UNAM project 511109-TEMPUS-1-2010-ES-JPGR

"Promoting the modernization and strengthening of institutional and financial autonomy in Southern Neighbouring Area higher education institutions"

Comparative analysis of financial management practices, Genova, 12-15 April 2011

Institutional awareness and social-economic environment

Monica Ballarini
Innovation and Technology Transfer Office

Summary

- The “third mission” of Universities
- Technology Transfer overview
- Innovation and Technology Transfer Office:
  - Project and activities
  - Intellectual property (rules and procedure)
  - Spin off (new internal regulation and procedure)

The “Third mission” of Universities

- As a strategic condition for competitive development, Technological innovation is today, with the transition from industrial based to a knowledge based society, no longer for only economic individual actors but for the entire system.
- The promotion, enhancement and dissemination of research and innovation for competitiveness are identified as strategic actions both at European and national levels.
- The development of the territory is therefore becoming the main target where both expertise and new opportunities point to .
- Contemporary, in the context of local development policies, the universities are called upon to perform some essential tasks, such as to ensure and promote the intellectual work for the production and transmission of knowledge. A role that becomes Mission and purpose, and is reflected in an active participation of institutions into development strategies within a territorial context in which they are operating.

The “Third mission” of Universities

- In the last decade the Institutional Mission entrusted to the University has expanded in such a way that to the teaching and research areas has been added, in accordance with European and U.S. models, the so-called "**third mission**" which involves interactions between universities and the society.
- The Universities have now the possibility to develop and transfer innovative technologies and solutions directly to local realities.
- Along with the traditional objectives of education and scientific research, therefore it has been given an increasing importance to the exploitation of the results of research activities in terms of industrial applications, using them as a source of self-financing.
- Due mainly to financial constraints and tight budget imposed by the central government policies in recent years, Universities have begun to find new financial resources in the exploitation of the results of its research activities through mechanisms and procedures ranging from patents and other legal means of protection, to the creation of spin-offs and collaborative research activities/contracts with private companies.

The “Third mission” of Universities

- The Universities have now created ad-hoc offices called “**Technology Transfer Offices**” (**TTO**) to provide and equip with the right tools teachers, researchers and entrepreneurs, such as facilities and legal support in starting-up their new businesses and exploiting the intellectual property/properties owned by them.
- The exploitation of research activities results through appropriate means and measures in the Italian universities began in the ‘90s, when some legislative measures led universities to invest in the promotion of relations with the industrial sector in order to create opportunities for commercial exploitation of research results. The fact is that, before 1985 there was no University directly involved in this field, with their own technology transfer offices.
- The scientific knowledge that Technology Transfer offices (TTO) transfer is an essential input for competitiveness of the economy and the development of local economies.
- By bringing the research activities and its results as close as possible to the market, we contribute concretely to ensure that such activities are useful not only from a scientific point of view, but also in a practical way for the development of the economy itself.

2010 three-year programme

- In base of three-year program schedule planned in 2010, which aimed to consolidate and improve the University of Genoa positioning for the allocation of ministerial funds in respect as well of its overall evaluation, the following targets have been identified :
  - To improve and establish new partnership both between University and industry based on innovation and technology transfer activities, and between University and various research institutes (IIT, CBA, CNR, IRCCS etc.).
  - To improve the participation in the local branches, and with the newly created branch of Marine Technologies called “Distretto DLTM”;
  - To define and update the internal regulation for spin offs and patents
  - To encourage and facilitate patent filing in order to increase the number of patents
  - To support the starting up of high-tech and innovative companies

The role of researchers

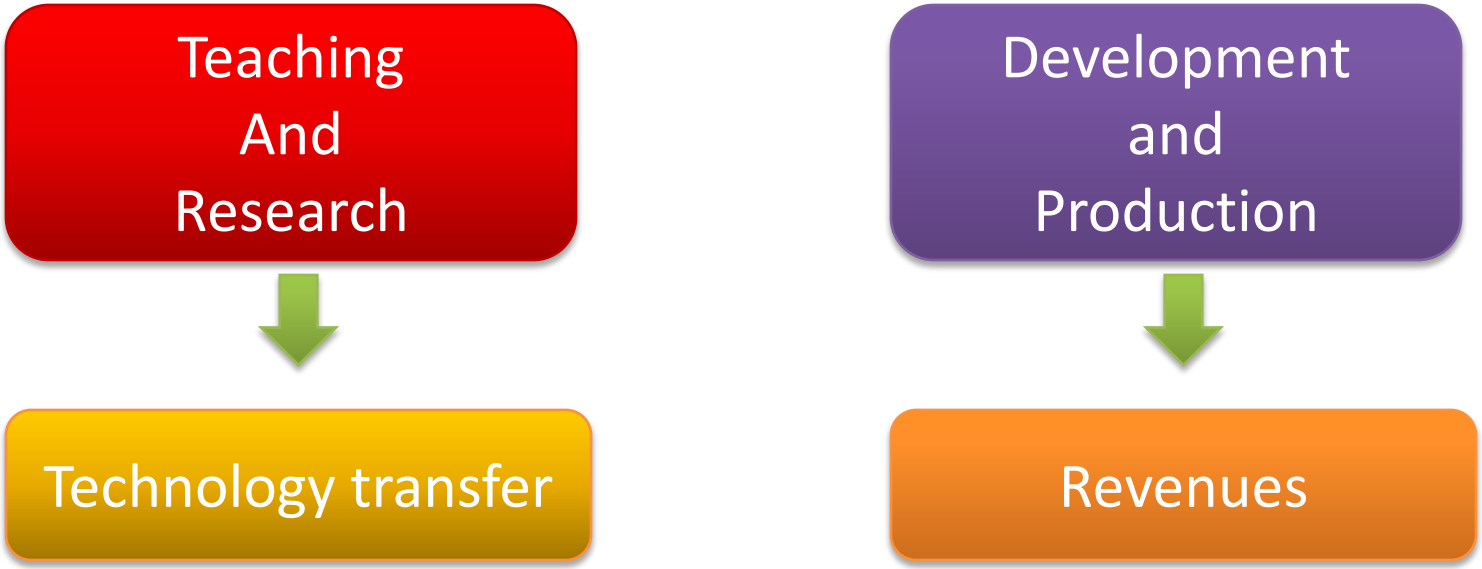
- Researchers must take greater responsibility in the exploitation of research results by implementing appropriate measures in cooperation with technology transfer offices

