ENHANCE Project – Strengthening National Research and Innovation Capacities in Vietnam

2nd Training Workshop: "Research Management"

Technology Transfer and its impact over Universities.

February 22th 2017
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TT Office and Research Management Service
Universidad de Alicante.

ENHANCE

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Universitat d'Alacant
Universidad de Alicante

Innovation Definition (TT)

Innovation Definitions:

Any different way of making things in the economic environment.	Schumpeter (1934)
Adoption of a new change for the enterprise and its environment.	Knight (1967)
Successful introduction in the market of a new idea, through the form of a product, a process, a service or organisation / management technique.	Pavón y Goodman (1976)
A behavioural change in the people as well as producers or consumers.	Drucker (1981)
Creation of a new product, process or service for a business or commercial unit.	Tushman y Nadler (1986)
Make or produce something that nobody has imagined yet.	Morcillo (1995)
Change or modifying something by introducing new features.	Real Academia de la Lengua (2001)
Implementation of a new or enhanced product, process, marketing or organisational system.	Manual de Oslo (2005)
Provide a different business model from the competitors in the market.	Gonzalez Alorda y Huete (2009)

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** Manual de Transferencia de Tecnología y Conocimiento – The Transfer Institute – Javier González Sabater.*

Technology Transfer Definition (TT)

- **In many cases, innovation is made through technology.**
- **Most of the time, this technology has not been developed by the same institution that makes the commercial use.**
- **We refer to the TT with many expressions and terms:**
  - **Technology transfer**
  - **Knowledge transfer**
  - **Technology cooperation**
  - **Purchase - Sale of Technology**
  - **Acquisition - Technology Granting**
  - **Import-Export Technology**
  - **Technology Alliance / Partnerships Etc.**

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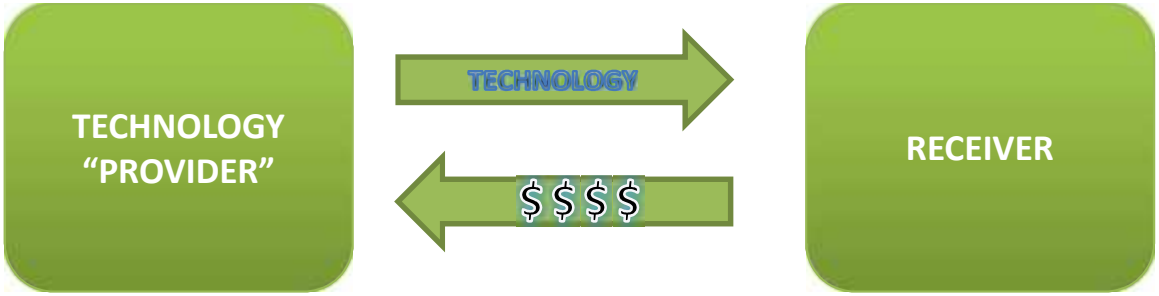
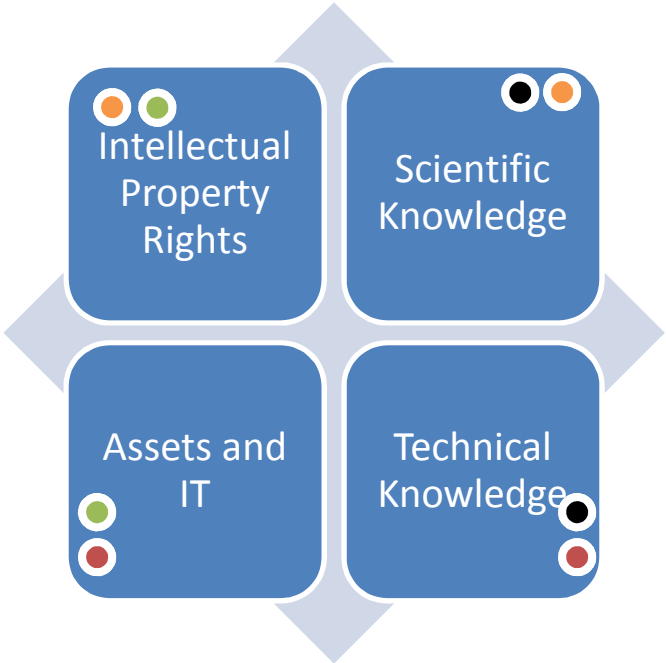
Technology Transfer Definition (TT)

DEFINITIONS TT	AUTHOR
The movement of technology and know-how between partners (individuals, organizations and enterprises), with the aim of improving at least the knowledge and skills of one of the partners and strengthening the market position and competitiveness of each partner.	Norman Abramson (1997)
Transmission - and sometimes creation - of technology with or without the simultaneous transmission of goods and services.	Echarri y Pendás (1999)
The movement of know-how, technological knowledge or technology from one organization to another.	Roessner (2000)
An agreement whereby a company licenses or acquires the intellectual property rights of other available enterprises in order to access a technology which necessary for product development.	Hidalgo et al. (2002)
Sales or concessions (made for profit), of a technology that should allow the holder or buyer to manufacture under the same conditions as the donor or seller.	Escorsa y Valls (2003)
Exchange of skills, knowledge, technology, manufacturing or service methods between governments and other institutions to ensure that scientific and technological advances are translated into new products, processes, applications, materials or services.	Wikipedia Technology Transfer (2009)
The provision of equipment and / or technology knowledge to a recipient organisation.	Surribas
Transfer of intellectual capital and know-how between organizations for the creation and development of commercially viable products and services.	Cotec (2003)
Management of the intellectual and industrial property of an organisation: identification, protection, exploitation and defense.	OCDE / EU Commision (2009)

Technology Transfer Definition (TT)



"Technological" Items



- Pre-commercial / development / uncertainty
- Visible and tangible
- Not visible but attainable
- Visible / Developed / Little uncertainty

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Objectives TT

For the developer (University / Research Center):

- Valorisation / Economic profitability of research efforts
- Market access
- Increased competitiveness
- Improvement of technologies or results developed
- Access to knowledge
- Access to infrastructures

For the receiver (Company):

- Increased competitiveness
- Access to knowledge
- Access to infrastructures
- Reduction of Technical failure risk
- Time reduction
- Reduction of research / innovation costs
- Economic profitability

TT Models Universities / Research Centres

- **Open Science Model: *(Know How – Services)***
  - R&D Under Contract ⇐ More passive
- **Innovation Model: *(Results)*** ⇐ More active
  - Cooperative R&D
  - Licenses
  - Spin Off

