

Strategic Management and the Creation of Technology-Based Firms

Topic 4. Technology-based firms in a university setting



Ana María Serrano Bedia
Gema García Piqueres
Marta Pérez Pérez

Business Administration Department

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1. Introduction

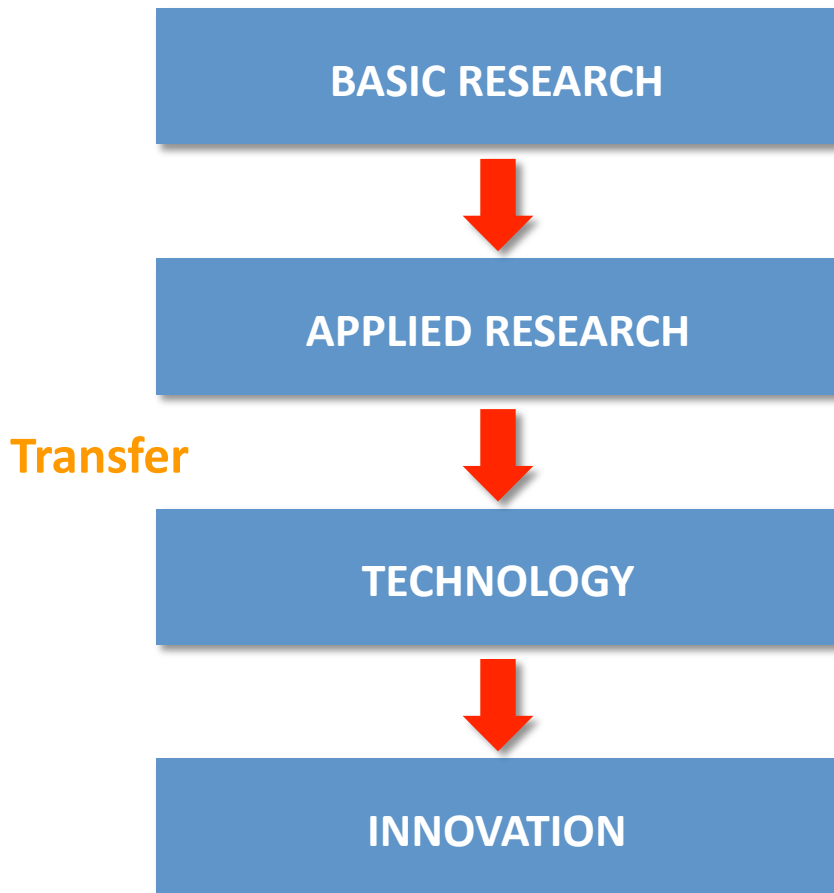
Technology transfer:

- *«Stage of the global marketing process which is regarded as the transfer of intellectual capital and know-how between organisations with the aim of its use in the creation and development of commercially viable goods and services».*

(COTEC Foundation for Technological Innovation, 2003, page 43).

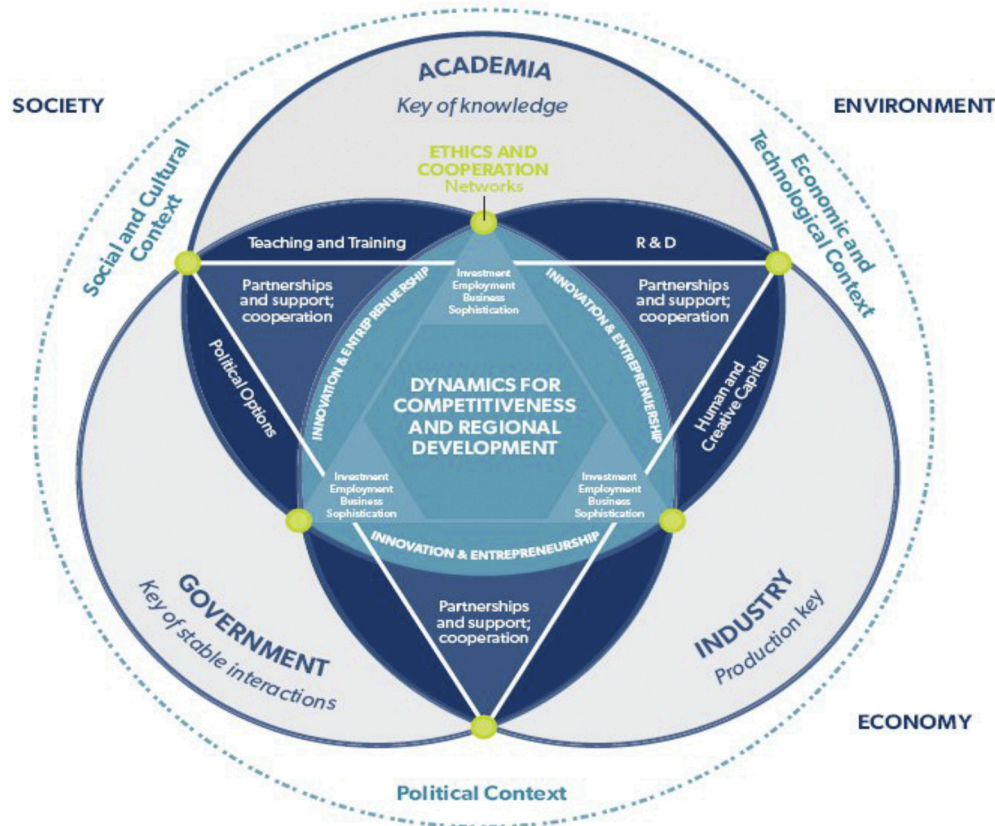
1. Introduction

Linear innovation model



1. Introduction

Triple helix model



Source: <http://sites.ieee.org/futuredirections/files/2018/01/Pasted-Graphic.jpg>.