- Codified forms
  - License and assignments of patents
  - Industrial contracts (consultancy, research contracts

- Tacit forms
  - Spin off
  - Promotion
  - Joint research projects
  - Training

University and Industry

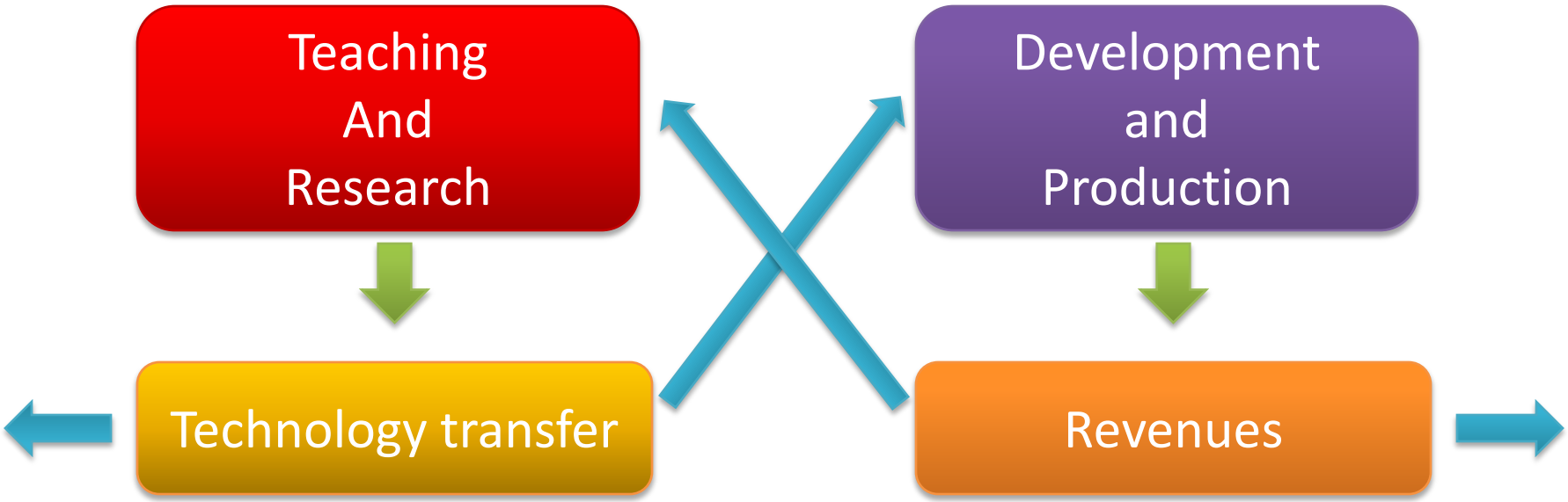
- University
- Industry



University and industry are not in competition

University and Industry

- University
- Industry



University and industry can join their efforts

Technology Transfer

- Technology transfer (TT) aims to transfer skills and products from research to industrial environment and it is carried out along two different paths:
  - Input from industry (market pull): attention is focused on the needs and technological requirements of enterprises, which constitute the input for the activation of a joint R & D projects between research groups which aim to solve specific needs of the company.
  - Input from research (technology push): products from research activities (inventions, patents, etc.) are transferred to the market. The TT, in this case, requires the identification and involvement of industry players interested in the acquisition of technologies developed, offering a "catalog of technology"

Technology Transfer is a process

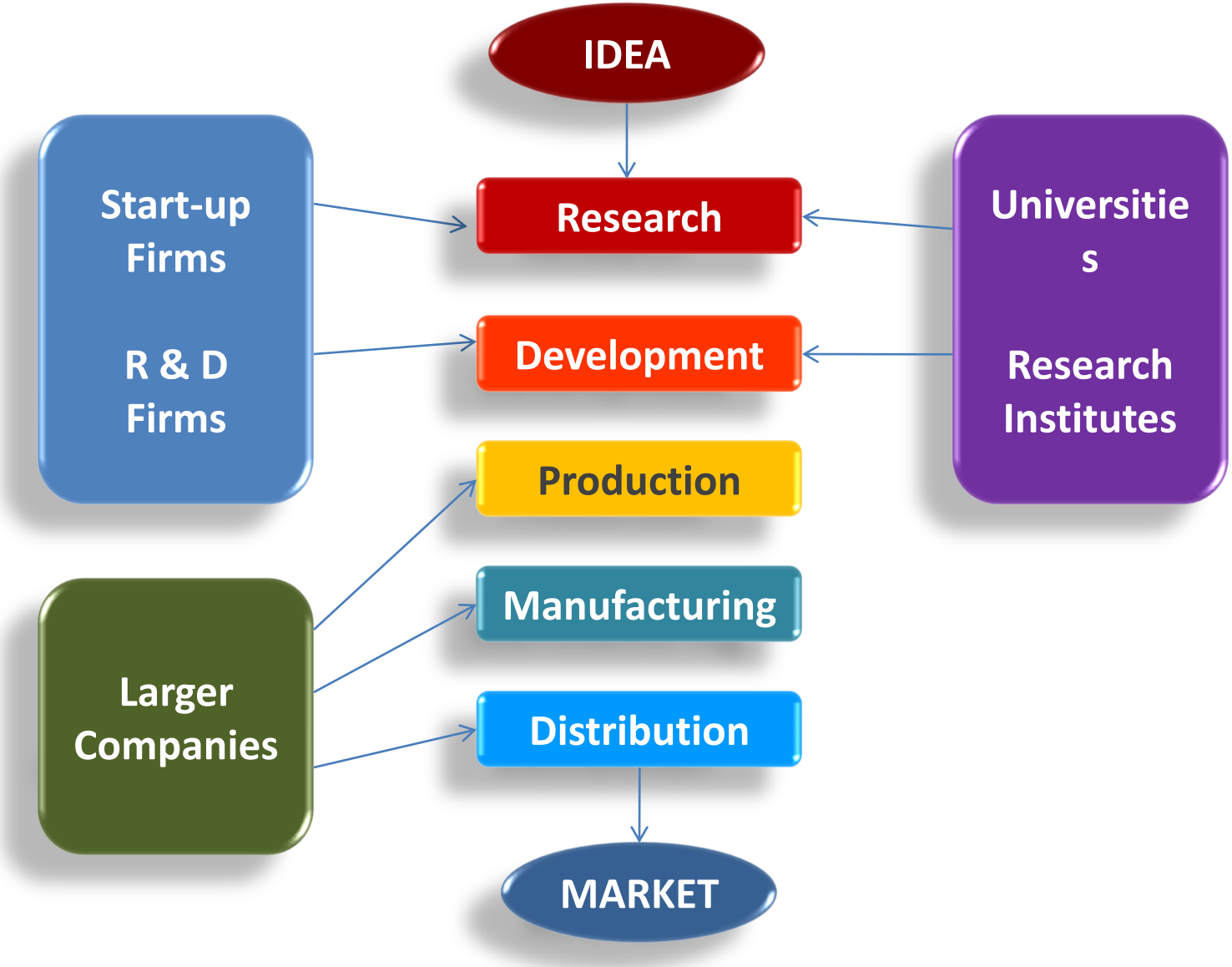
- TT is a process divided into several phases that can identify and add value to scientific research, increase the availability of skills and promote the research products to applications and markets where the impact of innovation is maximized.