  Take legal framework into account.
- **Mix of both models**

EVOLUTION

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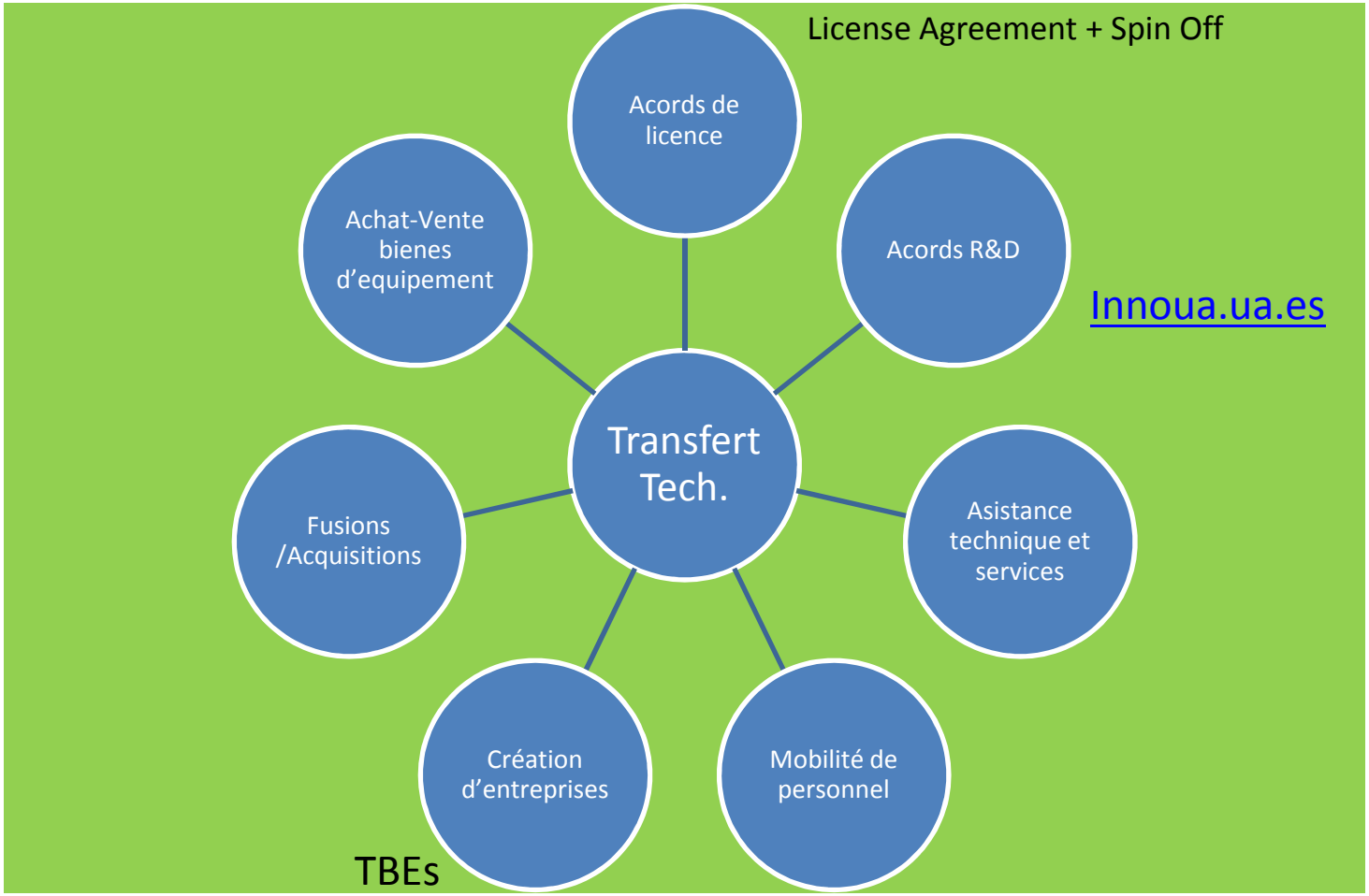
What is TT? – Types collaboration



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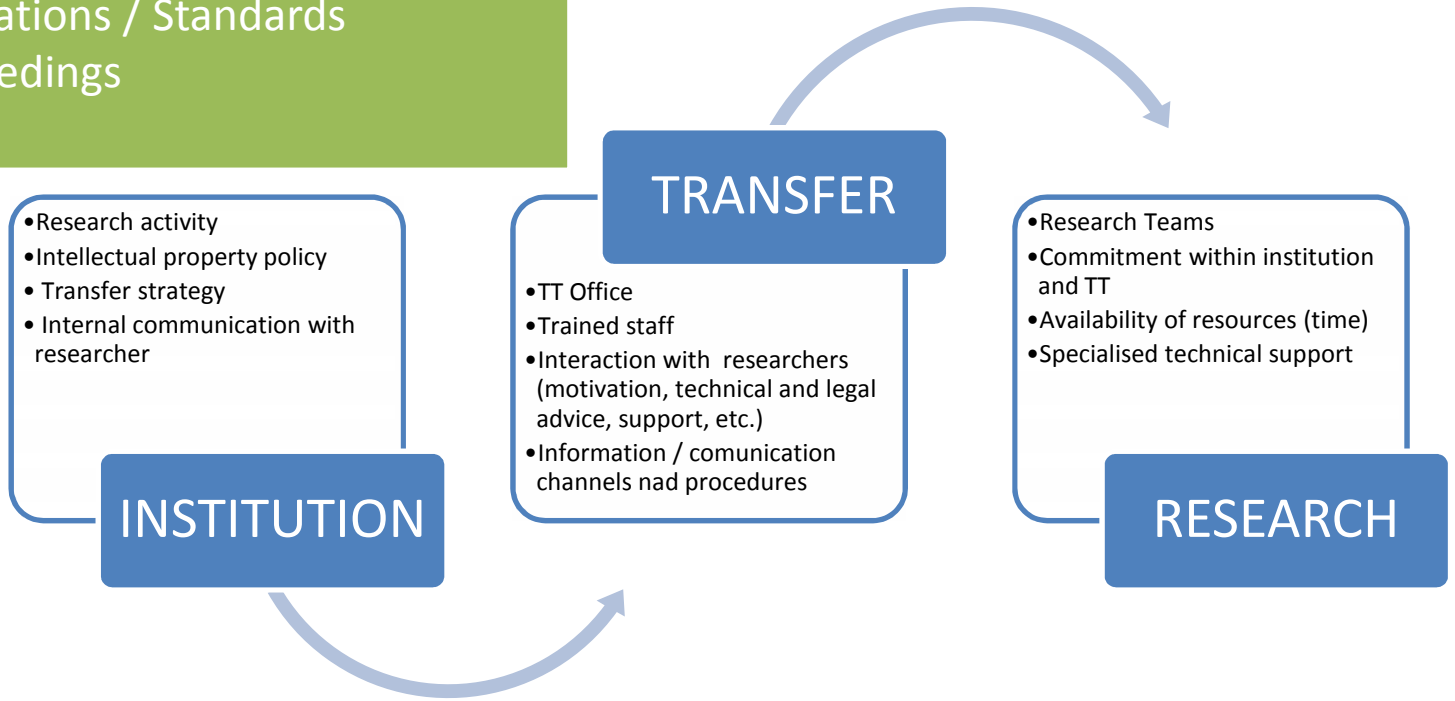
Integrating TT Tasks in the University

Adaptation of regulations and policies to Law / Legal Framework - (3 Missions)