1. Introduction

The University is entrusted with three basic functions:

- **Education** (dissemination of existing knowledge).
- **Research** (generation of new knowledge): regulated by Organic Law 6/2001 of 21 December, on Universities (LOU), amended by Organic Law 4/2007 of 12 April and by Law 14/2011 of 1 June on Science, Technology and Innovation.
- **Transfer** (application of knowledge for improving and developing the knowledge society).

1. Introduction

Transfer, basic activities:

- Marketing of technology generated (protection and licences).
- Creation of business fabric (*spin-offs*).
- Mobility of researchers and technical personnel to the business sector (industrial doctorates).
- Consultancy, development and technological innovation through contracts with third parties.

1. Introduction

Spin-off:

- A university *spin-off* is a business initiative in which the founder is from a university context (professor, technical or administrative staff or researcher), and which is created on the basis of knowledge or technology created and owned by the institution.

(COTEC Foundation for Technological Innovation, 2003).

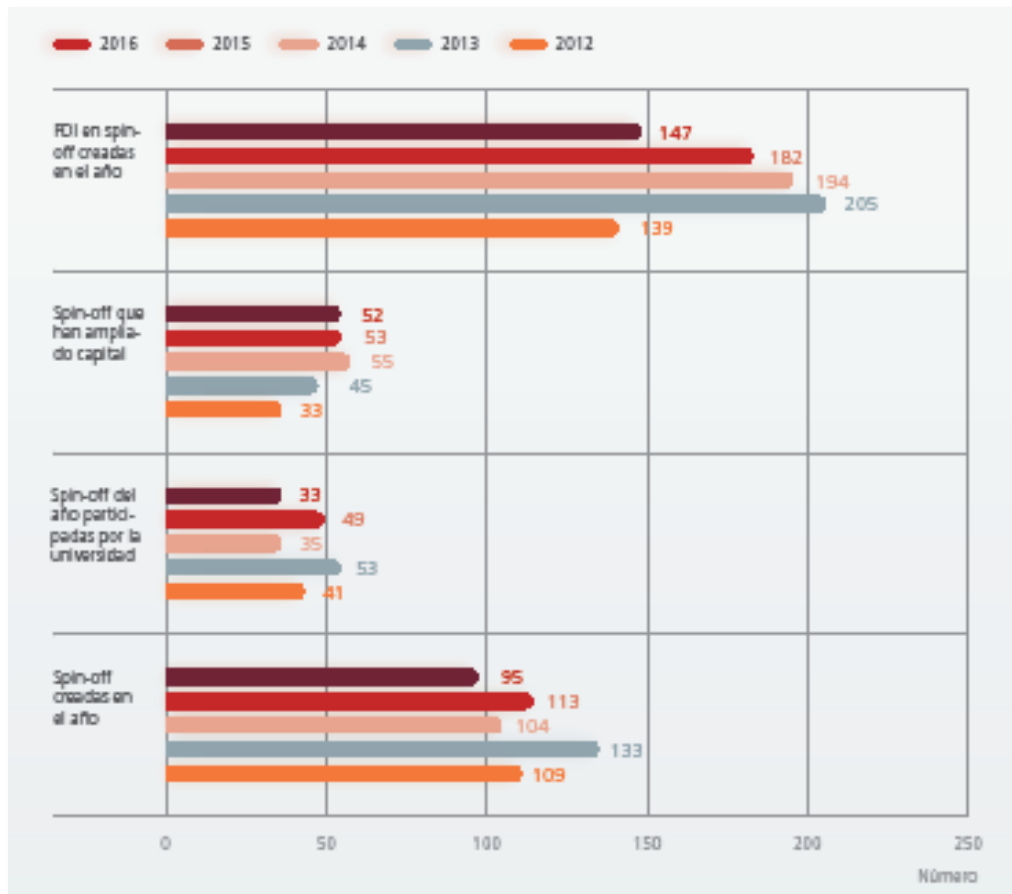
1. Introduction

Spin-off: characteristics (Spanish Ministry of Education and Culture, 2008):

- Created based on knowledge and/or technology generated at a university.
- Founded with the participation of university personnel and/or support from the parent university institution.
- They maintain, at least in their early stages, close contact with the original academic institution.
- They serve as a direct bridge between the university's capacity of innovation and the goods and services market.
- In general they are flexible, based on innovation and capable of adapting to change.
- They are mostly small firms, with a small number of employees, that offer goods and services with high added value and growth potential (gazelle companies).