- This process implies different activities other than research, which require specialized knowledge in the following areas : technical, economic, patent, industrial marketing, etc… This involves professionals dedicated and specialized in technology transfer management.

Where to enter the process of technology transfer?

- Universities and Research Institutes:
  - Mainly on the level of basic and applied research, and early stage development.

- Entrepreneurial companies:
  - Any stage from research and development to the market.



Innovation and Technology Transfer Office

- Relationship with the economic and industrial environment are established with :
  - BIC Liguria
  - Unioncamere
  - Chamber of Commerce
  - Confindustria

- The Thematic network have been created from local or european joint cooperation:
  - Netval
  - PROTON Europe

Thematic Networks

- Netval

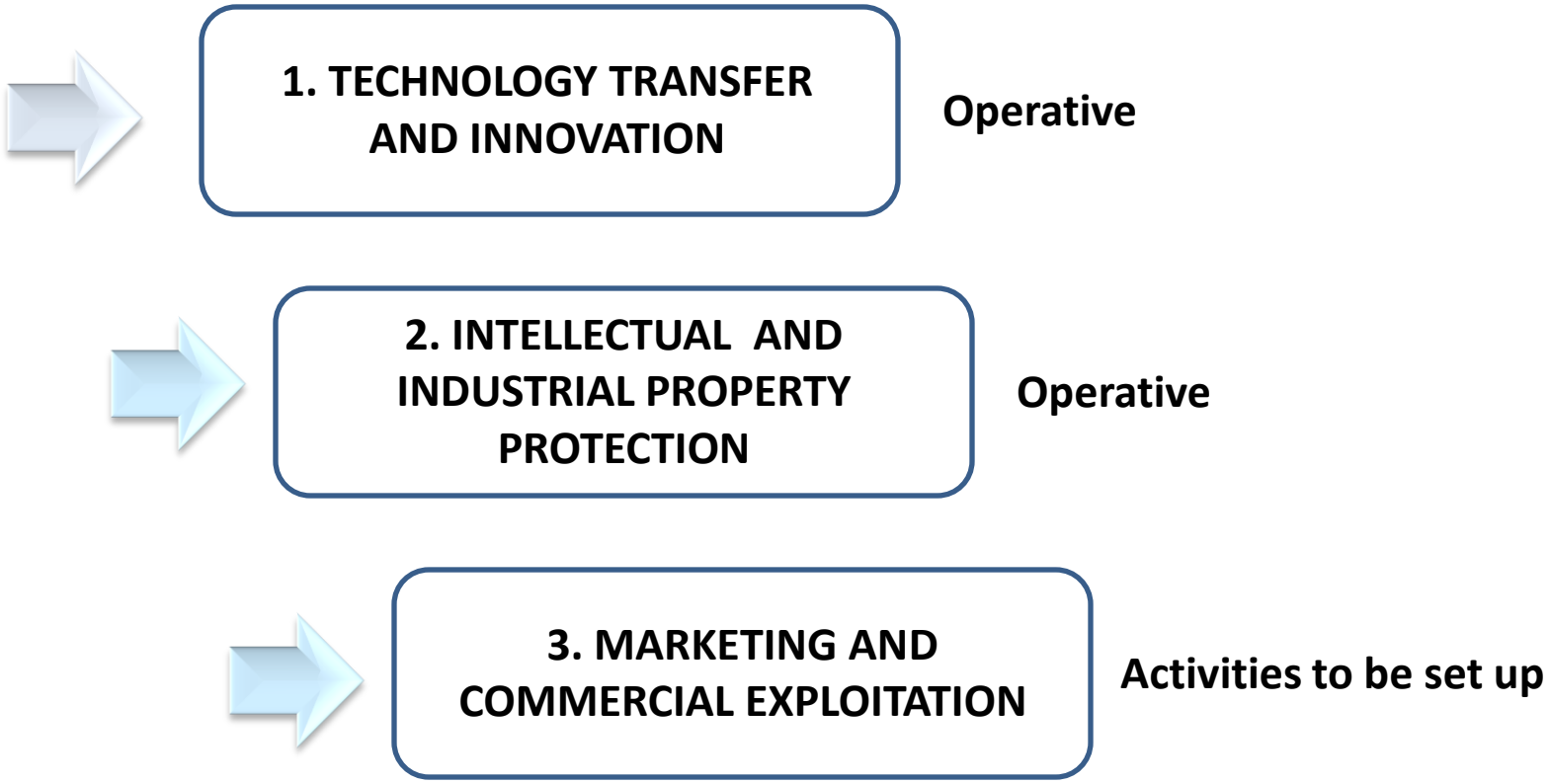
Netval is the association of Italian universities and public research institutions involved in the exploitation of research results through the network of technology transfer offices and collaboration with industrial and economic system, institutions, industry associations, venture capitalists and finance.

- ProTon Europe

ProTon Europe is the European network of technology transfer offices of universities and public research bodies. It aims to increase professional standards of those working in this field and to enhance the research results. Moreover it works to increase the exchange of knowledge and good practices among members and it is supported by the European Commission.

