



Innovation and entrepreneurship in scientific research

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ABSTRACT - This research wants to lay emphasis on topics that historicize and rescue concepts, in addition, shows the relation between innovation and socioeconomic development resulted; reviews the legal framework to stimulate new innovation into Brazilian society; considers the definition and the entrepreneur university's new paradigm; and finally, this research highlights the importance of teaching entrepreneur at universities, with straight society benefits. The results suggests that innovation is directly enrolled with a successful development of certain society, as well, is actually the biggest business competitive differential into corporative universe. In one way of getting results of social advancement to inform entrepreneur research practice, it appears that entrepreneurs concepts, necessarily, must be incorporated into the array of Science/Technology/Innovation for the effective development of supported formula. This article develops a thought about actual scientific researches paradigm, the way that is built on today, and if it's sufficient to effectively get the results that society expects from main bodies to create human resource and researches, especially those with innovation aspects, at Brazilian economic improvement.

Key Words: entrepreneurship, entrepreneur university, innovation, research and development, science and technology

Inovação e empreendedorismo em pesquisa científica

RESUMO - Este artigo procurou enfocar aspectos que historicizam e resgatam conceitos, além de demonstrar a interrelação da inovação com o desenvolvimento socioeconômico resultante; revisar os marcos legais para o estímulo à inovação mais recentes dentro da sociedade brasileira; considerar a definição e o novo paradigma da universidade inovadora; e, por fim, ressaltar a importância do ensino de empreendedorismo no âmbito da universidade, com benefícios futuros diretos para a sociedade. Os resultados constatados sugerem que a inovação está diretamente ligada ao sucesso de desenvolvimento de determinada sociedade, assim como se torna atualmente o grande diferencial competitivo das empresas no universo corporativo. De maneira indissociável ao processo de gerar resultados de avanço social pela prática da pesquisa inovadora, constata-se que conceitos de empreendedorismo, necessariamente, devem ser incorporados à matriz Ciência/Tecnologia/Inovação para que a fórmula de desenvolvimento sustentado passe a ser eficaz. O artigo desenvolve uma reflexão a respeito do atual paradigma da pesquisa científica, da maneira como hoje ele está estruturado, e se é suficiente buscar com eficácia os resultados que a sociedade espera dos principais organismos responsáveis pela formação de recursos humanos e pela geração de pesquisa, sobretudo aquela de caráter inovador, no avanço da economia brasileira.

Palavras-chave: ciência e tecnologia, empreendedorismo, inovação, pesquisa e desenvolvimento, universidade empreendedora

Introduction

Worldwide economy is under major changes within these past years. The competition among companies has increased in several segments. All group actions in the productive chain has been increasingly important as survival way. Besides it, constantly search for client satisfaction provided a good time to achieve marketing alliances, with bigger gain possibility to all segments involved (Carvalho-Rocha et al., 2001).

In this context, competitive agribusiness companies are those that can establish sustainable competitive advantages, through high performance productive systems. In other words, company competitiveness can be evaluated by its capacity of gain and maintain market share. To do so, is necessary to maximize economy of scales (operate at minimum average cost), scope (put together at the same productive plant more than one product and/or service) and transaction (reduction of transaction costs) according to Faveret Filho & Siffert Filho (1998). The most evolved way

of competitiveness for companies allows finding a competitive differential through innovation (Saab et al., 2009).

It seems to be unnecessary to defend the importance of fomentation process to innovation practice into a certain society, because of unmistakable reflection at highly positive impact of this opportunity generation and socioeconomic development provided.

In spite of it was decided to do a summary about this subject to be a start point for future thoughts, enclosure of all different requests and entities related to researches, as understand it as a subject that comes around in a way, at least, controversy to the scientific community (Plonsky & Carrer, 2009).

Nowadays, lives up a moment of extreme agitation about this theme and possibly an expressive inflection of generating resources curves to motivate an innovation practice at universities, companies, funders and researches institution, with a recent Law publication, as an Innovation Law, Well Law, General Law for Micro and Small Business.