1. Introduction

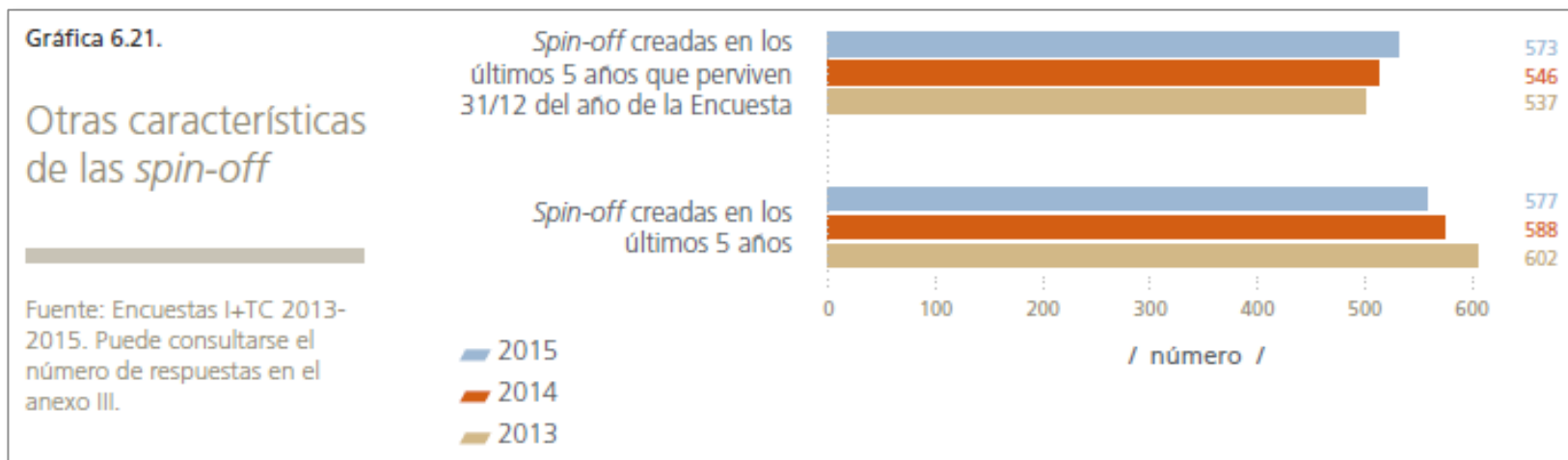
University spin-offs



Source: Research and Knowledge Transfer Surveys 2012-2016. No. of answers in 2016: 51.

1. Introduction

University spin-offs



Source: Research and Knowledge Transfer Survey 2015. RedOtri and RedUgi.

1. Introduction

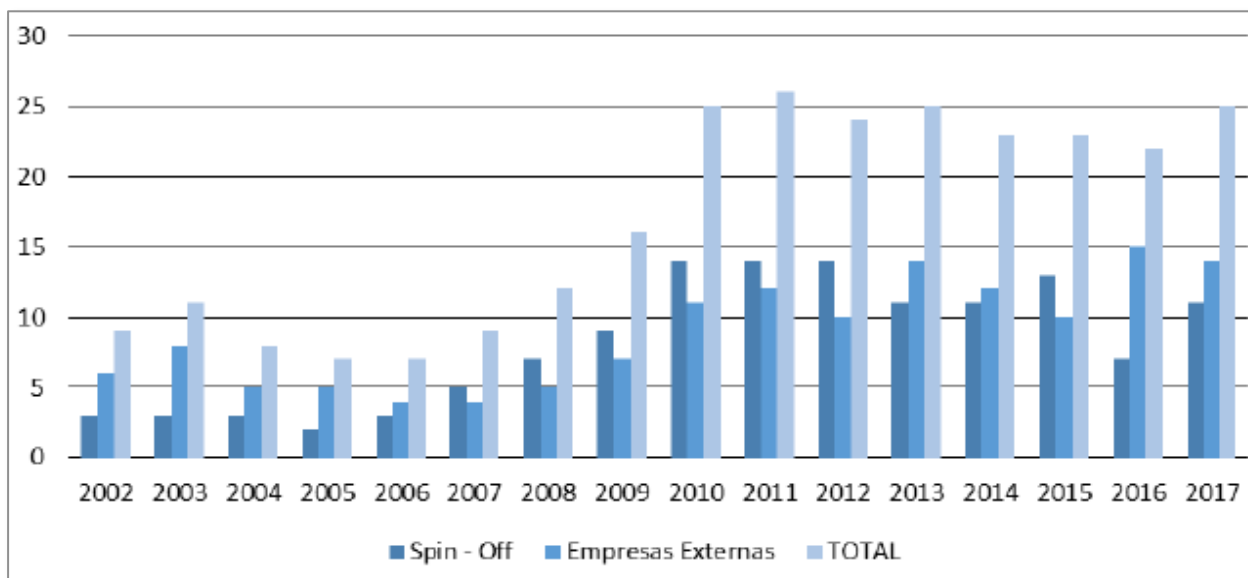
Occupation of the CDTUC (Technological Development Centre at the University of Cantabria) as per 31 December 2016

Type of entity	Number
Firms	25 (11 university spin-offs)
R&D supporting institutions	3
R&D groups	2

Source: Translation of Acitivity Report 2017. FLTQ.

1. Introduction

Development of CDTUC firms



Source: Acitivity Report 2017. FLTQ.

1. Introduction

Motivations for creating university *spin-offs*:

- For researchers?
- For the university?

2. Regulatory framework for *spin-offs*

- Incompatibility Law 53/1984 **on incompatibilities of personnel at the service of public administrations (LIPSAP).**
- Royal Decree 898/1985 on the University Teaching Staff System.
- **P**atent **L**aw 24/2015 (**LP**), Title IV, Work-Related Inventions.
- **LOU** 6/2001, **O**rganic **L**aw on **U**niversities.
- LOMLOU, Organic Law 4/2007.
- **L**aw 14/2011 on **S**cience, **T**echnology and **I**nnovation (**LCTI**).

2. Regulatory framework for *spin-offs*: LOU 6/2001

Art. 84. Creation of foundations or other legal entities:

- For the promotion and pursuit of their aims, Universities, with the Social Council's approval, may create (alone or in collaboration with other public or private entities) companies, foundations or other legal entities in accordance with applicable general legislation.
- Teaching and research staff may participate in these activities according to the system established in art. 83 of the Organic Law on Universities (LOU). These staff members must be authorised through the Governing Board's explicit agreement, following a favourable report from the department to which they belong.
- **However**, research staff remains subject to the constraints of LIPSAP and LCSP.

2. Regulatory framework for *spin-offs*: LOMLOU 4/2007

To correct this problem, LOMLOU 4/2007 was approved which enables university entrepreneurs to pursue the following procedures:

- **To request exclusive temporary leave of absence for TBFs:** they have the right to be reinstated to their position and seniority continues to accrue. Maximum period of 5 years (art. 83.3).
- When it is a TBF, promoted by their university and involving their university or any of the bodies established in art. 84 of this Law, created on the basis of patents or results generated by research projects partially or totally financed by public funding, provided that there is the University Governing Board's explicit agreement, following a report from the Social Council, allowing the creation of said firm.