Innovation and Technology Transfer Office

- Organised into 3 main field of activities:



1. Technology Transfer and Innovation

- Recruitment, selection and promotion of information on technology transfer national and european funding calls to companies, collaborative projects between University and Industry
- Relationships with public and private bodies of the territorial, economic and social context
- Relationships and collaborations with Technological Districts
- Relationships and collaborations with thematic networks between Italian and European universities (Netval and Proton Europe)
- Support for the start up phase of high-tech and innovative companies
- Support for the start up phase and development of spin-off companies
- Management support for industrial research and technology transfer projects
- Administrative support to research laboratories (art. 14 of Ministerial Decree 593/2000)
- Activation and management of projects on Technology Transfer and Innovation
- Updating of the website of the “Ligurian technology window for companies” (Diogene – www. diogene.liguria.it)

1. Technology Transfer and Innovation

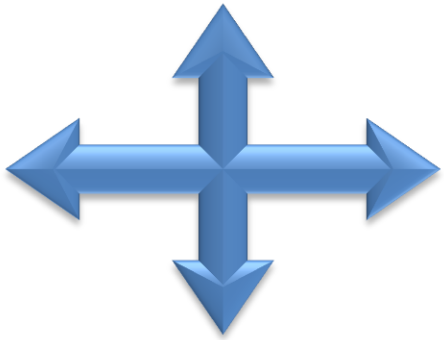
- Projects:
  - ILONet
  - UNITI
  - FIxO
- Italian Law 297/1999 and Ministerial Decree 593/2000
- Tecnological Branches (Distretti)
  - SIIT
  - DLTM

ILONET Project

Setting up of an international advanced ILO (industrial liaison office) network

University of Cagliari

University of Genova



University of Sassari

University of Milano Bicocca

FUNDING: Italian Ministry of Education, University and Research

ILONET Project

Setting up of an international advanced ILO (industrial liaison office) network

- GOALS
  - Qualify and strengthen relations between partner universities and the socio-economic system
  - Foster and strengthen the collaboration with private companies at a local, national and international level
  - Carry out a common platform and make services available for disseminating information on research proposals, scientific achievements, the accomplishment of joined projects between universities and companies

ILONET Project

Setting up of an international advanced ILO (industrial liaison office) network

- RESULTS
  - Now that the project is over, the ILOs - Industrial Liaison Offices established in the four partner universities will act as a tool useful to promote further developments of links university - enterprises. Their task is to strengthen the collaboration between university research and companies, at a local, national and international level.
  - To this aim, ILOs offer a set of consulting and support services to researchers, companies and other local socio-economic subjects.

UNI.T.I. Project

University, Technology Transfer, Companies

- PROMOTERS : University of Genova and BIC Liguria
- SUPPORTERS : Region Liguria, Provinces of Genova, Savona and Imperia, Chambers of Commerce, SPES, IPS, Promostudi
- LENGTH : 5 years
- FUNDING by the Italian Ministry of Economic Development
- GOALS : Carry out a path to support the creation of university spin-offs, in order to bring out the technologies developed by the universities and to promote the development of the Liguria territory through the creation of innovative hi-tech companies

UNI.T.I. Project

University, Technology Transfer, Companies

- RESULTS
  - From may 2008 to july 2010
    - Scouting
      No. 46 proposals submitted
      No. 19 proposals evaluated positively
      Training course for applicants
      Tutoring for the preparation of business plan
  - Up to now
    - Establishment of 16 companies with a variety of technologies and products offered, ranging between fields of engineering (transport logistics and freight systems, electrical insulation), the biomedical, monitoring and management of land and marine environment , preservation of cultural and treatment of language disorders.

- Official website of UNI.T.I. Project: http://www.progettouniti.it/

UNI.T.I. Project

University, Technology Transfer, Companies

- INNOVATIVE ASPECTS
  - Detection of technologies with commercial potential and evaluation of the business ideas.
  - Arrangement of spaces and services in 4 incubators, one for each province, dedicated to the start and the development of spin-offs.
  - International dimension of the project, also through the shadowing of an English university with a consolidated experience in starting spin-offs.
  - Creation of a fund for financial help to spin-offs participated by the supporting public bodies.

UNI.T.I. Project

University, Technology Transfer, Companies

- BENEFITS
  - Research results directed towards Liguria and its territory
  - In our region the great capability for research does not improve the local development. On the contrary, University of Genova exports technologies to other Italian regions or worldwide. That is why the project aims to create innovative opportunities at a local level by supporting new spin-off enterprises.
  - Promotion of economic and territorial development
  - Project based on a strong alliance between promoters (University of Genova and BIC Liguria) and supporting bodies (Region Liguria, Provinces of Genova, Savona and Imperia, Chambers of Commerce, SPES, IPS, Promostudi). This synergy has inspired the same acronym of the Project (UNI.T.I. in fact means “united”)
  - Creation of innovative companies in Liguria
  - The project aims to strengthen the bond between research and business, to disseminate an entrepreneurial culture that may increase and exploit the value of the professional skills of our researchers.

Some UNI.T.I. Spin off companies

FIxO – Training and Innovation for Placement

The project is promoted and supported by the Ministry of Labour and Social Affairs in collaboration with “Italia Lavoro”, and it aims to promote the development of an effective model of integration between universities and the productive system.

- The main goal is to network universities, companies, research system, regional and national development policies to facilitate and systematize the transition to the job market, to facilitate the transfer of technology and innovation, allow the economic/Industrial Italian system to compete with the challenges of the market.

- Main Activity
  - Coordination boards between Region and University in at least eleven regions, to design guidelines for the sustainability and consolidation of placement.
  - Support to placement offices and TTO for the realization of more than 550 project work for the development of research projects, technology transfer and innovation in small and medium enterprises.
  - Activation of 150 high-apprenticeship contract to attend First and Second Level Master courses.

Italian law 297/1999 and Ministerial Decree 593/2000

- The Italian law 297/1999 and Ministerial Decree 593/2000 regulates the overall "package" to facilitate companies to invest in research and development. The activities are related to industrial research and pre-competitive development and in particular:
  - Industrial research activities at national level carried out by enterprises in cooperation with the University
  - Training of researchers and research technicians working in the industrial field
  - Proposal to set up spin-off companies
  - Specific programming tasks (Distretti)
  - Facilitating the recruitment of qualified research personnel for research contracts, scholarships and research grants.