Regulations / Standards
Proceedings

Integration of TT activities in the university organisation



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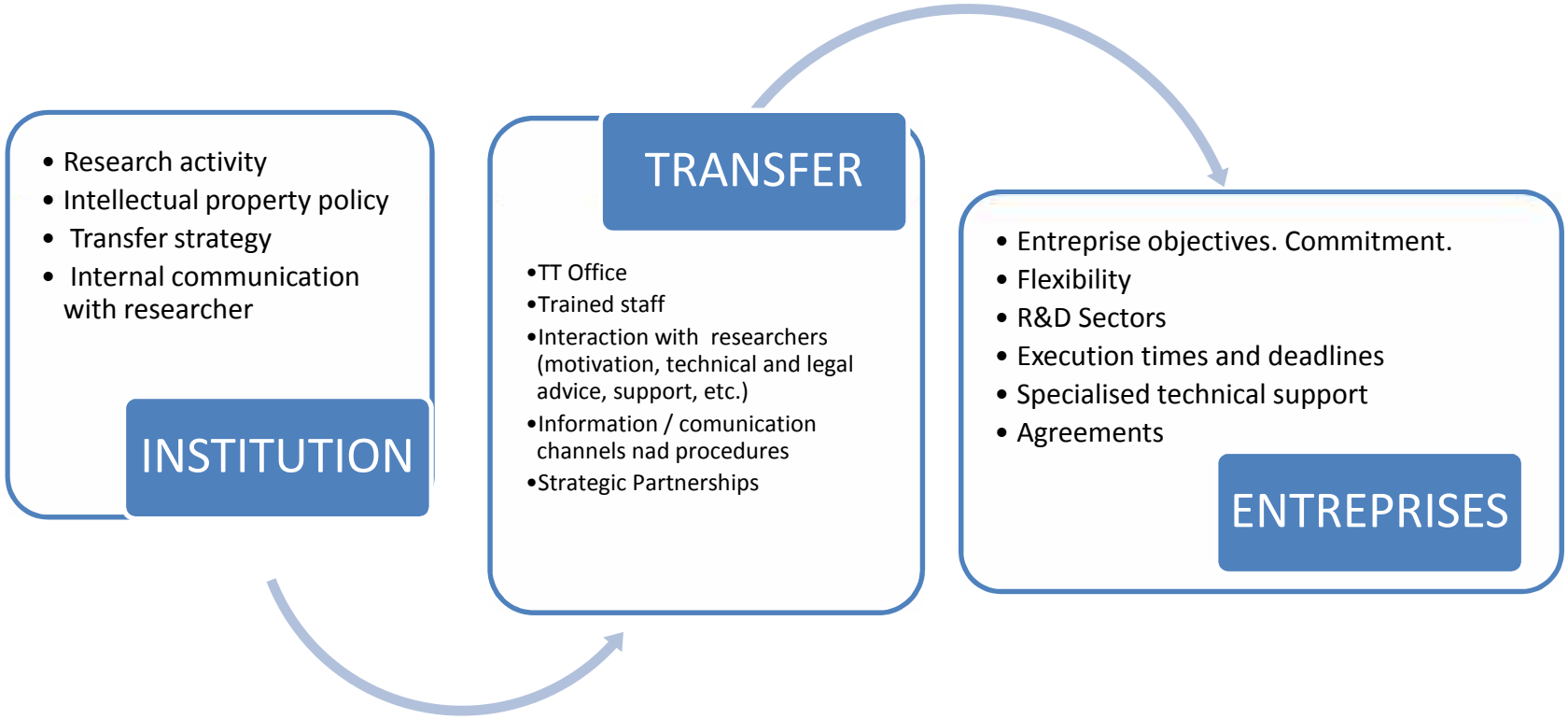
Integration Socio – Economic Environment



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Resources

- Cooperation with the economic management of projects and research
- Cooperation with IT central services at the University
- Cooperation with legal services at University.

-Specialisation:

  - Project management
  - Research Management
  - Fundraising
  - Marketing
  - Research
  - Technology transfer
  - Intellectual property
  - Business creation and entrepreneurship
  - Innovation
  - Taxation

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Structures TT - Models

-Structures “In house”

- Centralised – Central Service (Most common in Universities around the world)

- Decentralised
  - Polytechnic Schools
  - Faculties
  - Institutes
  - Departments (For instance Ireland, centres with specialised deparments, EEUU, etc.)

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Structures TT - Models

- "Outsourced"

  • Foundations (Examples in some spanish Universities like UB, UIB, URV, etc.)

  • Entreprises / Consultancies Technology Transfer (Examples Oxford, Cambridge, Imperial College, etc., UK)

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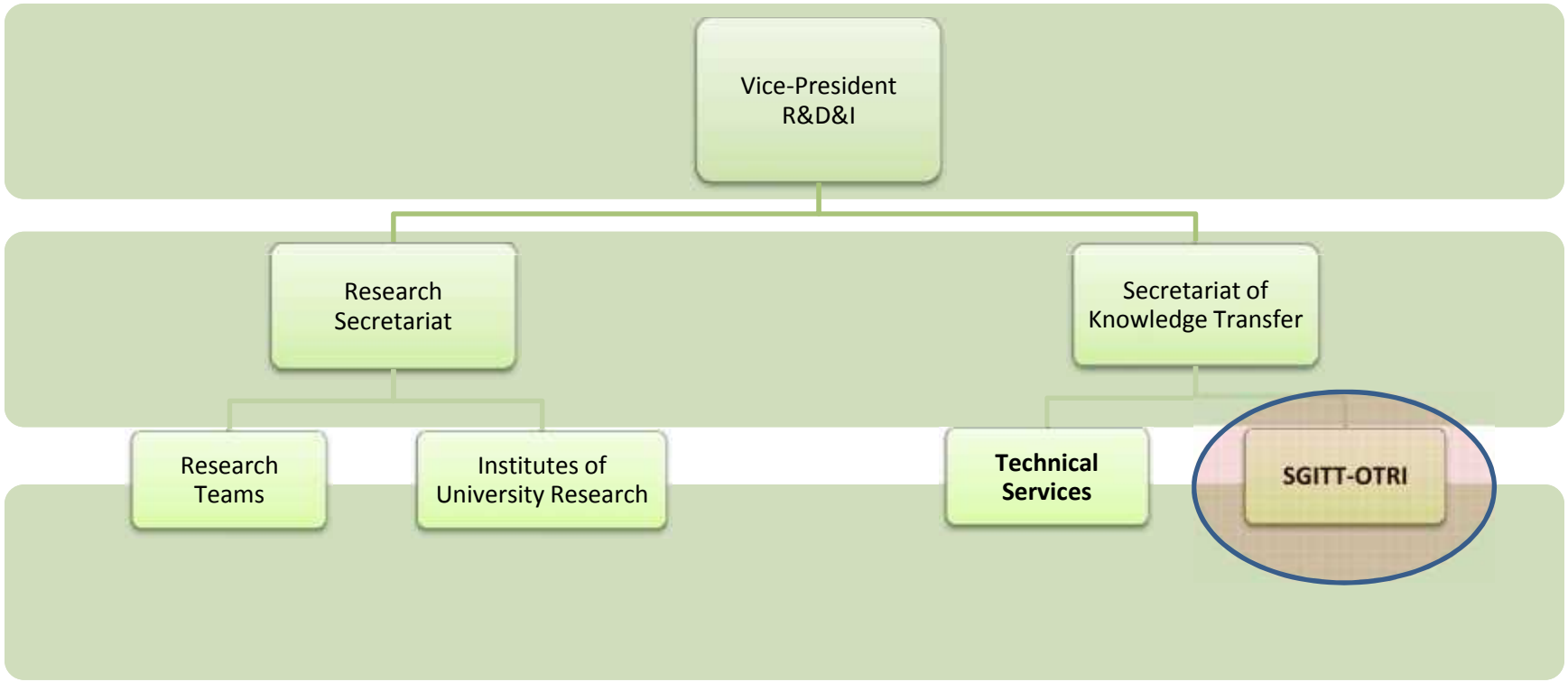
R&D&I Structure at UA- TT - Models