2. Regulatory framework for *spin-offs*: LOMLOU 4/2007

- **Article 83.3 of Organic Law 6/2001**, amended by **article 80 of Law 4/2007**, applies to **government-employed university teaching staff and hired teaching staff who are permanently connected with universities**.
- However, in their rules for the creation of companies, universities include in this group researchers affiliated to the university, as well as administration and service staff.
- Students may also be promoters of a *spin-off* provided that they are accompanied in the promoting team by at least one researcher who is permanently connected with the university (although this situation is regulated differently by each institution).

2. Regulatory framework for *spin-offs*: LOMLOU 4/2007

- LOMLOU 4/2007, in its 24th additional provision also leaves without applicability for government-employed university teaching staff the limitations of Law 53/1984 as regards:
 - **Compatibility** for government-employed university staff who participate in boards of management or governing bodies of TBFs.
 - **Owning more than 10% of the TBF's shares.**

2. Regulatory framework for *spin-offs*: LCTI 14/2011

Contributions to the creation of university *spin-offs*:

- Also applies to hired research staff (Title II, Chap. 1).
- To benefit from temporary leave of absence, the university's participation in the target company is not necessary, only its legal connection.
- The regulation is not solely for universities, it also includes Public Research Organisations and Public Administrations.
- It supports a university-*spin-off* compatibility model for researchers.

2. Regulatory framework for *spin-offs*: LCTI 14/2011

Regulation of temporary leave of absence (art. 17.4):

- Maximum period of 5 years.
- To join private execution agents of the **SECTI** (**Sistema Español de Ciencia, Tecnología e Innovación** [*Spanish System of Science, Technology and Innovation*]).
- Right to be reinstated to the position and evaluation of research activity.
- The University must maintain a legal connection with the target agent (technology transfer contract, partnership pact...).
- Applicable to government-employed or permanently hired Teaching and Research Staff.
- Obligation of the personnel in this situation to protect the knowledge in accordance with IIP regulations and the rules applicable to their University or applicable body and the agreements and conventions signed by them.

2. Regulatory framework for *spin-offs*: LCTI 14/2011

Authorisation for providing services in commercial companies

<https://www.boe.es/boe/dias/2011/06/02/pdfs/BOE-A-2011-9617.pdf>

(art. 18).

3. Support services for university entrepreneurs

Pre-incubation: encompasses from conception of a business idea to the project's clear definition with the actual establishment of a new company.

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Incubation: initial stage in the life of a new company (about 3 years) when the activity is carried out under the supervision of the group that set it up.

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Pre-incubation: encompasses from conception of a business idea to the project's clear definition with the actual establishment of a new company.

Incubation: initial stage in the life of a new company (about 3 years) when the activity is carried out under the supervision of the group that set it up.

Acceleration: a stage in which, having filled a niche in the market, the business project starts to grow exponentially.

3. Support services for university entrepreneurs

- **Pre-incubation:**


3. Support services for university entrepreneurs

- **Pre-incubation:**

- **Incubation/acceleration:**

3. Support services for university entrepreneurs

- **Pre-incubation:**

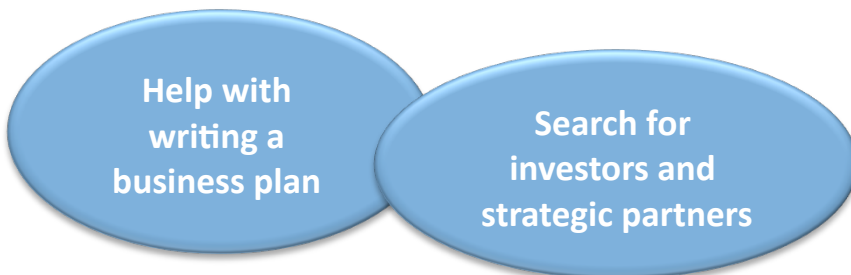


Help with
writing a
business plan

- **Incubation/acceleration:**

3. Support services for university entrepreneurs

• Pre-incubation:



• Incubation/acceleration:

3. Support services for university entrepreneurs

• Pre-incubation:



• Incubation/acceleration:

3. Support services for university entrepreneurs

• Pre-incubation:



• Incubation/acceleration:

3. Support services for university entrepreneurs

• Pre-incubation:



• Incubation/acceleration:

3. Support services for university entrepreneurs

• Pre-incubation:



• Incubation/acceleration:

Availability
of spaces

3. Support services for university entrepreneurs

• Pre-incubation:



• Incubation/acceleration:



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• Pre-incubation:



• Incubation/acceleration:



3. Support services for university entrepreneurs

• Pre-incubation:



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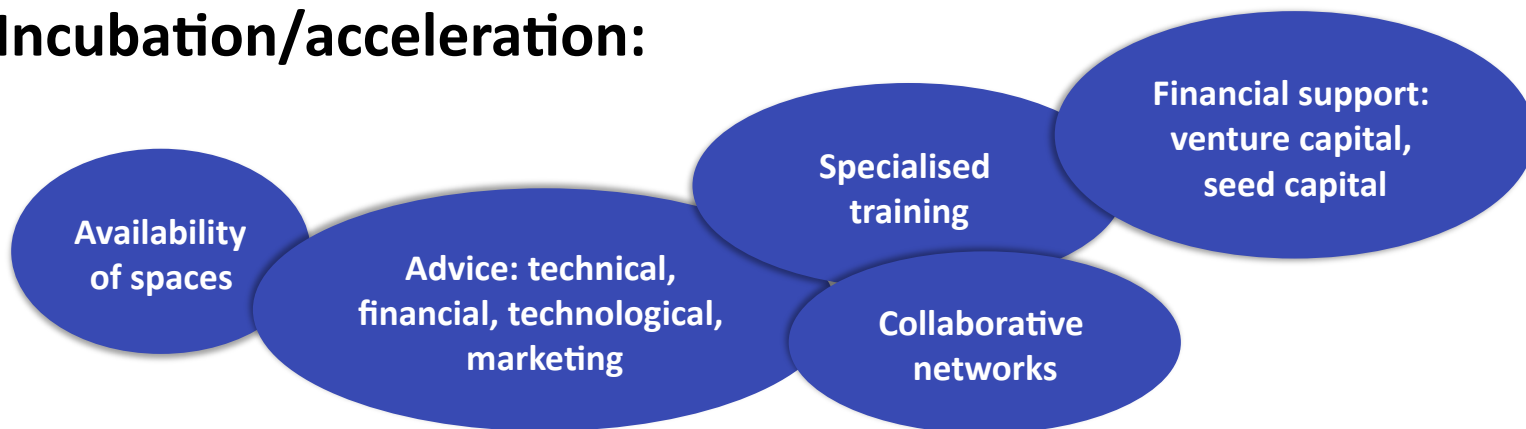


