Some aspects regarding IP in universities (II)

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Abstract—This paper presents some aspects regarding the problem of IP in universities, or R&D Institutes in the way to promote and to protect the innovative results or products. It is very known that universities as autonomic institutions have their policy to promote the creative culture in the field of innovation process. An university is involved in education, creating a system of graduating for students, a system of generating and capitalizing the IP categories (especially inventions), creating a distinctive group of specialists (counsellors, evaluators), specific policies and practices concerning assignment, licensing, know-how, and keeping them private advertising, relations and exchanges with potential partners in the industrial field, special relations with organisms specialized in the field (OSIM, ORDA, CCIA). IP strategy in universities and R&D units is an essential component of general business strategy, being necessary the innovative creation promotion, protection and commercialisation of IPR in new products. For Romania is important that universities and R&D institutes must become key generators of IP capital activies. Paper presents also prejudice and frequent antagonist reactions, solutions funded, 10 questions about IP strategy, IP culture developed in universities, and a situation of IP in Transilvania University of Brașov-Romania.

Keywords—education, intellectual propriety, methodology, strategy.

I. INTRODUCTION

The role of promotion the problem of IP to those who are working in the field of innovative products: students, teachers, researchers a.s.o. is primordial. In the last years the number of patents, number of demands of patents, number of trade marks, industrial models, is not at a high level in all Romanian universities, sometimes because of taxes (the cost of protection, maintenance), sometimes of misunderstanding the importance of this activity. There are universities in which the IP problem is not included in “Research time-sheet”, or the number of credit points is insignificant, reporting to, let’s say, an international scientific article, published in a conference [19].

This is the reason to establish a methodology to stimulate the protection of innovative parts of scientific research. This methodology must be establishing in some significant universities and extended at national level (if possible, because of autonomy).

II. COORDINATES OF THE UNIVERSITY POLICY IN THE FIELD OF INTELLECTUAL PROPRIETY

For a technical university the main coordinates/ objectives are:
- Enhancing personal creation (especially regarding industrial property)
- Knowing and observing IP rights (especially regarding literary-artistic and scientific property - copyright)

Operational systems (instruments) are presented in fig.1.

A good approach could be efficient since the methods, work instruments, procedures, and methodologies contained in the guide would come from “inside” the university, being approved by at least a part of the academic community. The experience accumulated in those universities centres (see fig.2) which developed an IP culture can be generalized at national level [18].

For such an intersession to be successful the support of the universities’ management policy is necessary. Previous experience proved that when for instance the university rector himself was an inventor, the opinion of the academic community about IP changed. However, a fundamental change in the long and short term policy of the university can only be made, according to the institutional law of the university, with the initiative of the leading board.

III. ABOUT IP STRATEGY

IP strategy in universities and R&D units is an essential component of general business strategy, being necessary the innovative creation promotion, protection and commercialisation of IPR in new products [6], [7].

For Romania is important that universities and R&D institutes must become key generators of IP capital activies.

The factors involved in this activity are:
- teachers and researchers;
- doctoral, students from the last years, or generally students;
- sponsors;
- technological transfer units (TT);
- O.P.I.;
- National Council of SMSs and companies;
- Commerce and Industry Chambers etc.

Sometimes there are confliction interests between these actors, so IP strategy must harmonises the interest of all factors from universities and research institutes.
**Fig. 1. Operational systems used in IP studies [5], [13]**

**SYSTEM OF GUARANTEEING INTELLECTUAL PROPERTY CULTURE:**
- Fundamental education (Bachelor’s Degree) and specialty education (Master Degree) for knowing IP
- Operatively informing about IP or regarding IP good practices

**SYSTEM OF GENERATING AND CAPITALIZING THE IP CATEGORIES (ESPECIALLY INVENTIONS):**
- Internal procedures regarding the stimulation of IP categories achievement
- Creating a distinctive group of specialists (counsellors, evaluators)
- Internal procedures of self-evaluation, selection and capitalization of IP categories

**SYSTEM OF IP EVALUATION AND ENHANCEMENT:**
- Specific policies and practices concerning assignment, licensing, know-how, and keeping them private
- Advertising, relations and exchanges with potential partners in the industrial field
- Special relations with organisms specialized in the field (OSIM, ORDA, CCIA,...)