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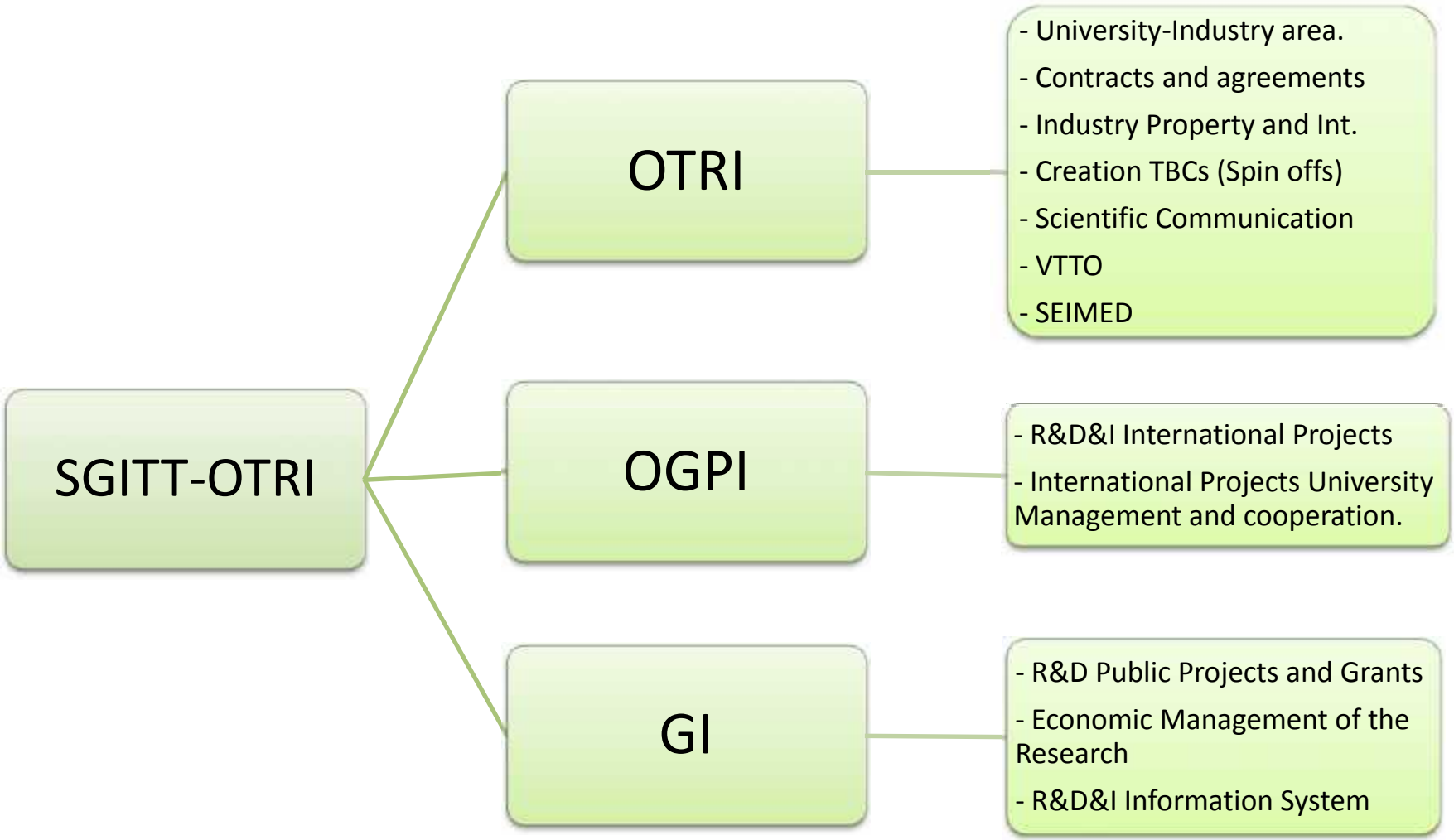
R&D&I Structure at UA- TT - Models



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TTO Services Chart

MISSION:

Our mission is to provide researchers and companies with proactive and efficient information and advice, in the field of knowledge transfer, by finding, increasing and optimising the resources allocated to them, increasing, as a result, the competitiveness of Companies and improve the quality of citizens

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TTO Services Chart

AREAS: UNIVERSITY-INDUSTRY RELATIONS AREA

• Identification and classification of the results and capacities of the research groups to configure the technological offer of the UA.

• Drafting, in collaboration with the researcher, the technological offers for dissemination through technology transfer channels.

• Promotion of the technology developed in the UA at national and international level.

• Advice to researchers in the selection of the best technology marketing strategy.

• Analysis of the technological needs of companies and other entities, to establish collaborations Universidad Empresa.

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TTO Services Chart

AREA: UNIVERSITY-INDUSTRY RELATIONS AREA (2)

- Advice to companies in the search of public funding for their R & D & I projects with the UA.

- Advice to researchers in the preparation of proposals within the framework of public funding programs to support collaborative University-Enterprise R & D.

- Negotiation and elaboration of collaboration agreements associated with public programs to support collaborative University-Enterprise R & D.

- Organization and attendance to forums, conferences and technology transfer events.

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TTO Services Chart

AREAS: R&D&i CONTRACTS AREA

- Technical advice in the negotiation.
- Management of procedures for contracting between researchers (UA) and companies.
- Assistance in the resolution of disputes.

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TTO Services Chart

AREAS: INTERNATIONAL R&D&i PROJECTS AREA

• Dissemination of international calls and search for partners for R + D + i projects.

• Management of the participation of the UA in European technology platforms and other EC initiatives.

• Management of project applications in international programs and advice on administrative and financial aspects

• Assistance in the negotiation of contracts and consortium agreements of international projects granted.

• Management, administrative and financial supervision of the international projects awarded.

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TTO Services Chart

AREAS: INTERNATIONAL R&D&i PROJECTS AREA (2)

• Intermediation with the funding body and the consortium in all phases of the project.

• Management of audits of international projects.

• Design of customised plans for researcher participation in R + D + i projects.

• Organisation of seminars to promote international programs to finance R & D & I projects.

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TTO Services Chart

AREAS: PUBLIC FUNDED PROJECTS AREA

- Advice on calls for competitive public and private R & D funding at national, regional and own level.

- Identification and dissemination of competitive public and private R & D grants at national and regional level.

- Processing of applications submitted to calls for competitive public and private R & D funding at national and regional level.