3. Support services for university entrepreneurs

• Pre-incubation:



• Incubation/acceleration:



3. Support services for university entrepreneurs

Pre-incubation activities: examples

Advice:

- a. Writing up business plans.
- b. Viability analysis.
- c. Management and protection of industrial/intellectual property.
- d. Technological vigilance and analysis of technology gaps.
- e. Public/private funding calls.
- f. Legal support in creating the company.
- g. Guides to setting up a business...

Search for investors/customers/strategic partners:

- a. Entrepreneur forums.
- b. Creation of technology pools, research networks, sponsorship schemes.
- c. Development of dissemination plans in order to gain visibility and attract partners or customers: web, blogs, social networks...

Validation of business plans/assessment of project incubation possibilities: Questionnaires, committees...

Financial support:

Grants, funding calls for developing a business plan...

3. Support services for university entrepreneurs

Incubation/acceleration activities: examples

Availability of physical spaces :

Incubators, greenhouses/seedbeds, access to coworking spaces, accelerators...

Specialised support services (face-to-face/virtual):

- a. Access to equipment/material/technological services in advantageous conditions.
- b. Mentor and national/international tutor programmes.
- c. Training and consultation: valuation, marketing.
- d. Support for access to funding calls.
- e. Growth/internationalisation support services: business missions, mobility programs, expansion/internationalisation models.

Development of relational capital in entrepreneurs:

- a. Networking sessions.
- b. Placements in companies.
- c. Incubator/specialised company collaboration agreements...

Financial support:

Seed capital and venture capital management companies, access to forums/investment clubs...

Specialised training:

Skills for managerial personnel.

3. Support services for university entrepreneurs: the UC

- **Scientific-Technical Research Services:** created in 2008, they centralise high performance infrastructures with the aim of enhancing the scientific capacities of the University's RDI groups: SERCAMAT (material characterisation); SERCROM (chromatography); SEEA (animal experimentation and stabulation); SERV-IHLAB (hydrobiology); SERVISUB (submarine inspection); SERMET (electronic transmission microscopy); SSC (Santander Supercomputing Service).
- **CDTUC** (Technological Development Centre at the University of Cantabria): a physical space that facilitates setting up new technology-based firms and a point of access to the entrepreneurship services it provides to companies.

3. Support services for university entrepreneurs: the UC

CDTUC technological incubator, services:

- Information and support in dealing with RDI funds (e.g.: NEOTEC) and, where appropriate, assistance in the application procedure.
- Information and support as regards financing routes. UNINVEST venture capital fund, processing participation loans...
- Dissemination of the company's RDI activities through the Business Cooperation Network of the Spanish Association of Science and Technology Parks (APTE) and APTE technology transfer events.
- Services of RedEmprendia (Iberoamerican University Network of Business Incubation).
- Hiring R+D services with UC research groups.

3. Support services for university entrepreneurs: the UC

- **INNOVERSIA:** open innovation portal set up by UNIVERSIA and the Private Technology Transfer Agency NEOS. Every region has an INNOVERSIA Network agent (in Cantabria it is the [FLTQ](#)), which gathers demands for technological innovation from the business sector and reports them to the University's R+D groups according to their fields of work.
- **OTRI (Research Results Transfer Office):** responsible for providing advice on finding financing for research projects through national and regional calls and advising and participating in negotiation and then writing and processing contracts via art. 83 of the Organic Law on Universities (LOU).

3. Support services for university entrepreneurs: the UC

- **OPEII (Office for European and International Research Projects):** responsible for promoting and managing the participation of RDI groups in European and International RDI projects.
- **Valuation Office:** this office is responsible for promoting and managing the Industrial and Intellectual Property generated by researchers and RDI groups and Institutes of the UC.
- **COIE (Employment Guidance and Information Office):** coordinates the University Entrepreneur (UCEM) awards, and also provides guides to setting up businesses, individualised tutoring, support for entrepreneurs with disabilities...
- **CISE (Santander International Entrepreneurship Centre):** carries out activities in three basic fields: training, research (GEM) and awareness raising.

3. Support services for university entrepreneurs: Regional Entrepreneurial Ecosystem

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Pre-incubation:
UC, SODERCAN, AADL,
Chambers of Commerce...

3. Support services for university entrepreneurs: Regional Entrepreneurial Ecosystem

Pre-incubation:
UC, SODERCAN, AADL,
Chambers of Commerce...