This article, will search for subsidies that supports the idea that the academic environment represented by public universities, biggest responsible for scientific researches, especially in Brazil, needs to be prioritized at an analysis subject strategy. Therefore, all relevant academics examples to understand the related subject and used throughout the text, will represent, mostly, the authors experiences at São Paulo University, where happened the team work.

Technological innovation

Researches incorporation, since beginning of 19th century, extends substantially the universities' mission, by adding to their historical role in preserving and transmitting knowledge.

The emblematic results of what some call it as a first academic revolution, is a dissemination of a new institutional model, a *Humboldt University*. It starts adopting and practicing, besides others, the principle of academic freedom and a close link between teachings and researches (Plonsky & Carrer, 2009).

Another important transformation, considered by others as a second academic revolution, is the incorporation of intense involvement with technological innovation to universities' mission. Still on, it began during the second half of 20th century. It's based on a previous revolution, when talking about, besides others, the issue of researches results translations with intellectual property and with knowledge products trades.

Its background includes two institutional configurations that appeared around hundred years ago. In Germany, the news is the establishment of strong connections between academics and the newest chemistry industry that helps it become this technological innovation economically feasible.

At the United States, comes up by that time, high education establishments in granted lands by Federal Government to states. Originally focused at professional education, its mission is afterwards added to researches, and already in beginning of 20th century, also has an extension of knowledge resulting from producers researches, specially rural. The *extension* terminology is consolidated by North American laws of 1914 that ensures a *cooperative extension system*. Based on *land-grant* institutions, its function is to make sure that the agents with researches results are dispatched to rural producers with updated information from the experimental agriculture station. Mission's new component sensitizes academics entities to the importance of link with business world.

This is the origin of numerous worldwide well-known institutions, as a MIT and Universities as California, Cornell and Texas A&M. They excel at researches and teaching, and are equally today, emblematic capacity from an excellent university contributor to a consolidation of sectorial innovation systems, and regional, with remarkable positive impact over national economy.

The university into the innovation ecosystem

After going through most part of last century as a marginal issue, many times also with a popular meaning, the relation between companies and universities have changed since 1980 at those countries are part of an Organization for Economic Cooperation and Development (OCDE). A decade later, these changes came to Brazil and other Latin American countries.

It recognizes the increasing role of intangible, especially the intellectuals, to create a value in each organization and each zone. This makes the cooperation between companies and scientific and technological institutions (especially those with high education establishments and public researches institute) enter into 21st century as a *knowledge-based economies* apple of one's eye, the nations that based the economic activity at technological knowledge.

Also in Brazil, a company cooperation – university (and, correspondingly, business –public researches institutes) became a generally desired subject, not only from universities and companies, but also from government. Interface structures, as a support foundation and

technological innovation center (with many denominations) are imposed, together with universities, give the necessary dynamism to cooperation (Plonsky & Carrer, 2009).

Inside public politics starts to find a legal framework that converts the environment friendlier to cooperation between all academics worlds (publics' researches institutes and universities) and business.

More comprehensive legal instruments started to be firmly promoted with some countries states bureaucracies. There are two goals, which are additional and convergent. The first one is intervene to remove a cultural division that is assumed to separate academy from company. This division is for many times, seen as simple adornment, more frequently as wall and not infrequently, as an almost impassable great wall (as says a famous expression *ivory tower*).

A second goal, with a specific importance in those countries where the researches are concentrated into institutions and universities to put together a public department, as in Brazil is to outline laws' hardness. This brings a rigorous, that as some Administrative Law experts say, is not inherent but as inappropriate paradigms that governing organisms actions of state control and for legal professionals.

Be the reasons whatever it is, it's consensual that the feeling of legal framework is typically shown as insensible to a technological innovation system's peculiar needs. This has intrinsic concepts that are strange to current legal system, as doubts and risks. And increasingly, shaping all inters institutional arrangements that happen into privates' organisms and public organs and entities.