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TTO Services Chart

AREAS: PUBLIC FUNDED PROJECTS AREA (2)

- Preparation, dissemination and follow-up of the call for funding of the own R & D & I program.

- Management and monitoring of competitive calls for research staff in training and mobility at national, regional and own program.

- Processing and monitoring of the scientific and technical justification for received R & D funding.

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TTO Services Chart

AREAS: INTELLECTUAL PROPERTY AREA

- Advice on the possibilities of protecting of intellectual and industrial property rights.
- Management of national patent applications.
- Processing of international PCT applications.

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TTO Services Chart

AREA: SPIN OFF (TBCs) CREATION AREA

- Organization of awareness and training actions.

- Support to the entrepreneurs in the maturation of their business idea and in the elaboration of business plans.

- Management of requests to create TBCs.

- Preparation of the transfer contract and the partners' agreement for the constitution of the TBC before a the legal public attorney.

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TTO Services Chart

AREAS: ECONOMIC MANAGEMENT AREA

- Advice on economic management issues of research funding.

- Monitoring, verification and economic justification of competitive public R & D funding at national and regional levels.

- Processing and management of administrative reviews of justifications, audits and refunds of the grants awarded.

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TTO Services Chart

AREAS: ECONOMIC MANAGEMENT AREA (2)

- Economic feasibility report for the recruitment of personnel under research projects.

- Opening and closing of budgetary accounts for the internal economic management of financing.

- Application of income and transfers of credit in the budget internal accounts.

- Processing of internal credits from the UA for the grants awarded.

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TTO Services Chart

AREAS: R&D&i INFORMATION SYSTEM AREA.

- Management of the data from research groups of the UA.

- Management of the data of curriculum vitae of the research staff of the UA.

- Prepare reports and fulfill all performance indicators and statistics of the research in the UA

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TTO Services Chart

QUALITY INDICATORS

• In relation to services stated before, UA defined 43 Quality Indicators for the TT and Research Management Service

PERFORMANCE FOLLOW UP INDICATORS

• In relation to services stated before, UA defined 40 Performance Follow UP Indicators for the TT and Research Management Service

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Results TT - Impact

As a result of the Technology Transfer process, we will have:

-Cooperation Projects with companies:

- With Public Funding (national / international)

- Without Public Funding (funded by partners of the Project, like entreprises, autres, etc.)

- Patents

- Company Creation, Spin Outs

- Contracts – Funding

-Licenses
-Research Agreements
-Non Disclosure Agreements
-Material Transfer Agreements
-Royalties

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University Impact

- Contact and participation with socioeconomic environment

- Increased interaction / participation with local / regional / national / international stakeholders

- Increase of contact neworks

- Valorisation of R&D

- Increase profitability of efforts / investments in R&D

- Improve growth capacity for research teams

- New ideas, new research fields

- Improve and increase opportunities for graduate students

- Articles / Publications

Results – Impact - Examples

Results UA: “Size” 30.000 students. – “Private Contracts”

By institution

CONTRATS ART. 83 – “LOI UNIVERSITÉS” L.O. 6/2001			
	Number	Amount (€)	Amount (VND)
AAPP Estatal	11	259.080	6.258 M
AAPP Local y Autonómica	52	362.296	8.752 M
Empresas C.Valenciana	149	1.303.830	31.497 M
Empresas Nacionales	190	795.523	19.217 M
Empresas Extranjeras	40	686.408	16.581 M
Otros	141	632.862	15.288 M
Total	583	4.039.999	97.596 M

By activity

CONTRATS ART. 83 – “LOI UNIVERSITÉS” L.O. 6/2001			
	Number	Amount (€)	Amount (VND)
I+D	57	1.952.955	47.178 M
Apoyo técnico	58	473.237	11.432 M
Licencias	4	174.300	4.210 M
Colaboración	17	477.401	11.532 M
Servicios	369	618.880	14.950 M
Formación	4	93.889	2.268 M
Otros	74	249.337	6.023 M
TOTAL	583	4.039.999	97.596 M

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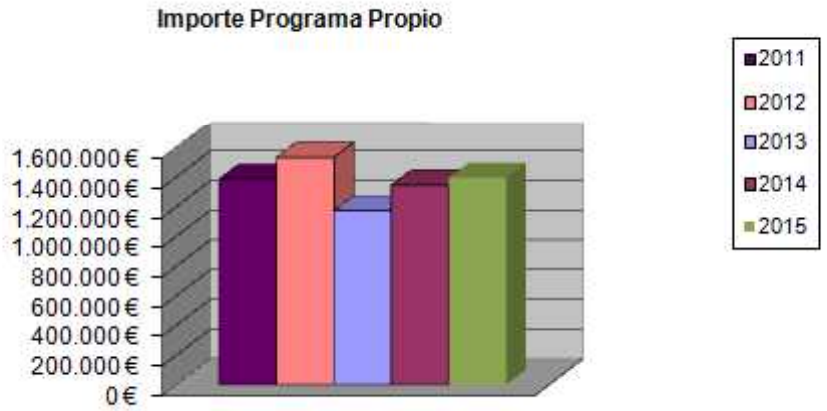
Results – Impact - Examples

Own R&D Program UA (Own Budget for R&D of UA Researchers (€)

	2011	2012	2013	2014	2015
Importe	1.385.514	1.532.555	1.171.706	1.345.457	1.393.536



	Importe
Proyectos Competitivos	137.976 €
Equipamiento Científico	4.154 €
Formación y Movilidad	935.645 €
Acciones de Valorización y Transferencia	250.005 €
Otras ayudas competitivas	65.756 €
TOTAL 33.664 M VND	1.393.536 €

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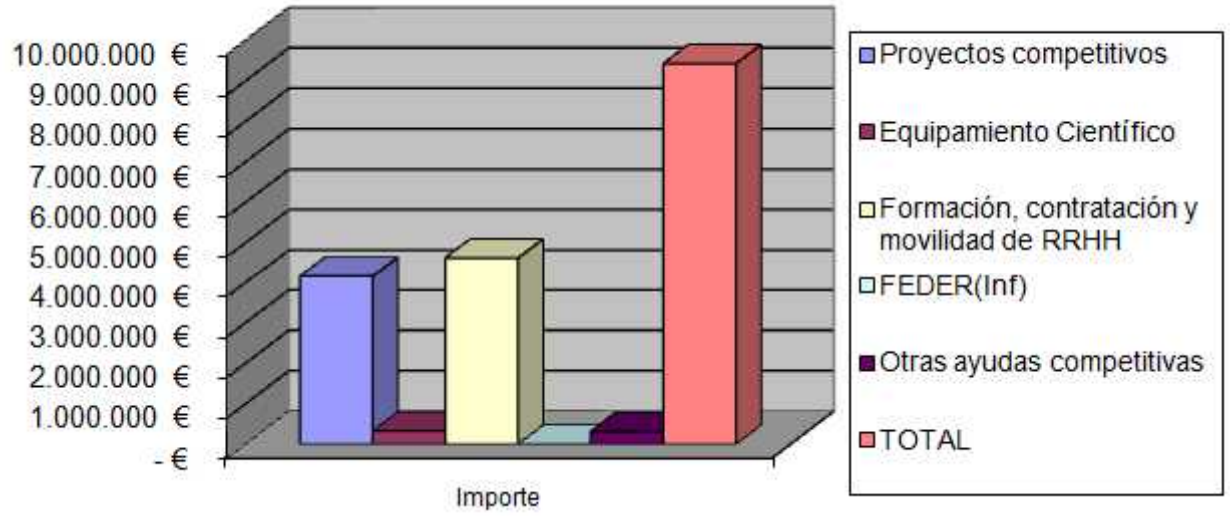
Results – Impact - Examples