Business idea

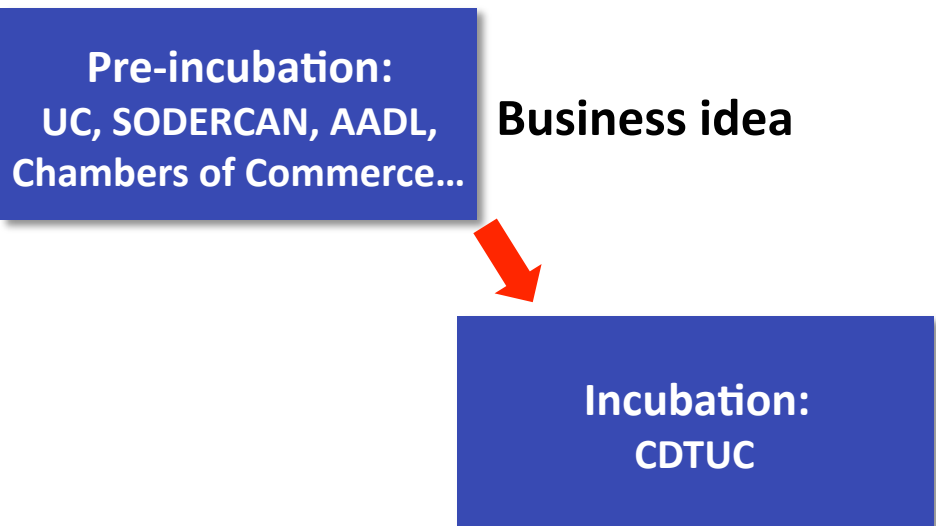
3. Support services for university entrepreneurs: Regional Entrepreneurial Ecosystem

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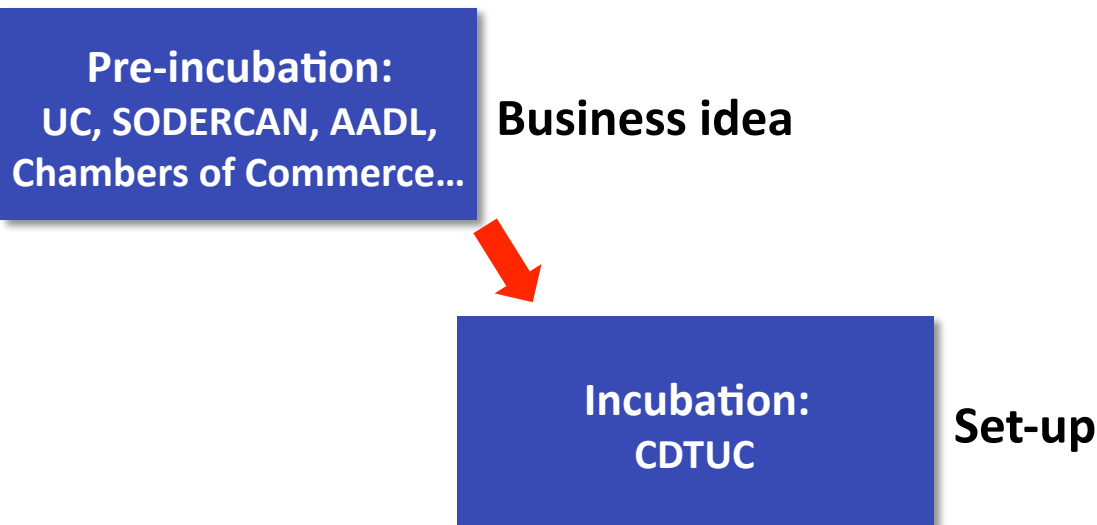
Business idea