As a result, happened during century turn, national innovation laws, as a French *Loi sur la recherche et l'innovation* of 1999. This one inspires an analogous Brazilian law creation, materialized after five years into a tough journey, by 10.973 Law, from 12.02.2004. The Interministerial Technical Committee between a Science and Technological Ministries, Development Ministry, International Business and Industry Ministries, Finance Ministry, Education Ministry, Planning, Budgeted and Management Ministry were established on 12.17.2008 to identify and propose ordinary interesting subjects that contributes to implementation and improvement of that Law and also, a 11.196 Law (Well Law). This by its time, causes an innovation states' Law formulation, as in São Paulo state, is materialized at a 1049 Complementary Law, of 06.19.2008.

Get as an example, a self perception and repeated definition from São Paulo University (USP) as *a researches university*. The fact that the ideology and concepts

underlying at that first academic revolution look so similar, indicating that it triumphs and is the established scheme (Plonsky & Carrer, 2009).

It is worth to remember that also innovation has a struggle history, some even dramatics. Like this, for example, during 1930 decade when USA students majority, rejected the researches financed by government, due to the fear of, by an external influence, university would permanently changed and its autonomy would get lost. Not even economics obstacles caused by a Great Depression minimize the resistance.

After many decades of arguments, the idea of external financing is now metabolized by the academic community. Unlike it was strongly supported some decades ago, is now identified as university autonomy.

This perception is embodied also in our surroundings, as witness to a strong motivation from academics authorities to the submission of sponsorship agencies to the proposals, even at publics occasions where the goal is complete defined as "extramural".

An appreciation of incorporation early years with intense participation at technological innovation process to university mission shows that the idea will be absorbed by the academic community. Even though, is surprisingly that the crises demonstrated in this way. In one way, due to the remaining initials ideological issues. Some of them are respectable, as for example, if a public university must confine to general rights, or if under certain circumstances, can also serve specifics groups' interests.

Other differences are new, arising from its own university's mission enlargement. Therefore, we can wait clashes occurrence, among others, questions about compatibility between a direct university's participation at technological innovation projects with growing sustainable requirements in a wide way.

Points to be considered by universities are the following: (i) rights reservation to practice licensed technological innovation and allow others unprofitable entities and governmental organs to do so; (ii) organize exclusive licenses in a way to support technology development and use; (iii) commitment to avoid future enhancement licensing; (iv) anticipation of issues related to technology transfer and help during management; (v) to assure a wide access to researches appliances; (vi) careful consideration of enforcement actions, seeking to avoid litigation; (vii) attention to exportation restriction, avoiding to compromise a fundamental research; (viii) attention to implications of operating with patents attachment; and (ix) provision inclusion that cares about

missed necessities, as neglected population, with special attention to therapeutics technologies, diagnostic and agricultural to developing countries.

Only as explanation, patents attachments are companies that have additional license in different universities and others knowledge producers centers and bring them together in a portfolio, as many times with hundreds or millions licenses, associated with a particular technology. They work with one of two contrasting way. Some do it to add value to secondary license of technological package; this way, good for innovation, is practiced, for example, by *venture capital* companies. Others have the goal of gaining money by occasional negotiation with companies' threats that produces expensive judicial demands because some intellectual properties infraction. This opportunist company class, are called *patent trolls*. It figurative name shows its characteristics, since *trolls* are legendary spooky northern creatures that leave in caves and trap their hunt. What make it more concerning, is that even sporadic, universities associate, even passively, to these companies seeking some material benefits from its special perform (Plonsky & Carrer, 2009).

One example of external regulation, in a Practice Code way, is a recently document named *Commission Recommendation on the management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organization*. It was published in April, 2008 by European Commission, promptly adopted by European Union Competitiveness Council in the next month.

Prescribes to members' countries that all researches publics' entities, including universities, some other providences: (i) define a knowledge transfer as strategic mission; (ii) stipulate and make politics and procedures public to intellectual property management as related specifics recommendation; (iii) competence development of knowledge, making its students enable and aware, specially science and technologies ones, with intellectual property themes, technology transfer and entrepreneurship; and (iv) improve knowledge dissemination raised with publics resources, encouraging a wide researches' results access, taking care when needed of protecting intellectual property.