**FEEDBACK**
Increasing the university’s ability to provide superior qualifications adapted to the changing requirements of the work market

**UNIVERSITY**

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**Target group:** teachers, students, academic and administrative leading structures, The Commission/Subcommissions of Evaluation and Quality Assurance at University/Faculty Level, The Department of Evaluation and Quality Assurance, Didactic/Professional Commissions at Faculty Council Level

**WORK MARKET**
Implementing the national system of university qualifications. Improving Bachelor and Masterate programs according to the National Framework of Higher Education Qualification

**Graduates**
(skills, abilities, attitudes, values)

**Feedback**
Increasing the university’s ability to provide superior qualifications adapted to the changing requirements of the work market

**Developing and providing training programs for the higher education staff** (intellectual property, technical creativity)

**Elaborating / updating / reviewing / testing / implementing / transposing methodologies, instruments, procedures and mechanisms of Quality Management and Assurance, at university level**

**Fig. 2. Systemic approach in technical universities [5]**
IV. OBJECTIVES OF IP STRATEGY

IP strategy, based on factors presented above means:
• Towardly frame work for dissemination of the new knowledge in public benefice.
• Fairly distribution of the financial benefit or other benefits as result of commercialisation of the innovative product, taking into account inventor’s contribution, but in the same time, the institution contribution (university, research institute).
• Promotion, encouraging and supporting the scientific research.
• Students attract to IP and young creativity stimulation.
• Creation of stimulus for researchers and reward intellectual propriety assurance.

The are some suggestions [10], [13] concerning several steps that should be made in order to create an IP culture and to integrate IP in various faculties, and especially in science, engineering and business faculties (entrepreneurship, innovation management):
1) Studying the level of IP culture development in universities, by identifying the following indicators:
   – disciplines that discuss the IP issue (inclusively and exclusively);
   – number of university teachers qualified in IP;
   – number of students instructed about IP in one year;
   – elaborated didactic aids of the field;
   – post-university courses etc.;
2) Systematizing information about the state of IP culture in Romanian universities.
3) Establishing Romanian successful practices in the field;
4) Studying the level of IP culture development in various European universities;
5) Systematizing information about IP culture development in various European universities. Establishing European successful practices in the field;
6) Elaborating a guide of successful practices for IP culture development in Romanian universities;
7) Disseminating the guide of successful practices to Romanian universities;
8) Establishing a methodology of periodical actualization of the successful practice guide.

We consider that such an approach could be efficient since the methods, work instruments, procedures, and methodologies contained in the guide would come from “inside” the university, being approved by at least a part of the academic community. The experience accumulated in those small centers which developed an IP culture can be generalized at national level.

For such an intersession to be successful the support of the universities’ management policy is necessary. Previous experience proved that when for instance the university rector himself was an inventor, the opinion of the academic community about IP changed. However, a fundamental change in the long and short term policy of the university can only be made, according to the institutional law of the university, with the initiative of the leading board. Technical universities have an advantage from this respect since it often happens that the chair belongs to inventor-professors. This is one way for Romania to raise awareness about the importance of teaching IP to the teaching staff within various faculties.

V. PREJUDICE AND FREQUENT ANTAGONIST REACTIONS

A lot of scientists associate IPR with juridical sciences and copyright. They can not see the relevance of IP in their research activities. Most of this, some of them consider this action as an activity to obtain the control to their intellectual propriety. It is not good seen the publication of research results, because it is possible to assume patentability by invention divulgation.

It is an adverse reaction in the field of taxes, considering that the level of them is a little bit too high. Sometimes when the research team is numerous, with effective multiple participation in the elaboration process of innovative ideas, proposed for protection, are difficult to establish who the holder is, from here on discuss about the repartition of the benefits realised after the technological transfer and not at least appears interest conflicts.

VI. SOME SOLUTIONS TO THESE REACTIONS

Evidently there are antagonist known reactions, but it is very simple to find solutions, being a innovation management of negotiation. An important factor is communication: meetings and debates with teachers from different faculties, students, doctoral, and also all researchers involved.

In this way choosing the right team and the best lieder to elaborate the IP strategy is a good solution and viable. These lieder must have all the team support, also the support of the head of the faculty university, research institute. Sometimes in team is necessary to include specialists, experts from outside.

A good attention must be accorded understanding the specific conditions for each entity and adoption of a juridical accessible language, in most of the cases this juridical language discouraging the scientist.

Strategically IP project must be discussed to all levels, from top to bottom.

VII. 10 QUESTIONS ABOUT IP STRATEGY

IP strategy embraced by the team research members must be able to find responses to questions like:
1. Who is the holder of IPR generate by the research using governmental founds?
2. How will be distribute benefits resulted from the commercialisation of IP between researchers/ inventors, department, institutes, financing team?
3. It exists law regulations about commercialization of IP resulted as research, using government founds?
4. Who is the IPR holder in the case of researches based on private founds?
5. There are utilised “spin-off” companies or licensing contracts for the technological transfer (T.T.) to the private
sector, in the way of commercialisation?