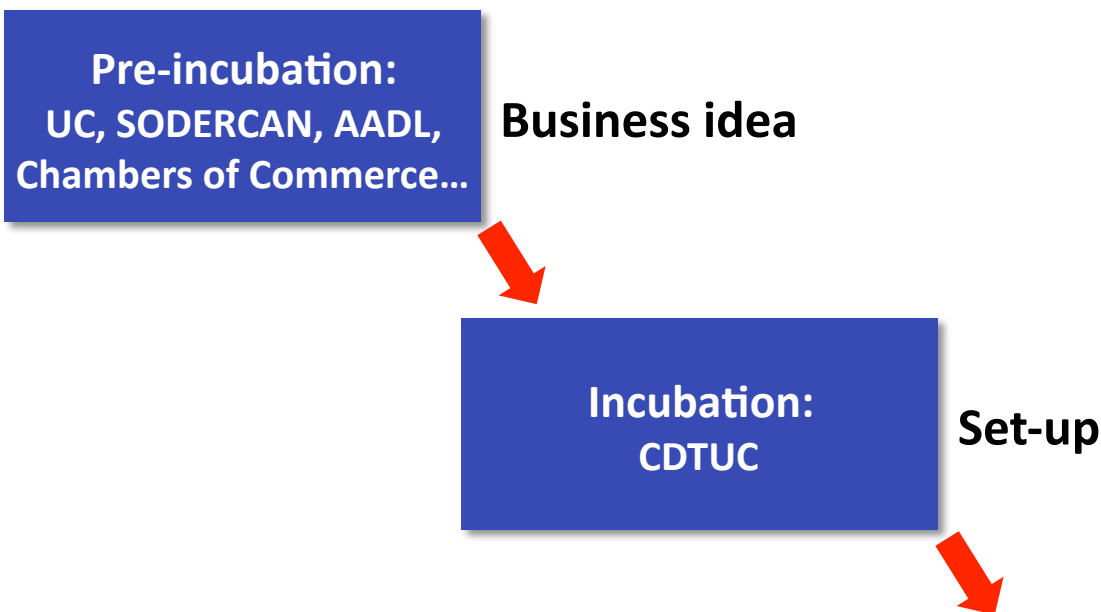
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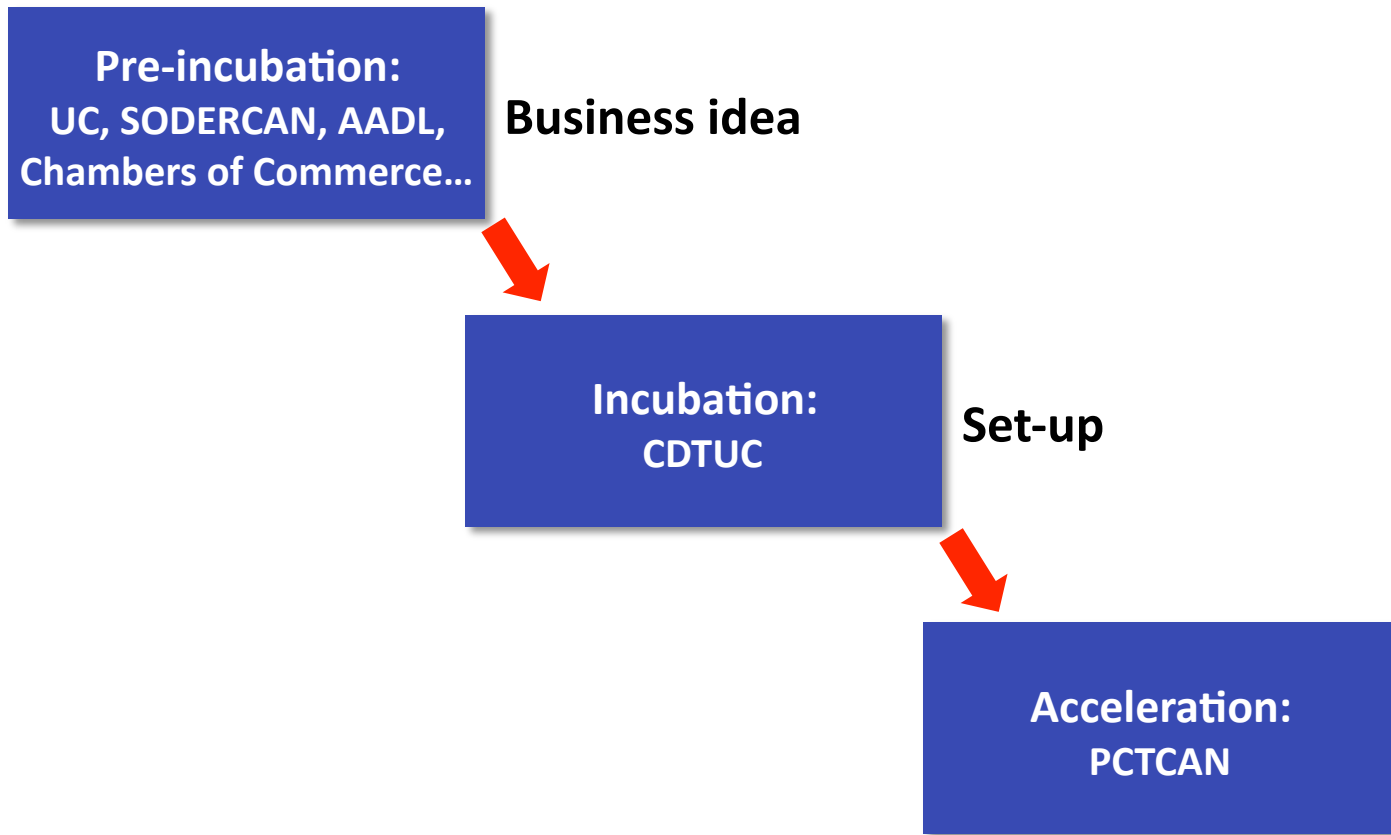
3. Support services for university entrepreneurs: Regional Entrepreneurial Ecosystem



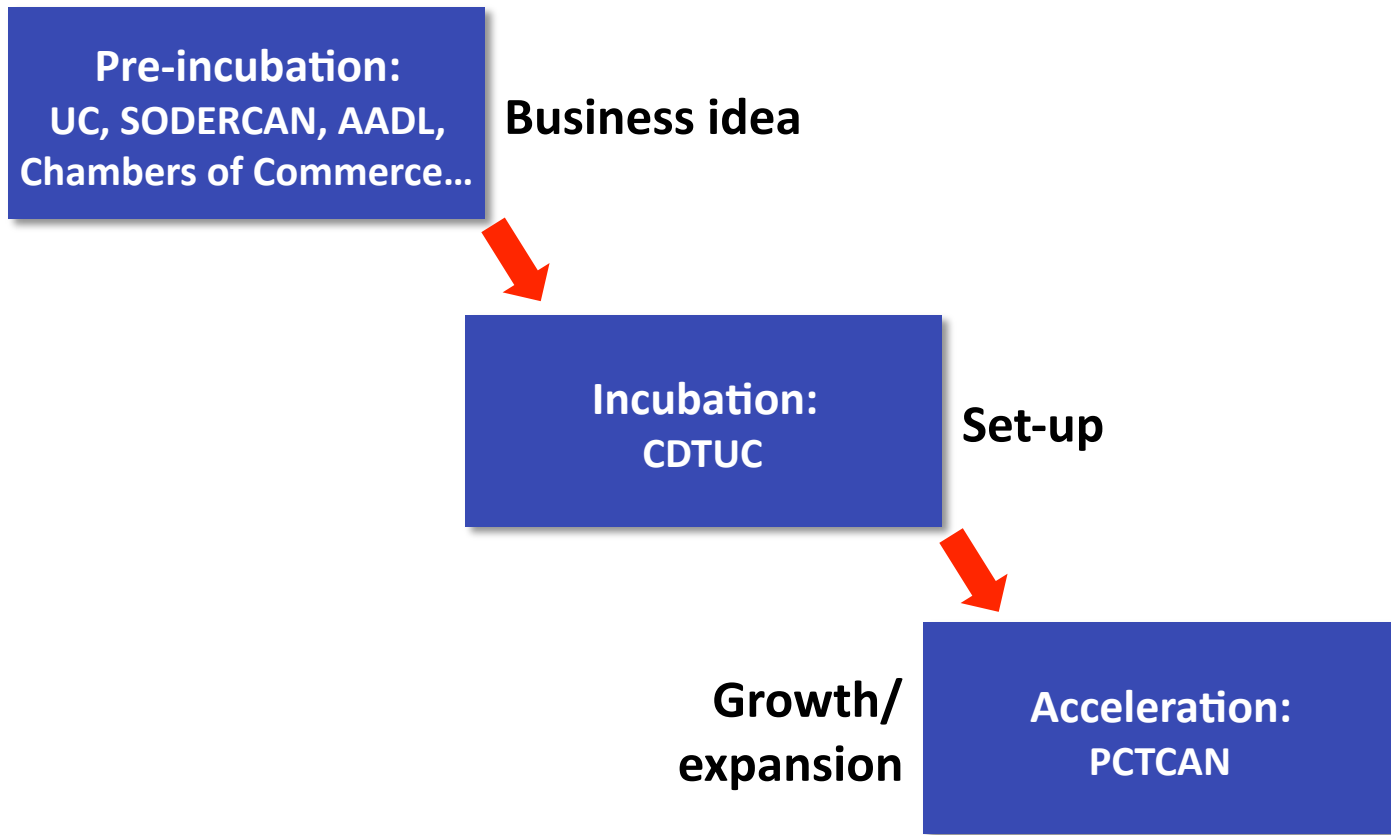
3. Support services for university entrepreneurs: Regional Entrepreneurial Ecosystem