Funding Resources awarded by CompetitiveR&D at UA



	Número	Importe	Amount VND
Proyectos competitivos	115	4.163.986	100.591 M
Equipamiento Científico	197	329.159	7.951 M
Formación, contratación y movilidad de RRHH	224	4.618.434	111.569 M
Feder (infraestructura)	0	0	0
Otras ayudas competitivas	69	312.056	7.538 M
TOTAL	605	9.423.635	227.650 M

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Results – Impact - Examples

Results RedOTRI 2014 (Network TTOs Spain)

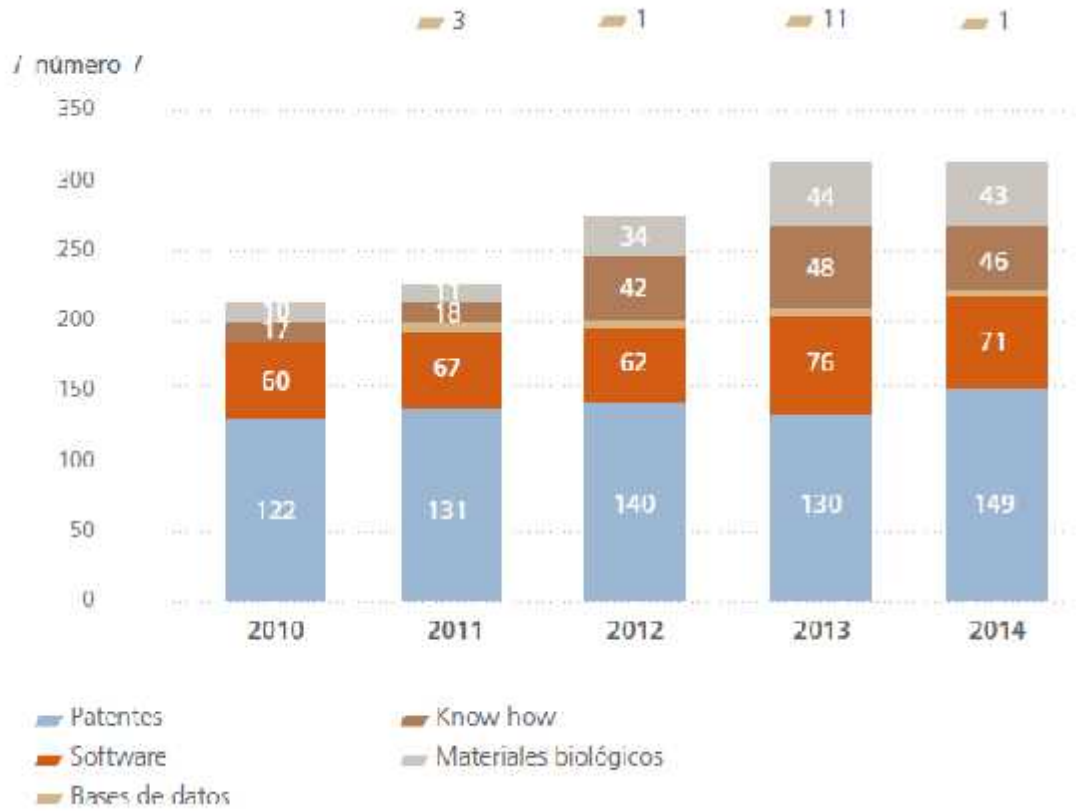
309 licenses / 55 offices

Average: 5.61 lic/office

Gráfica 6.8.

Licencias de resultados de investigación, según tipo de resultados

Fuente: Encuestas I+TC 2010-2014. Número de respuestas en 2014: 55



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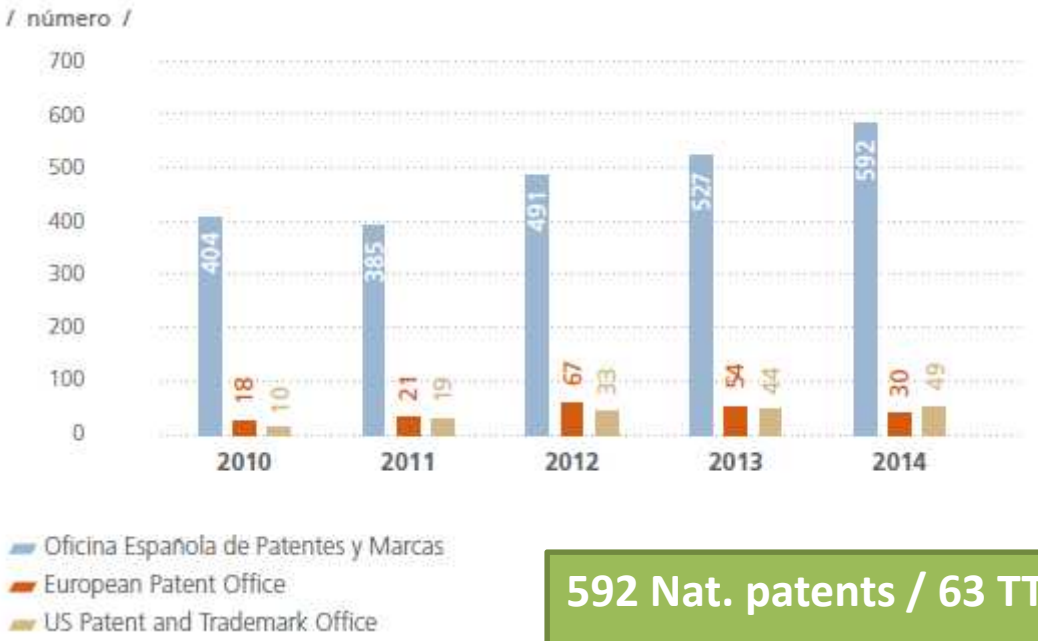
Results – Impact - Examples

Gráfica 6.2.

Concesiones de patentes

Fuente: Encuestas I+TC 2010-2014. Número de respuestas en 2014: 63.