Siit

The Ligurian branch called “Technological Integrated Intelligent Systems” (SIIT) is a highly representative of all Ligurian realities operating under the most advanced technological research.

- SIIT is the first research institute that brings together major industry, small and medium enterprises and public research institutes to work on oriented programs, to work together on concrete projects, to have results that will become exploitable products within a year and a half - two years after the start of the project.
- In the new operational areas of the branch - which currently claims more than 100 associated companies other than the University of Genova and the National Research Council- which will host three cross-laboratories (Hardware Processes based technologies, Software Processes based technologies, Grid Computing), - the research activities will be developped on six technology platforms: security (by Elsag) mobile information (Selex Communication), automation (Selex Integrated Systems), complex organizations (Cetena), health (Esaote), energy (Ansaldo).

DLTM

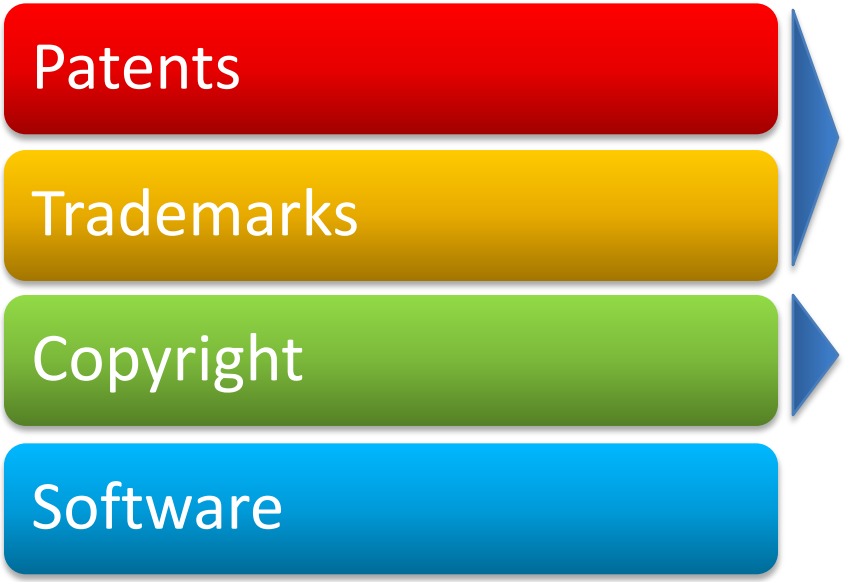
The Ligurian branch of Marine Technologies (DLTM) was born from the strong will of the local community to set up a collaboration between industry, research and administration, that from La Spezia covers the whole region of Liguria.

- DLTM sees the gathering and involvement of the largest industrial groups in Liguria and a consortium of more than 75 innovative SMEs, University of Genova and all public research institutions at the regional level, as well as an institutional representation. The DLTM is open to new local players who share the same goals. This collaboration is indeed constantly growing, with a significant increase (+20%) in the number of associates in the first year (July 2009-2010) and a strong consolidation of the shares (+40%).
- The DLTM works in line with the National Research Programme 2010-2012, as a significant economic and industrial actor in the research, innovation and training processes, capable of involving all the others in the governance processes for the development of an integrated plan at local and global level. It plays as well a role in the same areas with the aim to achieve a measurable impact in terms of growth of intangible heritage of the market.

2. Intellectual and Industrial Property Protection

- Administrative, technical and legal assistance to the filing of patent applications and extension (in Europe or Worldwide)
- Prior Art Search through patent databases to check the novelty of the inventions
- Definition and negotiation of contractual clauses concerning actions for the sale or licensing of patents
- Activities of drafting and negotiation of confidentiality agreements
- Information activities on copyright
- Consultancy and registration of trademarks
- Support, drafting and revision of clauses related to intellectual property in contracts with industry and National/European projects
- Identification of possible channels of public / private financing for the development of patents owned by the University
- Training and dissemination of the culture of intellectual property

Intellectual Property



(Industrial Property Code, Italian law 30/2005)

(Italian Law 633/1941)

What is a patent?

- A patent is a legal title which grants a temporary monopoly of exploitation and use of the invention in a defined territory and for a certain time period, to prevent others from making, selling or using the invention without permission.

- Invention means a **new** and **original** technical solution to a technical problem. It can refer to a product or a process (method, procedure)

What is a patent?

- A patent is the basic instrument to ensure first the protection and then the commercial exploitation of an innovative idea.
- It is both a technical and legal document and thus it has
  - a function of protection, by preventing the use of the invention by third parties, but also
  - an informative function, by disseminating a technical knowledge.
- A patent grants exclusive rights of production, trade, use, import and export in the territory in which it is valid.
- These rights may be sold, in whole or in part, or licensed in return for royalties, just as if they were movable goods.

What is a trademark?

- A trademark is any sign capable of being represented graphically, particularly words, including personal names, designs, letters, numbers, sounds, shape of a product or the packaging thereof, combinations or shades of color, provided they are capable of distinguishing the goods or services of a company from those of others.

- We have to distinguish between the non-trademark from the registered trademark which, pursuant to the registration process before the Italian Patent and Trademark Office (IPTO), have a stronger protection. The registration lasts for ten years from the date of filing, and may be renewed for further ten years.

What is copyright?
(Italian Law 633/1941)

- Copyright is the legal position of the author of an intellectual work to which the various national laws and international conventions (such as the Berne Convention) recognize the exclusive and original right of dissemination and exploitation.

