "universities can show the way, offer the solutions and produce the hardware to resolve the most crucial problems". While the education and research missions of universities have been formalized by the universities, their third mission "Technology Transfer" has been recognized and often accepted, but has not been implemented in formalized structures, systems, skills, values and ways of working**.** Many explanations and interpretations have been given in the literature for the astonishing fact that, for decades, there have been no real changes in the way that universities act and function. Universities were useful to society but not critical; they served the elite without threatening it, and they were able to respond to popular demands and political needs. Furthermore, they contributed to national economic growth and security [18]. Traditional academic disciplines are pursuing understanding and truth regardless of the usage aspect. More recent scholarship is engaging ways in which academics and practitioners co-produce knowledge interactively in order to reduce the gap between knowledge and action. In this way the researchers gain valid theories and understanding of real situations and the practitioners gain a new point of view shaping their practice [19].

Today, changes in circumstance and conditions have driven the universities to change not only the way they act but the way they think. Academic research has become valuable to a nation's progress and competitiveness. At the same time it has become too expensive, and this fact has driven public debate about universities' governance and efficiency. Society's needs for well educated personnel in a vast variety of fields invite close discourse between society as the "enduser" and the academic world, which requires the right influence in the process. The globalization of the education world, its promise for business, and the role of university education increasingly becoming the main tool for social and economic mobility, are other reasons for political intervention and for growing demands for changes in universities and the academic world. "Third Mission University" (TMU) is one of the main changes in the academic world, already implemented in some countries and in the process of being implemented in others. "Third Mission University" (TMU) is a perception which promotes an economic development mandate and activities in the day-to-day life in the university. That is in addition and side by side to the traditional missions of education (teaching) and research. The TMU is three independent but closely connected units in the university, the Teaching College, the research institute and the Business Unit and the need for translating scientific discoveries into industrial production as well as originating from industrial needs for incremental innovation [18].

Regions can benefit a great deal from universities and research centers creation of knowledge creation through research and knowledge dissemination through student's education and technology transfer. Socio-economic aspects are benefits as well from the universities knowledge and innovation reflecting governmental and other stack holder's services.

No one denies the obstacles such as universities reservation from entrepreneurship, culture differences described as "the death valley" separating the academic ethos from the business one. More "objective" obstacle is the budgeting structure and criteria influencing the university resource allocation target at student's numbers or graduates less on regional involvement.

Evaluation tools towards universities in general tend to be more quantitative even thought there is an expanding recognition for the "softer criteria".

"Organizations that manage to incorporate elements of softer values such as sense of community, knowledge sharing and idealism into their business model, will perform better in the network economy than organizations with business models that are based solely on economic rationalism [20]."

In the OECD's own words, "Education systems are not always very effective at accumulating knowledge and putting research and innovation to good use". For that reason, the OECD carries out Knowledge Management

Projects, which promotes Knowledge Management as "a way of pooling knowledge and experience among educators" [21]. The reality of knowledge organization in these days has also been expressed elsewhere: "In many institutions of higher education, there is no organized knowledge management system in place or even an understanding that such a system could be useful if not necessary. Since higher education is about the creation, transformation, and transmission of knowledge, such an oversight is striking [2]."

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