Patent Applications 2014

592 Nat. patents / 63 TTOs

Average: 9.4 patents/TTO

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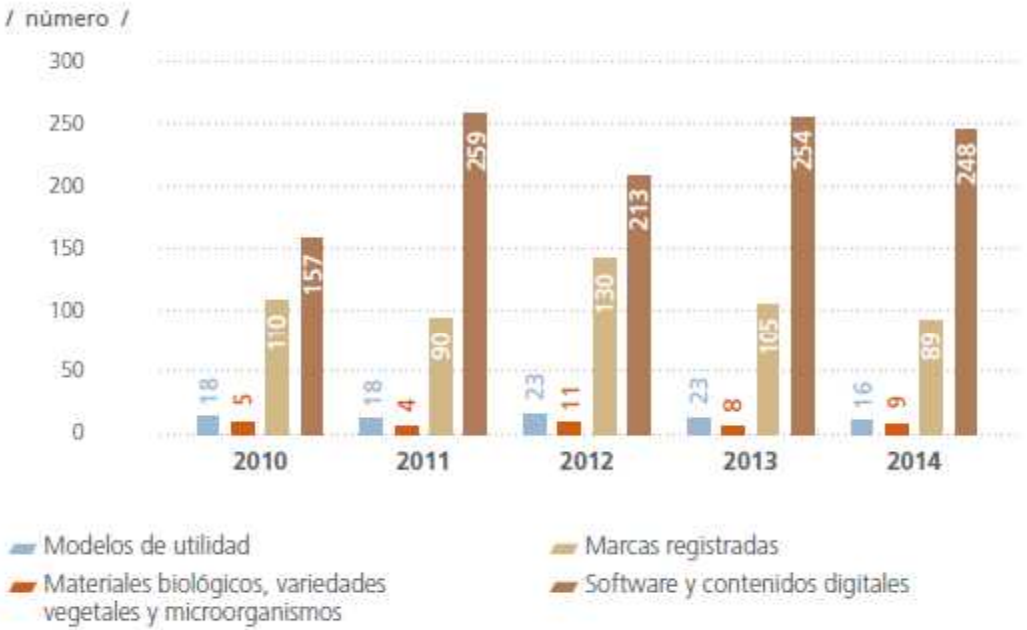
Results – Impact - Examples

Gráfica 6.5.

Otras formas de protección de los resultados de investigación

Fuente: Encuestas I+TC 2010-2014. Número de respuestas en 2014: 60.



Other IP Protection paths

Attention Software and Brands!! Increasing last years.

Tech Transfer is not only patent licensing.

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Results – Impact - Examples

Gráfica 6.6.

Acuerdos de confidencialidad y transferencia de material

Fuente: Encuestas I+TC 2010-2014. Número de respuestas en 2014: 63.

NDAs and MTAs

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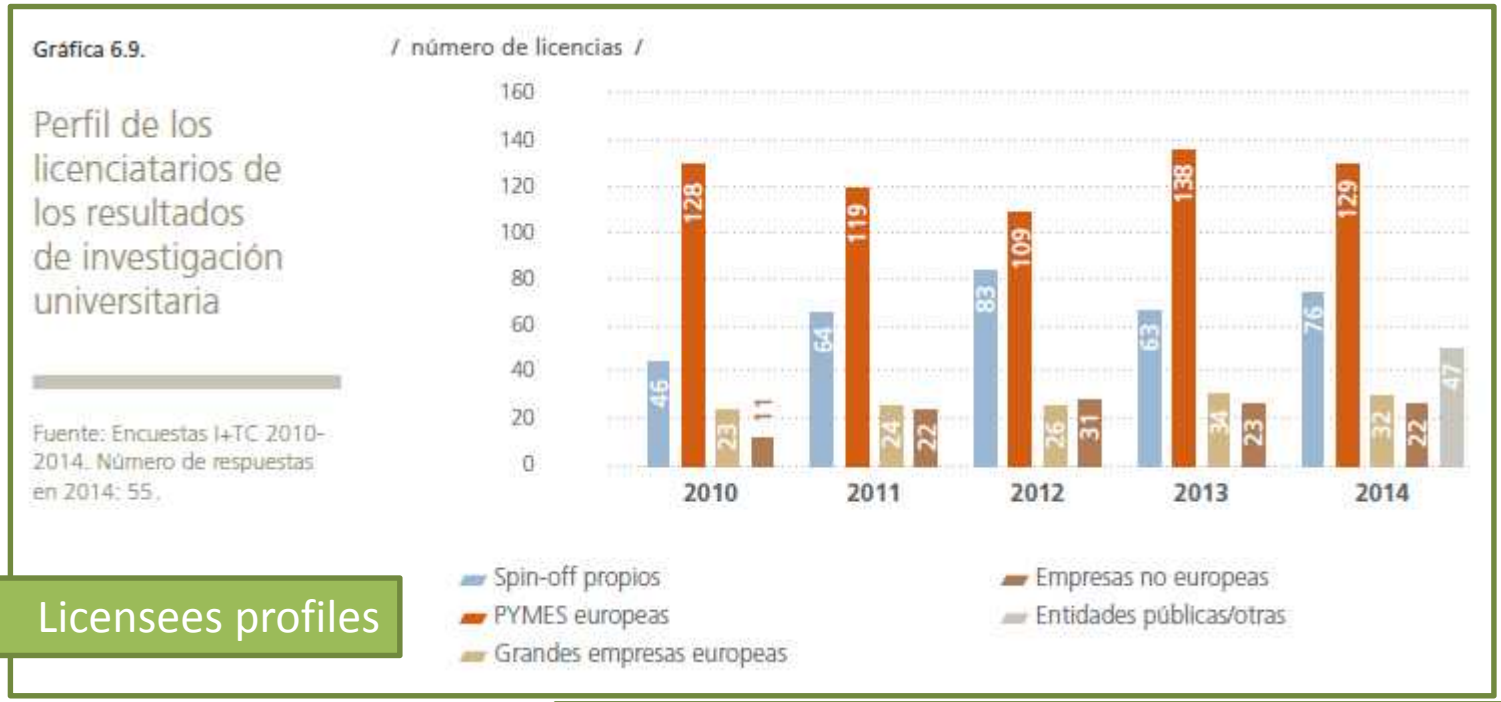
Results – Impact - Examples



Licensees profiles

Pay attention to SMEs, the most important stakeholder.

Tech Transfer is not only played by big companies.