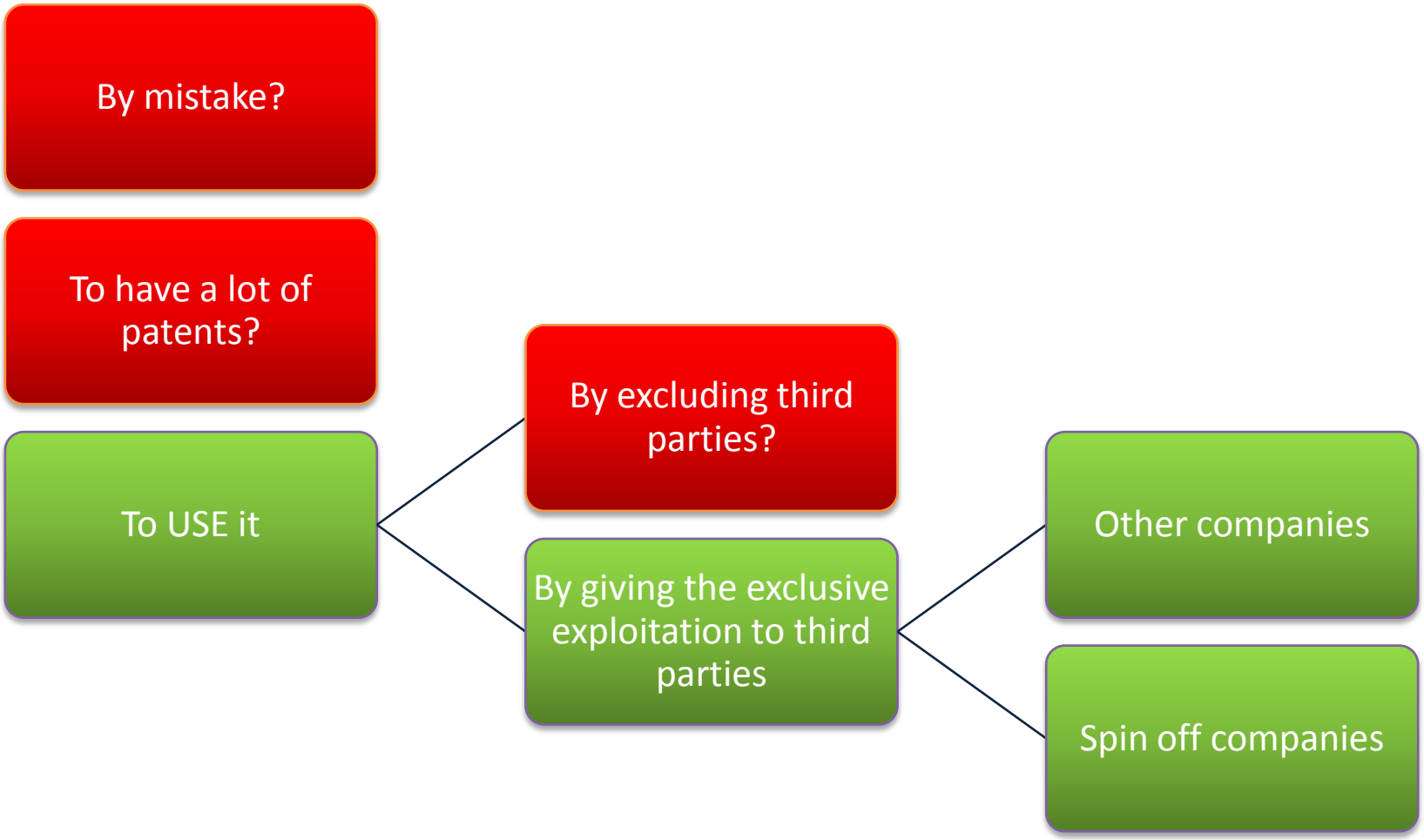
- Exploitation can be transferred to third parties (exclusive or non-exclusive license) but anyway the author retains the moral right to be identified as the author (the right to authorship)

- Copyright (that literally means the right to copy) is the set of regulations on copyright in force in Anglo-Saxon world and the U.S.. Over time, in Italy it has got a meaning near to indicate the "laws on copyright in force in Italy", while actually the italian copyright is different in several aspects.

… and software?

- Software is protected by the law on copyright as an intellectual work
- It is patentable:
  - In the U.S.: always
  - In Italy / Europe:
    - NO: if you consider the software as a mere compiled code (Article 45 Law 30/2005)
    - YES: if the program produces a “technical effect”.

Why should we file a patent?



Why should we file a patent?

A patent application filing creates:

MONOPOLY: to prevent the exploitation of the invention by third parties in a given territory and for a certain period of time

SOURCE OF INFORMATION: For further technical developments and new research in fields not yet explored

PROTECTION: Protection of the idea, but also investment in research and development

VALUE: asset value, bargaining power in licensing agreements, disposal etc. and complementary profit to traditional activities.

How to file a patent

- Understand why we file patents
- Make it clear to researchers (a patent is not a publication!)
- Have policies, procedures and tools (efficiency and effectiveness)
- Select the invention (technical and political skills)
- Commercialize inventions (marketing and negotiating skills)
- Defending the patent
- Have a budget for the first year (no direct returns in the short term)
  - Our University annually allocates a budget dedicated to activities related to intellectual property protection

Italian Law on patents

- Industrial Property Code (Italian Law N. 30/2005) as amended by Legislative Decree n. August 13, 2010, N. 131

- ART. 65 (Inventions of researchers in universities and public research institutions)
- **The researcher (an employee of a university or research body) owns the exclusive rights on his patentable invention. ("professor privilege")**
- It is an exception to the Italian legislation that establishes the ownership of an invention born during the employment relationship as belonging to the employer (and NOT to the employee).
- It is an exception also at a European level since in the legislation of any other European state : the rule is that the invention is owned by the employer even if the inventor is a researcher .
- In Italy, the researcher-inventor can file a patent application on his behalf and he must notify the filing to his administration.
- Otherwise, the researcher can decide to transfer the ownership of property rights to the University that will then become the patent holder, once deposited, but he always retains the moral right to be identified as inventor.

Filing a patent

- When inventions are born from research activities carried out by University employees during their working hours, using the facilities of the University and with financial resources of the University:
  - The inventor-researcher may file the patent application at his own name and expense, and notifies it to the University
  - The inventor may transfer the ownership to the University which obtain the right to file the patent application at its own name and expense, indicating the researcher as inventor

How to file a patent
University as applicant

- The inventor fills out the IDF ("Innovation disclosure form") to describe the invention (internal and confidential document)

- Our Office evaluates, through a search on patent databases, the fulfillment of the requirements for patentability:
  - Novelty (the invention must not be present in the state of the art)
  - Inventive step (the invention must not be "obvious" to an expert)
  - Industrial application

  IMPORTANT! The invention must not have been published or disseminated by other means (including a dissertation), otherwise there is lack of novelty and can not be patented

How to file a patent
University as applicant

- The “Patent and Spin Off Committee” of the University assesses the application and approves the filing
- The inventor fills out a form to transfer the ownership of the property rights to the University
- Our Office ask a cost estimation plan to at least three different patent attorneys and picks up the best quality-price offer, then writes down the necessary documentation
- The inventor will work with the selected patent attorney to prepare the patent application.
- After the filing our office, in collaboration with the patent attorney, will follow all the subsequent stages of the application.