Around us, 10.973 Law already assigned (nicknamed as Innovation Law) denotes the convenience of stipulate strong principles to feed situations that generates concern conflicts or potential commitment. It illustrates this care, to a relative chapter to stimulate a specialized environment construction and innovative cooperation, a 4th Article, item

II, says that universities and research institutes may allow their laboratories, equipments, tools, materials and other installations be used by national companies and private rights organizations with no monetary fees to researches activities, *since the permission does not have direct interference on its final activities, or even generate conflicts*.

Innovation at universities essence

Universities evolvement with technological innovation is around for more than a century. In this case, USP is younger than this technological innovation, but is part of this unit goal and incorporated it in 1934.

In a general way, this activity is held by decades thanks to some isolated academic groups action and belief, denying a central administration explicit support. As reflected at first prescription cited by European Union to its member countries, a contemporary phenomenon is, the technological innovation is gradually changing from an outside edge to universities authorities' main attention.

There are three different kinds of motivation, and not on purpose, they are related to one of all dimensions of universities ternary mission. The first motivation kind is educational. Where some relevant and stimulating learning spaces are opened for students by universities' conscious participation into all complex links of technological innovation process motivated by scientific and technological knowledge frontiers progress (*science-driven innovation*). The consequent innovation system happens when adding the knowledge created by companies' innovation (*market-driven innovation*) with previous contributions of independents authors' (Plonsky & Carrer, 2009).

The university's participation at business incubators, business increase, technological centers and similar mechanisms, give undergraduate and graduate students, additionally, a single opportunity of innovative entrepreneurship in motion.

Next quarter century tendency, is that incubators, as a kind, will became part of natural teaching-learning process at all sciences – humanities, biological and exacts (at enshrined taxonomy in universities entrance examination).

These universities incubators are from different types – companies, business, projects, social solution, artistic creations and more. The similarities between them are the process management focused that changes the ideas that are, at the same time, qualified and creative, with products and real solutions, used by society.

Incubators are, from this side of view, a third universities' contemporary space of teaching-learning process. At a more traditional space, in the classroom, students are methodically exposed to preexisting and important knowledge for a chosen career. At second, the laboratory, incorporated space after the 19th century, the student enjoy the charming activity of new knowledge production, not truly originally rare. The third one, the incubator allows the students learn the science and the art of combining preexisting with new knowledge to create merit perceived by society, adding properties and services.

The incubators allow in this manner, that the students live deeply together with their teachers what has been called as *knowledge triangle* – which articulates education, researches and innovation.

The students have two clear benefits by universities' involvement into this third space. One is a planned exhibition, during its constructive process, to a new professional life option, which is the one of being entrepreneurs, capable of creating economic and social values and to create certified working places.

Another, in case of choosing a classic routing employment, it is an attenuation of natural gap between what was learned at university and what is expected at a world of work. This will contribute, especially for some business segment expectation attendance about graduates from superior education institutions.

Four are the main challenges for this university innovation to consolidated (Plonsky & Carrer, 2009). The first one is develop methods and make teachers capable of turning the incubators of different types, spaces really effectives to learn and innovate as laboratories well cared are to learn and search.

The second one is to put together the, already mentioned, knowledge triangle into learning process, treating it in a systemic way, in each area, the opportunities offered by classrooms, by laboratories and incubators.

Within this context, we can emphasize the 27th article of Final Arrangements 10.973/93 Law (Innovation Law), curiously almost never mentioned at exhibitions and arguments about it. Happen that *the STI (Scientific and Technological Institutions) that contemplates learning among its main activities must associate, mandatorily, a provisions application in this Law the creating action of human resources under it responsibility.*

A third challenge is the development, within public politics and on its materialization at promotion agencies, programs that have this latitude and help to make a knowledge triangle inside universities. One example is the

project *Seeds of Innovation*, germinated under agreement between ANPROTEC and the CNPq.

Finally, must incorporate all three spaces into a physic planning at university's installation.

The innovation at the research

One main motivation to universities involvement with technological innovation is the perception of its influence at academic research.