6. Who is the administrator of IP actives, including licence negotiations and royalty repartition?

7. How encourage institution the commercialization of research results using entrepreneurial activity?

8. Which payment founds are for the maintenance costs?

9. What is the position of researchers vs a divulgation of a secret?

10. How are resolved interest conflicts between didactic responsibility and research projects having a commercial character?

Often, a lot of products reface having an innovative character passed; responsibility is at the absence of IP knowledge, the absence of IP specialists, and the institutional frame work, like Technological Management Offices, IP Departments in universities and research institutes. It is necessary to develop an administrative structure (service, office, department, etc.) or involving a person, a specialist in IPR, attested, certified by OSIM.

This structure, subordinate directly to administration/board (rector/senate, technical or scientifically director, or to technical- scientifically council etc.) is recommended to have an jurist (for contracts, legal dispute, juridical actions etc.) and a specialist for the documents evidence, phases of patents applications, demands of patents, obtained patents, profit obtained, taxes payment, royalty paid to authors, contracts evidence and offers for works who doesn’t need university studies.

The department administration depends on institute dimension, financial resources and managerial politics, general or sectorial on IP. SMSs and little entrepreneurs or inventors can access services offered by authorised counsellors in IP.

VIII. UNIVERSITY POLITICS

There are, as proposal, some operational systems like [10]:

- An IP culture assurance system (education, good practice, operative information);
- An evaluation system (procedures, methods, specialists);
- A capitalization system (rules, patents department, IP department);
- An evaluation system (essions, licensing, know-how).

IX. IP CULTURE DEVELOPED IN UNIVERSITIES

Some activities, as proposal, are [11]:

- Information’s systematisation about the IP culture stage in Romanian universities;
- Establishing successful Romanian practices in IP;
- Developing an IP cultural level study in different European universities;
- Establishing European successful practices in IP;
- A good practice guide to develop IP culture in Romanian universities;
- Guide dissemination in Romanian universities;
- Establishing a methodology for periodical actualization of the good practice guide.

As result, IP culture developed in universities can be expressed and evaluate by identifying some indicators:

- Number of disciplines who debated IP topic (implicit and explicit);
- Number of IP specialised teachers;
- Number of students trained by year in IP;
- Number of elaborated in IP didactical works;
- Number of courses postgraduate etc.

X. IP IN TRANSILVANIA UNIVERSITY OF BRAȘOV

Transilvania University of Brașov had an Invention Department in its structure ever since its foundation. Starting with 2007 it became the Department of Legislation and Intellectual Property (DIP).

Taking into account the major importance of industrial property protection to economy and the necessity of competitive information management in the IP field, DIP focuses on IP promotion by developing a service system that offers useful information regarding industrial/ intellectual property protection. DIP performs activities of didactic staff training and scientific research, and student training concerning activities of patenting and/or artistic creation protection, and also concerning documentation in the field of IP protection.

This Department has its own headquarters, equipped with all necessary office facilities and a staff. The department consists of two sections:

- Intellectual Property:
- Legislation and Permanent Development.

The department is assisted by a Scientific Council consisting of teachers, researchers, specialists in the main IP scientific fields, technical science and technologies, modern art, natural sciences, legislative sciences, etc. The role of this Scientific Council is to analyze intellectual property objects (intellectual creations) and industrial property objects, which are liable to be protected by copyright laws or IP rights, according to the law. This council also has to offer counselling regarding the opportunity of requesting protection.

Transilvania University of Brașov founded, in 1993, “The Centre of Technologies, Inventors, and Business (C.T.I.B.) S.A.”, which activates mainly as an interface between the university and the business environment, on three dimensions:

a. Micro-production and technology transfer:
   - Creating prototypes and experimental models resulted from scientific research papers;
   - Transferring technologies from the university to the business environment;

b. Inventors – encouraging students, researchers, and teachers and supporting innovative activities in the university environment;

c. Supporting entrepreneurial initiatives of student- innovators through activities specific to business incubators. C.T.I.B., through its Inventors Department, has had, since 2000, the status of Regional OSIM- PATLIB Centre focused on Industrial Property Promotion, disposing
of engineers and consultant lawyers specialized in industrial property and certified by OSIM.