The role of researchers

- The researchers have to:
  - Pay more attention to protect intellectual property rights
    - Check the requirements for patentability of an invention before publishing
  - Do not surrender all rights related to the research results to the committee in research contracts
  - Pay more attention to the disclosure of information to third parties by entering into appropriate confidentiality agreements during the research activities
  - Spend more efforts for the commercial exploitation

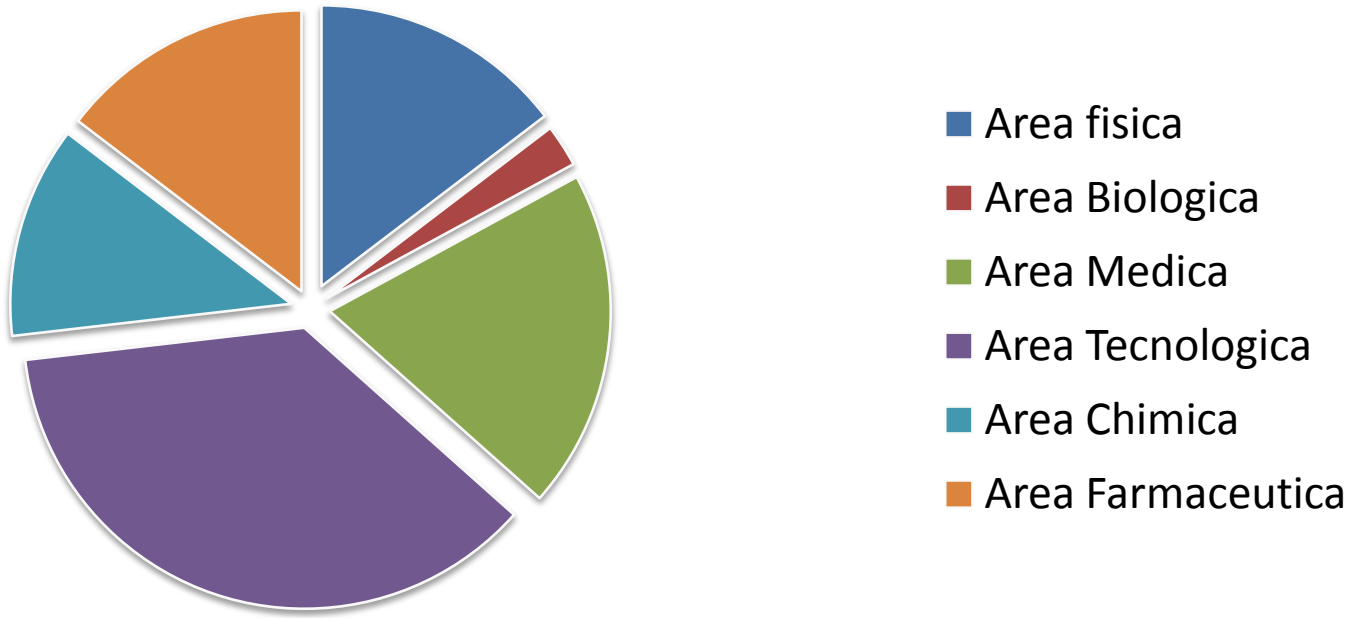
  ... In collaboration with our TTO

Best Practises for Patenting

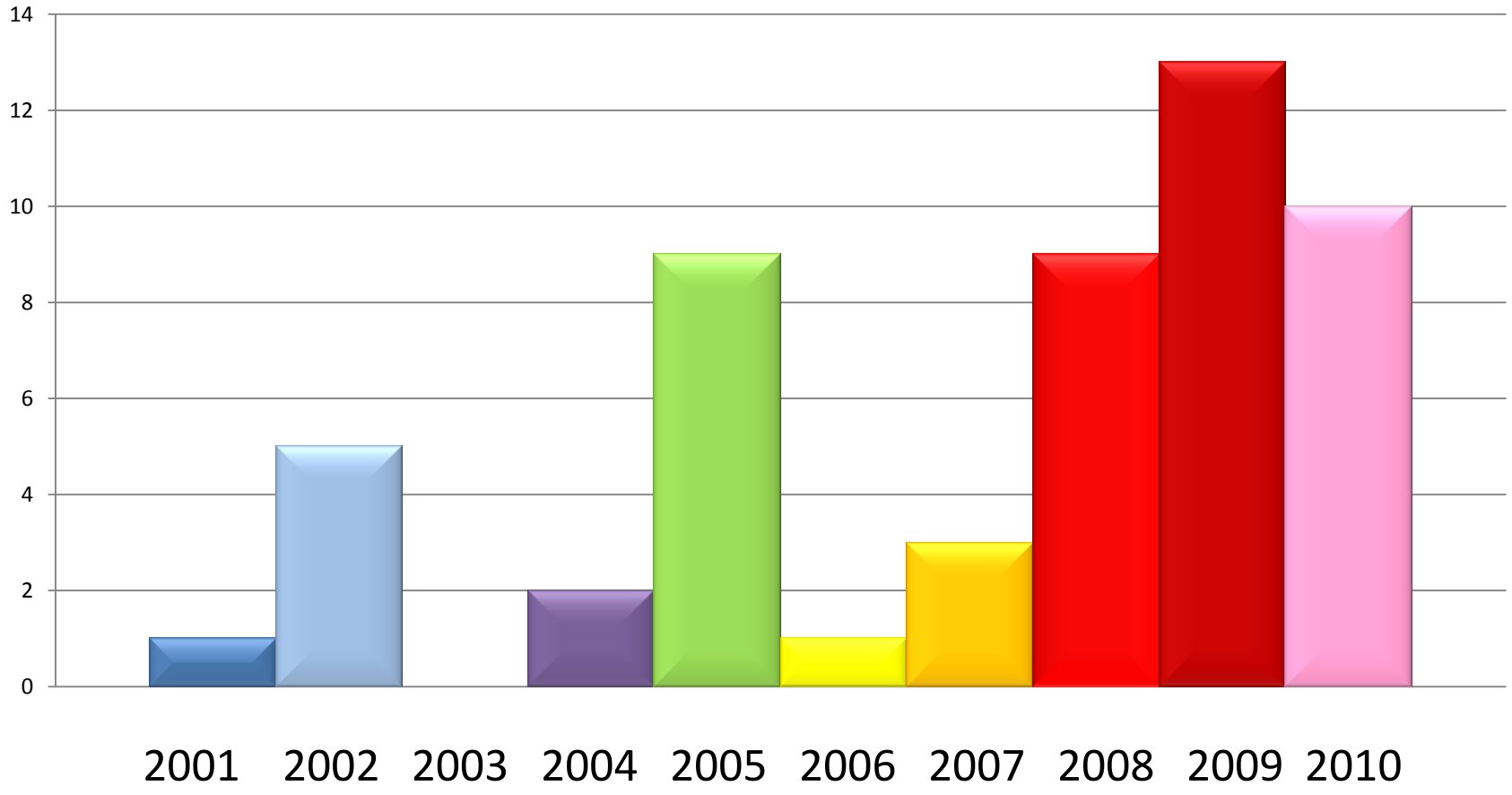
1. Avoid early public disclosure. File first, then disclose.
2. Do not publish interim results or speculate on broader applications of a discovery.
3. Do research on the commercial market and technical novelty of an invention before filing a patent application.
4. Consider the possibilities to license or develop an invention before filing.
5. File locally first. Drop international applications if there is no interest in development in a reasonable time.
6. Periodically clean out the patent portfolio as not to pay for non-productive patents.