The innovation affects the research schedule by a growing interrelation between production and scientific knowledge use. An associated phenomenon is the remarkable time reduction of the *new knowledge-new product* cycle. Nanoscience and Nanotechnology field are examples of this compression.

In an alternative way, the knowledge production is mobilized to a problem solution and occurs in an application context. So it changes, the traditional relation between research and university extension, where the first one is chronological previous and define the second one potential.

Since the beginning of knowledge utility has a good value. There is a strong responsibility sense from the productive community to the society. The knowledge is produced by a collective that are transdisciplinary, heterarchical (in other words, those that uses non-hierarchy structure, as grid, nucleus, centers and other organizational settings that support cooperation) and transitional (in constantly changes).

How much innovation worth to universities?

From academic research perspective, the most pragmatic reason for a growing interesting over technological innovation is its waited contribution of this involvement to its financing. With it, there is a variety on profile sources to universities' resource – multifaceted question that belongs to another chapter of this work.

There are many formal ways by which an involvement at technological innovation – and, as result, with business environment – can help to financing a academic research: researches contracted by companies, grant resources' source at promotion companies dedicated together with companies, that came from licensing technologies in various way, affiliated companies capital, donations to investments and grant to researchers and students given by companies are some of mostly used.

There are, also, many other informal ways as, for example, material supply for research and paying to fix equipments. Even with less public glamour, they are really useful at budget limitation situations, or when there are bureaucratic issues when purchasing properties and services that have procedural restrictions (Plonsky & Carrer, 2009).

The financing format that generates more expectation is a supply obtained by significantly technological licensing developed at universities, patented at most part of the time. The patenting as itself has become an interesting object at academic world. There are, certainly, objective reasons to protect and valorizes intellectual properties that recommends this strategy. But occurs, with similar intensity, motivation to a promotional overweight character, in such a way – the deposited patents number – is used as indicator of desirable qualitative institutional attributes. This is a problematic indicator, besides other causes because a patent is granted by invention occurrence, without it necessarily has happened an innovation. This must be, in an inconsiderable way, the perspective appropriation, by researchers, a relevant portion of this resource – that can be a third portion by an Innovation Law and to a half of USP cases (which internal legislation is prior to federal dispositions).

Even that a total volume of invested resources by companies with realized researchers at STI's participants of 2007 related lifting be expressive (US\$ 3.4 billion), at corresponding related terms to a modest participation (7%) the global amount spent at researchers by these institutions (US\$ 48.8 billion). Just for comparison, the federal resources participation is 65%. This participation level changes a little throughout last ten days.

From all 5109 licensing made, a biggest fraction (half) is for small companies, one third to bigger companies and the rest of it (around 16.5%) to new companies (start-ups). The number of nonexclusive licenses given to 161 universities respondents is 1/3 bigger than exclusives licensing.

An alternative analogy, more stimulant and closer to technological innovation cultural environment, is the company of *venture capital (VC)*. If well managed, compensates the majority of investments that are not remunerated, earning expressive gain in some few cases of big success.

The entrepreneurship university's paradigm and entrepreneur teaching

One remarkable result from innovation process referred is a dissemination of a new model, of *Entrepreneurship University*. The paradigm of an entrepreneurship university origins at century XX second half (Harvard as the most relevant example), with its initial goal at researchers sustainability that moved in the past years to its own university's sustainability. The Entrepreneurship University concept can be described as active institution that changes its structure and in acting and reacting way to external and intern demands, with sustainability goal. It's

an indissociably concept, when talking about researchers activities, from a trinomial Science-Technology-Innovation. The news in this way is that Innovation aggregation with indissociably Science and Technology. The Entrepreneur University is, before everything, an Innovative University (Plonsky & Carrer, 2009).

This designation became popular as a research result about paradigmatic transformations of Europeans university, consequently by the necessity of dealing with two challenges.

The first one is relevance, in other words, the university's capacity of answering the demands participating at social and economics questions. Those demands are associated to a public department and to changing the State role. The second one is to provide substantive audit, by a traditional funds source and its allocation is related to feasible results.