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3. Support services for university entrepreneurs: Regional Entrepreneurial Ecosystem



3. Support services for university entrepreneurs: Regional Entrepreneurial Ecosystem

- **Cantabrian Entrepreneurial Project:** initially developed within the framework of Cantabria International Campus, as a result of the conclusions of the 1st International Meeting of Entrepreneurship Experts (November 2011). Regional Project aimed at coordinating the work of various actors in the field of entrepreneurship in Cantabria. It offers consultation, training and accompaniment services.



3. Cantabrian Entrepreneurial Project

Entrepreneurial
individual

The legal form consists of a set of characteristics that enable identifying the organisation, functioning and management of a company, such as:

- The number of people participating in the project.
- The amount of the capital that will be used to initiate the project.
- Requirements for incorporating the company and procedures required for setting it up.
- The company's tax and employment-related obligations.
- Social Security scheme.
- Third-party liability of the company and partners.
- Project's economic needs.

3. Cantabrian Entrepreneurial Project

Entrepreneurial
individual

Based on these characteristics, eight legal forms have been established:

- [Empresario individual \[Sole proprietorship\]](#).
- [Sociedad Civil \[General partnership\]](#).
- [Comunidad de Bienes \[Community of property\]](#).
- [Sociedad Limitada \[Private limited company\]](#).
- [Sociedad Limitada Nueva Empresa \[New private limited company\]](#).
- [Sociedad Anónima \[Public limited company\]](#).
- [Sociedad Laboral \(Limitada o Anónima\) \[\(Public or Private\) labour corporation\]](#).
- [Cooperatives](#).
- [Sociedades profesionales \[Professional corporations\]](#).

3. Main procedures for setting up a company

1. **Negative name certificate from the Central Registrar of Companies.**

Certificate which states that no other company is registered under the same name as that chosen for the company. Mandatory exclusively for trading companies. For cooperatives, the certificate is obtained from the Registrar of Cooperative Societies.

2. **Execution and registration of Public Deeds before a Notary public.**

The execution of deeds is an act whereby the founding partners sign the company's articles of incorporation. Within 2 months of executing the articles of incorporation, it is registered in the Registrar of Companies of the province where the registered office is situated. Capital companies, collectives, cooperatives and labour corporations must carry out this procedure (for the company to acquire legal personality).

3. Main procedures for setting up a company

- 3. Settlement of Property Transfer and Certified Legal Documents Tax (ITPAJD).** 1% of share capital. This must be settled before the start of the activity, in a period of 30 working days from execution of the public deeds before a Notary public. This tax is settled at the Treasury Department of the Region where the company is domiciled, using form 600.
- 4. Requesting Tax ID Number (NIF).** At the Tax Agency Office corresponding to the tax address of the company or entity, within one month of the date of incorporation or establishment in Spanish territory, using form 036.

3. Procedures for conducting business activity

1. **Census Declaration and registration in Economic Activities Tax (IAE).** The census declaration must be presented by sole proprietors, professionals and companies, using form 036, at the Tax Agency Office corresponding to the tax address, when they engage in, modify or withdraw from activity. The Economic Activities Tax is a tax on business, professional and artistic activities in the national territory. Application for registration must be carried out at the Tax Agency Office, 10 days prior to starting the activity, by means of form 840, the articles of incorporation and the declarant's National ID document or Tax ID Number.
2. **Municipal works licence and municipal business activity licence (from the Town Council).**
3. **Company's affiliation to Social Security (at the Provincial Directorate of the Social Security Treasury Department).**

3. Procedures for conducting business activity

3. **Company's affiliation to Social Security (at the Provincial Directorate of the Social Security Treasury Department, TGSS).** With the company's registration (form TA6), the TGSS assigns a "Contribution account code" for its numerical identification. The company must request a number for each province where it has a place of work (form TA7).
Furthermore, it is necessary to register in the Scheme for Self-Employed Workers (compulsory for self-employed workers), or register workers in the General Scheme, compulsory for employees.
4. **Communication of the opening of the place of work (Department of Labour of the different Regions).** Within 30 days of starting the activity.

3. Procedures for conducting business activity

5. **Legalisation of books (in the Registrar of Companies and at the Provincial Directorate of Employment).**
6. **Presentation of contracts of employment (at the Region's Public Employment Service).** Within 10 days of recruitment.
7. **Trade mark registration** (Spanish Patent and Trademark Office, OEPM).

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- [RedEmprendia: University entrepreneurship](#).
- [Uninvest: venture capital management](#).
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