Patent Portfolio

- University of Genova has the ownership of 43 patent application divided for thematic areas:



Patent filing 2001 - 2010



Our Trademarks

- Trademarks registered by University Of Genova
  - IRIS
  - Laboratorio in scatola (DIFI)
  - Genova University Press
  - Spin off dell'Università degli Studi di Genova (to be registered)

After filing: Patent License

- Define the licensed rights (What is the licensee getting?)
- Exclusivity
- Territory of use (geographic)
- Field-of-use (technological)
- Milestones toward commercialization
- Proofs of diligence by licensee in executing the license.
- Royalties and other payments
- Reimbursements

After filing: Patent License

- Rights to enhancements or improvements
- Rights to sublicense, assign
- **Related R&D contract**
- Post-licensing responsibilities
  - Conditions for termination
  - Infringement:
    responsibilities, obligations, benefits
  - Resolution of disputes between parties
  - Use of names

Living with a Licensee

- Managing the transfer of technology (e.g., a joint development project)
- Technical follow-up
- Payments, reports, etc. (“auditing” the diligence of the licensee)
- Infringements, disputes, etc.

Internal Regulations

- New Regulations for spin off companies of University of Genova (just approved)

- New Regulations for the intellectual property of University of Genova (still reviewed)

Rules to be fulfill to be considered a spin off company

- Should facilitate the transfer of research activities and its results
- Should Link with the university research activities
- Distinction between
  - Academic Spin-off:
    - The University does not have any share
    - Delivery of the trademark “Spin off of University of Genova”, only under application and approval by the University “Patent and Spin Off Committee”
    - A University employee (researcher, technician, administrative) or fellow student must have a share in the company
  - University spin-off:
    - University has a share in the company (maximum 15%):
    - application is examined by the “Patent and Spin Off Committee” and approved by the “administrative directorateboard” of the University.
    - A University employee (researcher, technician, administrative) must have a share in the company (NOT fellow student)

How to start up a University spin off

- The procedure to start up a University spin off company has the following phases:
- the applicationspin-off proposal , signed by a researcher or technician or administrative employee is sent to the TTO along with business plans, statutes, memorandum, details of shareholders and shares, description of the relationship with the research activity.
- The Department committee where the researcher works must state that there is no conflict of interests and the proposed activity must be inline with the research activity of the Department.
- The Patent and Spin Off Committee evaluates the spin-off proposal and sends its opinion to the administrative directorate board of the University.
- The administrative directorate board , after consulting with the Academic Senate, shall examine the documentation and decide whether or not to participate in the share capital of the spin-off. In case of a positive evaluation, the agreement is then signed by the University Chairman and shareholders, and finally, The company can be registered.
- At the end of each financial year, the University spin off companies are required to send copies of their financial statements, accompanied by the annual report and a report on their activities and prospectives of development.

How to start up an academic spin off

The accreditation of academic spin-offs is scheduled as follows:

- The request for accreditation to “academic spin-off”, signed by at least one researcher/ technical – administrative employee/fellow student, should be submitted to the TTO along with memorandum, statutes and shareholders' agreements, detailed report of the activity, the financial position of the company (including last budget, notes and management report) and the development prospects of the same, the social structure and the distribution of shares.
- The Department committee where the researcher works must give its consent to the accreditation process.
- The University Patent and Spin Off Committee will examine the documentation and give its feedback on the accreditation
- The trademark "Spin off of the University of Genova” is delivered to the company for three years.
- The Committee will review annually whether or not the conditions of accreditation are still valid.

Conclusion

- In the current economic environment, with a constant decrease in public funds allocated to research activities, research staff and committees should help find other funding sources, to ensure a high level of research activities and results.
- The technology transfer activities are not aimed to weaken the university system, but has got a two fold aspects : on one hand, to allow student and researchers to remain within their research field while interacting with the economic and industrial environment, on the other hand to find some extra funds that will help to improve their work
- Technology transfer and commercialization CAN be compatible with, and in fact enhance, the traditional missions and roles of a university or research institute.
- Technology transfer and commercialization requires a dedicated effort to be successful
- The processes of Technology transfer and commercialization imply different activities and specific skills and knowledge in the technical, economical, legal and marketing fields which often involve professionals.

European Commission
TEMPUS

UNAM

UNIVERSITÀ DEGLI STUDI
DI GENOVA

UNAM project 511109-TEMPUS-1-2010-ES-JPGR

Thank you for your attention!

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