Five elements are usual to transformation path to entrepreneurship universities: (i) diversified revenue sources; (ii) strong direction capable; (iii) development of a surround extended, with consistent research's centers and non-department extension programs; (iv) central area from stimulated academy – antiquated departments become new; and (v) an involving entrepreneur culture – a growing belief system that encompasses all four elements previously mentioned, with materials characteristics (Clark, 2006).

Is it possible to obtain innovation practical results without investing on entrepreneur formation?

Main questions may be discussed to adopt a strategy planning at innovation area in our community: What is university's new job on knowledge community? Whose service? How can we answer this new demand? What kind of cultural changes must happen at universities (and companies, government, etc)? How to support changes institutionalization? Is it necessary a new university management model? Which are the reflexes to new bureaucratic and legal procedures? Is it possible to search a new pedagogic model to create autonomy?

Assuming that in one economy based on knowledge, the biggest society demand is intellectual capital, the most expected results at universities' environment is the people and idea emergence that are developed and enable new products and process, researches that results by generating new high tech business and companies, generating employments and revenue, providing economic, social and technological development for community.

What happens is that the intellectual capital doesn't come without a research laboratory effort. It is, overall, the result of people interaction, with global vision and local

action. Is an interaction product among researchers and teachers, enable students and companies and government working together at high researches, formulating and answering questions and assisting society demand for a better quality life. This context needs innovation environment proper to these interaction, globally connected and self-sustainable (Plonsky & Carrer, 2009).

Against all challenges of a new social configuration, education cannot let to consider the social changes when define its strategy and route. As Drucker (1999) none of other period of human history had so many radical social transformations of configuration, process, problems and structures as a XX century. As he said, the work and its workers, the society and government way became qualitative and quantitative different of what they were last century beginning and the technological transformations and productive made it appear a new worker class that became the main class of a new society, a knowledge society.

Drucker (2004) even say that this new knowledge society nucleus is the education and that the school starts, by its time, as a main institution of this process. The knowledge acquisition and distribution might take, at knowledge society, the acquisition place and a property and revenue distribution took over the Industrial Age. At educational politics definition center are the essentials themes that involve issues as knowledge development and how to determinate what quality is at teaching and learning process.

Would be important, then, approximate education of reality, supporting the research, logic, argumentation, create and learning capacity development to keep on, as argued by Bartholo et al. (2006). The public power actuation in this indispensable search, for even the most precarious, as a more effective participation of parents, students, teachers, schools and communities are equally important and start, necessarily, by two elementary thoughts: over everybody involved action, in a general way, and the school, in a specific way, at social transformations needed and over the type of egress that want to create.

As Froes & Melo (2002), the social capital deals with participative and organization experiences accumulation that occurs at society or community basis, reinforcing its cooperation, confidence and solidarity ties between people, social groups and entities.

The mobilization of many actors searching for social reality improvement, especially educational, can be consider an example of reality transformation, or still, as an entrepreneurship activity vision.

Pinchot & Pellman (2004) stressed, in 1978, the expression *entrepreneur* that resulted into a free translation,

of intra-enterprising term, which is that one that assume the responsibility of promote innovation inside an organization throughout intra-companies, by conducting projects and business inside organizations. To Wunderer (Hashimoto, 2006) the intra-enterprising is a helper that innovates, identify and create opportunities, builds and takes care of new combinations or resources arrangements to add value. As Hashimoto said (2006), the intra-enterprising looks focused on individual worker and its propensity to act alone in an entrepreneur way.

The entrepreneur competence, in an increasing way, starts to be seen as a human college which can be developed, independently of transformer activity type decided by the entrepreneur to develop, even if it is economic, politic, cultural, social or other, as Morais (2005).

The entrepreneurship teaching and the innovation environment at university: a needed way and without return

Since entrepreneurship approach as Degen (1989) career option until the approach that gave entrepreneurship an enrichment of a country economic matrix diversity and its consequent economic development by the constitution of new entrepreneur, the importance of entrepreneur study is already consolidated into societies. The classic school show the entrepreneurship as the economy motor, innovation and changes agent, and was able to starts an economic growing.