During the first year of activity (2008), the Department registered 38 patent applications from Transilvania University of Brașov, the authors being: teachers, doctoral students, and students involved in scientific research activities.

Within Technical Faculties, the study programs of the 2nd and 3rd years of study include courses and seminars about Intellectual Property- identifying IP objects, ways to protect and enhance them. Within the faculty of Product Design and Robotics, the disciplines Invent, Fundamentals of Technical Creation and Creativity Techniques and Methods, include chapters on IP.

The Faculty of Law has a course of Intellectual Property Rights, while the Master Degree programs include themes in the field of IP.

The Doctoral School holds an Intellectual Property Course with the following chapter-themes: Legislation in the field of Intellectual Property; Identifying Intellectual Property Objectives; Documentary Researches in Databases related to Industrial Property Objects; Patent Applications and How to Describe a Patent, Ways to Evaluate and Enhance Inventions.

The IP Department has the following strategic objectives:
1. Annually attracting to the University and forwarding to OSIM a number of minimum 20 patent applications;
2. Enhancing the obtained patents (starting with 2010);
3. Training for the patent implementation at the interested firms;
4. Contacting firms known as producers of tools/devices similar to the patented ones;
5. Training activities in the field of patenting and IP in all university departments, concentrating on training and promotion activities for senior, Master and Doctorate students;
6. Displaying the obtained results and the semi annual updates on the university website;
7. Quarterly dissemination activities of updated results within the IP Department;
8. According to the type of patent, achieving prototypes and contributing with them at profile exhibitions with the purpose of patent enhancement;
9. Starting 2010, editing a magazine centred on Inventors related activities.

Transilvania University activates in an environment with a powerful tradition and experience in the technical field, and the current challenge is to manage to permanently update information and keep the high standard imposed by the rhythm of technical evolution.

In 2006 it was realized a Technological and Business Incubator “Products and Technologies for sustainable Energy” ITA Pro-Energ, which, as entity, cooperate with the economical structures in the region, develop the IP spirit in the young students and beginners/ start-uppers. In this way the Incubator is involved in a lot of projects, having as target to support the innovative initiative of the young researchers (RECPIN, EENet, BISNet, RO-SMEP a.s.o.), and take part to the most important exhibitions, technical forums (Hanovra Messe, TIB).

Technical universities have an advantage from this respect since it often happens that the chair belongs to inventor-professors. This is one way for Romania to raise awareness about the importance of teaching IP to the teaching staff within various faculties.

Within the project, several professional training activities in the field of intellectual property were established for teachers. These teachers are to elaborate didactic aids, to lecture, and to develop IP in their faculties. The point is not to lecture IP to students, but to create that atmosphere which could lead to the insertion of chapters dealing with IP in as many university courses as possible.

The most important objective is to develop and provide training programs for the higher education staff. The training courses will be held by teachers from OSIM, from the field of quality and implementation of the National Framework of Qualification in Higher Education, with the members of the experts, and after that the teaching staff has abilities to teach students, doctoral, a.s.o. Also, the teaching staff will have the opportunity to attend courses displaying modern methods and techniques on teaching and learning, intellectual and industrial property, and technical creativity stimulation. Aspects considered will be, for example, developing teachers’ responsibility regarding the design of methods and student-centred learning environments, so that the student-teacher relationship is one of partnership, in which each is responsible for achieving the results of learning. Together with the implementation of new teaching methods and techniques, while revising educational plans and subject matter contents, activities of developing virtual teaching/ learning/ evaluation instruments will be financed within the project.

XI. CONCLUSIONS

As we can see there are some difficulties in the way of protection the innovative creation in universities or R&D institutes. Studies made in the last 2-3 years lead to elaborate a strategy to stimulate and award the creative spirit of researchers. These studies give us a possibility to find and define a method to separate innovative work as service duty and innovation after service.

A good approach could be efficient since the methods, work instruments, procedures, and methodologies contained in the guide would come from “inside” the university, being approved by at least a part of the academic community. The experience accumulated in those universities centres (see fig.2) which developed an IP culture can be generalized at national level. These extensions of good practice from some universities at national level impose to realize a Guide of good practice, including: elements of IP, regulations/protection by law, description of documentation, stimulation and awareness methodology, service invention, copy-right law, patents, utility models, design, trade mark, geographical points,
semiconductor products, models/study cases of introducing IPR in invention, arts, literature, music and medicine or pharmacy description a.s.o.

This Guide was realised in Transilvania University of Brașov and must be disseminate at national level. It is realised for students, doctoral, researchers, as a complete monograph.

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