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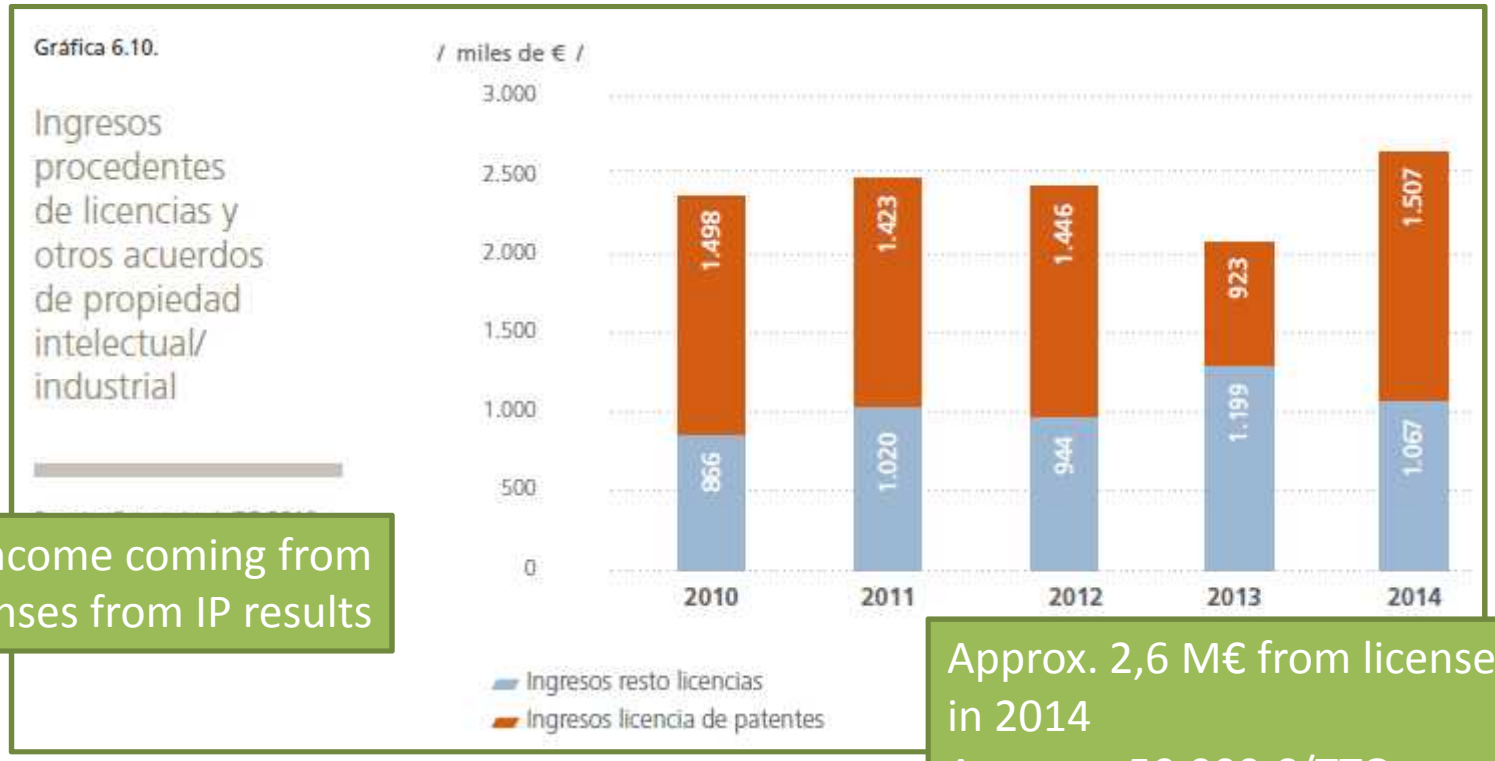
Results – Impact - Examples



Income coming from licenses from IP results

Approx. 2,6 M€ from licensees in 2014
Average: 50.000 €/TTO
1.204 M VND / TTO

It does not seem a very big amount, so… what happens?

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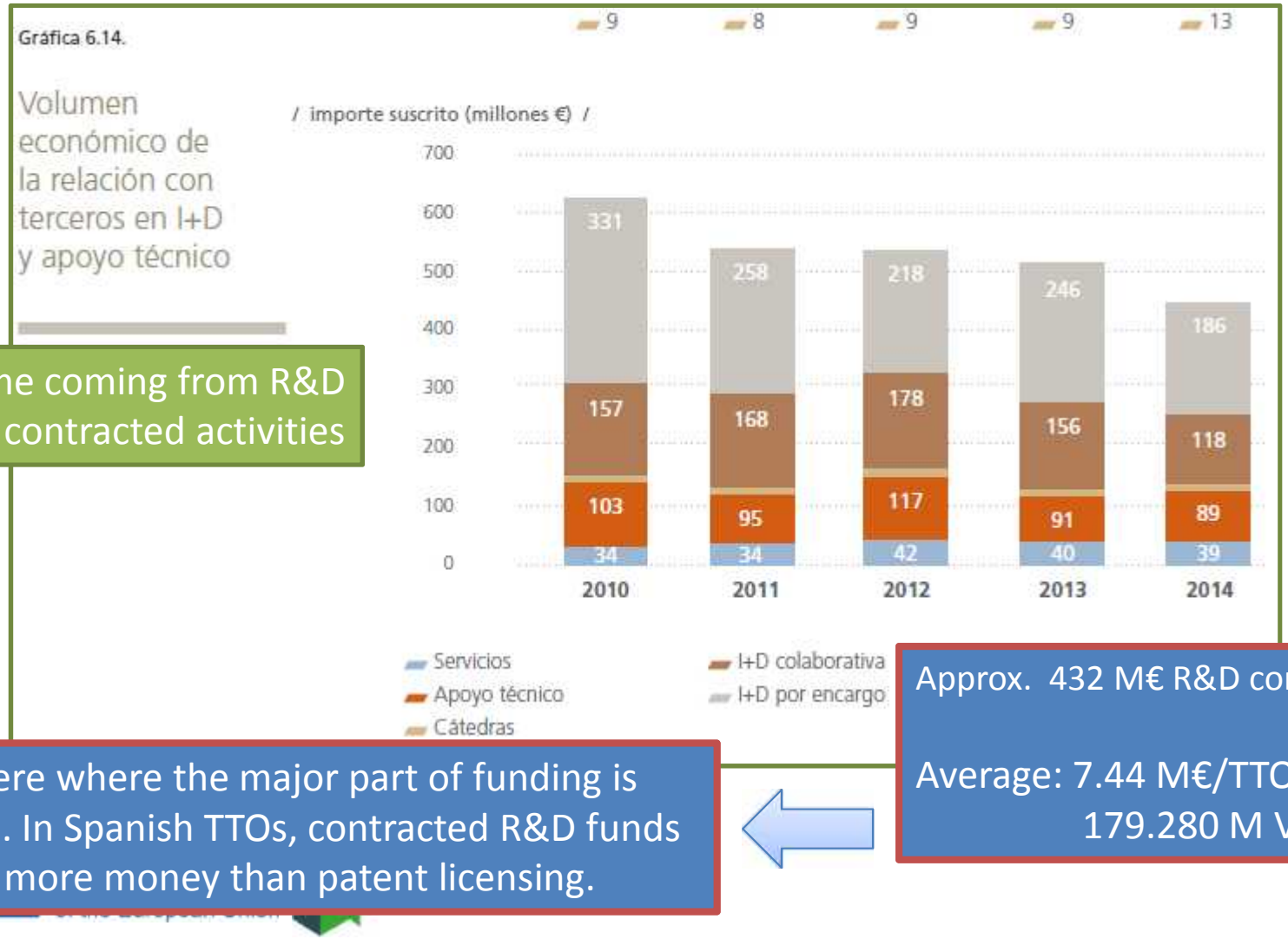
Results – Impact - Examples



Income coming from R&D contracted activities

Approx. 432 M€ R&D contracted

Average: 7.44 M€/TTO
179.280 M VND / TTO

It is here where the major part of funding is raised. In Spanish TTOs, contracted R&D funds much more money than patent licensing.

CONCLUSIONS:

- TT is a mission of the University and the socioeconomic environment

-It is necessary to dedicate resources because is difficult to be sustainable by itself.

-Has interesting objectives for the University (institution, researchers, students) and for companies, at the end, for society.

-This is not all about patents.

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Thanks for your time.

Cảm ơn vì đã dành thời gian cho tôi

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