The entrepreneurship gains strategy importance at intern companies' environment, which is getting more competitive as time pass by. In many countries entrepreneurship worries are getting bigger. At the United States of America, for example, the number of universities that offer classes into this area, increased from ten, in 1967, to sixty four thousand classes in 1998, as Paim says (2001).

As analyzed by Andrade & Torkomian (2001), nowadays, the entrepreneurship teaching in Brazil has came into different stages: some institutions offer isolated activities, generally informal, while others offer lectures, seminars or specific classes, where there is a formalization of entrepreneurship incentive. There are, still, institutions that promote more deeply actions as an insertion of specific class diverse group of entrepreneurship formation, or the creation of entrepreneurship centers with some levels of integration with a business community, with companies incubators and projects and junior companies.

Morais (2009) remember that still are in Brazil, important promotion projects to entrepreneur start, as the development by SEBRAE – Support Service to Micro and

Small Business, which since 1999 develop actions to stimulate and support all entrepreneur Brazilian start as offering specific classes in this area, even in person or distance class.

It is an important tendency that the university environment prepares increasingly to this new reality and stimulates institutional and organizational innovations to make it possible.

Gradually, is expected a desirable generation of academic *spin-offs and spin-outs*, eventually with the university participation at its capital. It is important that innovative educational spaces being stimulated, as those experienced by juniors companies. It is primordial that the university gets involved into mechanism that promotes innovative actions, especially companies' incubators and technologic centers.

In Brazil, around 85% of all 420 companies' incubators have strong bonds with universities or researches institutes. That also is player or key partner at the biggest part of around 70 technologic centers initiations, the new habitats borders of innovation around us.

University of São Paulo has gradually adopted a comprehensive apparatus to innovative actions improvements associated to its camps. Some of them are result from strategic partnerships with others institutions, especially with researches institutes. This is CIETEC case, the biggest company incubator from hemisphere south.

Final Considerations

Entrepreneurship university model concept has been growing around the world. This will bring universities to a formal integration with multiple sides' effort complex of sustainable prosperity search for regions and nations, getting intense involved by a direct participation at innovation process, technologically or not.

The institution/participation of Technological Centers and Companies Incubators, at the ambit of – or at least around it – diverse campus of our university, has to assume priority strategy atmosphere.

This strategy, widely used at those main world's economics development centers, that allows a feedback from economy virtual circle, proportioned by knowledge generation (scientific, and specially, technological) linked to improvement politics to create new business (with competitive differential) that by its turn, generates occupation at world of work, revenue and consumption power to population.

By one side, to potentiate this important innovation function, in many ways, to not limit it to one or few institution

segment, but penetrate. More than an innovation planning, the actual university will benefit itself of a planning by innovation (Plonsky & Carrer, 2009).

By other hand, into a mutant knowledge world and strongly competitive, business demands and world of work need agents pro activity, characterized as opportunity permanently search. It is the future university function to promote this intellectual capital in an abundant and capable way.

The most part of all multiple complex actors of technologic process innovation were based at university: entrepreneurship and managements, researchers and technical workers, public politics implementers and formulators, financiers and investors, legal workers and non-governmental organizations leaders, television professionals and cultural creators.

At university institution were developed one or more significantly internship of its knowledge, and also, acquired learning methods that may help outline and realize their professional track. There are, also, experiences exposures that inform its world vision and inspire its value constellation. This makes the university an especially relevant agent of innovation systems (Plonsky & Carrer, 2009).

At least, would be important to consider that future university will assume a position of active agent to stimulate an environmental construction of innovation generation and of its entrepreneurship position to all agents linked to it, to keep its contribution at results consecution that incorporate a new reality to this Brazilian society.

References

- ANDRADE, R.F.; TORKOMIAN, A.L.V. Fatores de influência na estruturação de programas de educação empreendedora em instituições de ensino superior. In: ENCONTRO DE ESTUDOS SOBRE EMPREENDEDORISMO E GESTÃO DE PEQUENAS EMPRESAS, 2001, 2., Londrina. *Anais...* Londrina: EGEPE, 2001. p.299-311.
- BARTHOLO, R.; AYRES, A.R.; MUDADO, T.H. Formação de empreendedores de interesse social. In: Congresso Iberoamericano de Ciência, Tecnologia, Sociedad e Innovación, 2006, México. *Palestras...* Mexico: CTS+I, 2006. 11p.
- CARVALHO-ROCHA, J.C.M.; FAVA NEVES, M.; LÔBO, R.B. Experiências com alianças verticais na coordenação da cadeia produtiva da carne bovina no Brasil. In: CONGRESSO INTERNACIONAL DE ECONOMIA E GESTÃO DE NEGÓCIOS, 3., 2001, Ribeirão Preto. *Anais...* Ribeirão Preto: FEA-USP, 2001.
- CLARK, B. Em busca da universidade empreendedora. In: AUDY, J.L.N.; MOROSINI, M.C. (Orgs.) *Inovação e empreendedorismo na universidade*. Porto Alegre: EDIPUCRS, 2006. p.15-41.
- DEGEN, R. *O empreendedor: fundamentos da iniciativa empresarial*. São Paulo: McGraw Hill, 1989. 368p.

- DRUCKER, P.F. **Administrando em tempos de grandes mudanças**. 5.ed. São Paulo: Publifolha, 1999. 286p.
- DRUCKER, P.F. **Inovação e espírito empreendedor**. 5.ed. São Paulo: Thompson Pioneira, 2004. 378p.
- FAVERET FILHO, P.; SIFFERT FILHO, N. O sistema agroindustrial de carnes: competitividade e estruturas de governança. In: SEMINÁRIO SOBRE COMPETITIVIDADE NA INDÚSTRIA DE ALIMENTOS, 1998, Campinas. **Palestras...** Campinas: 1998.
- FROES, C.; MELO, F.P. **Empreendedorismo social: a transição para a sociedade sustentável**. São Paulo: Qualitymark, 2002. 208p.
- HASHIMOTO, M. **O espírito empreendedor nas organizações: aumentando a competitividade através do intra-empendedorismo**. São Paulo: Saraiva, 2006. 277p.
- MORAIS, P.R.B. **Contribuições pedagógicas para o ensino de empreendedorismo**. Limeira: Faculdade de Administração e Artes de Limeira, 2005. 24p.
- MORAIS, P.R.B. **Modelos de ensino de empreendedorismo: análise de múltiplos casos**. 2009. Dissertação (Mestrado) - FEARP - Universidade de São Paulo, São Paulo.
- PAIM, L.R.C. **Estratégias metodológicas na formação de empreendedores em cursos de graduação: cultura empreendedora**. 2001. 101f. Dissertação (Mestrado em Engenharia de Produção) - Universidade Federal de Santa Catarina, Florianópolis, 2001.
- PINCHOT, G.; PELLMAN, R. **Intra-empendedorismo na prática: um guia de inovação nos negócios**. 3.ed. Rio de Janeiro: Elsevier, 2004. 199p.
- PLONSKY, G.A.; CARRER, C.C. A inovação tecnológica e a educação para o empreendedorismo In: VILELA, S.; LAJOLO, F.M. (Orgs.) **USP 2034: planejando o futuro**. São Paulo: EDUSP, 2009. p.107-135.
- SAAB, M.S.B.L.M.; NEVES, M.F.; CLÁUDIO, L.D.G. O desafio da coordenação e seus impactos sobre a competitividade de cadeias e sistemas agroindustriais. **Revista Brasileira de Zootecnia**, v.38, p.412-422, 2009 (supl. especial).
- SEBRAE. **Cartilha do jovem empreendedor: em busca do sucesso**. Recife: SEBRAE, 2006. 42p.
- **Cultura empreendedora é matéria obrigatória no interior de São Paulo**. [2004]. Disponível em <<http://www.administradores.com.br/noticias/>>. Acesso em: 14/8/2007.
- **Empreendedorismo Jovem, agora é assim: na escola**. **Revista Conexão SEBRAE/SP**, n.15, p.18-23, 2008.