

**SPIN-OFF FOR THE MANAGEMENT FOR THE QUALITY AND
INNOVATION IN THE UNIVERSITY OF OVIEDO.
TECHNICAL OFFICE FOR QUALITY AND INNOVATION (TOQi).**

Alberto A. Suárez¹, Javier Alonso², Ramiro Martís², Pablo Albañil¹ & Miguel Pascual¹

Abstract.

The basis for the study is the creation of a spin-off within the University of Oviedo to exploit the know-how acquired in recent years in quality plans by Technical Unit for Quality staff at the University of Oviedo.

The spin-off has also been created to develop the themes of Quality and Innovation to help the Universities in the process of adaptation to the European Higher Education and support to SMEs and organizations in questions of continuous improvement through the design and implementation of Management Systems.

The main objective is to offer an innovative alternative for service providing and personnel management in University Services.

The main results of the project are: the creation of 3 jobs, establishment of the Know-How transfer agreement between TOQi and the University of Oviedo, a catalogue and website of the spin-off, the establishment of 11 agreements with organisations, etc.

This practice is included in the Telescopi network Observatories' Network on Best Practices for the Strategic Management in Latin America and Europe 2011.

Keywords:

Spin-off, Quality and Innovation, Management Systems, Know-How, the European Higher Education Area.



*The contact details of TOQi are codified
using code BIDI.*

*Bidi Code is a two-dimensional code made
up of black and white squares that contain coded
information.*

¹ University of Oviedo, Technical Unit for Quality, Principado, 3, Entresuelo, 33007 Oviedo (Spain).
<http://www.uniovi.net/calidad/> suarez@uniovi.es

² TOQi - Technical Office for Quality and Innovation, University of Oviedo, toqi@toqi.es Catedrático
José Serrano, 10, 2º E. 33006 Oviedo (Spain). www.toqi.es

1. Introduction.

The term “spin-off” expresses the idea of creating new businesses within other existing companies or organisations belonging to the public or private sector that act as incubators. Spin-offs eventually acquire legal, technical and commercial independence. Also known as Technology-based Companies, they are often linked to universities and contribute to the transfer of scientific findings and/or knowledge from these to society in the form of innovative products and services.

Spanish Law 6/2001, of 21st December, concerning universities has sought to boost university knowledge transfer. It is also the first Spanish law to refer to the creation of technology-based companies within universities. Knowledge transfer from universities to firms is one of the cornerstones that underpin the European Innovation Policy [1]. Law 4/2007 [2], April 12, amending Law 6/2001, introduces amendments to define the transfer of know-how to society as a basic function of universities.

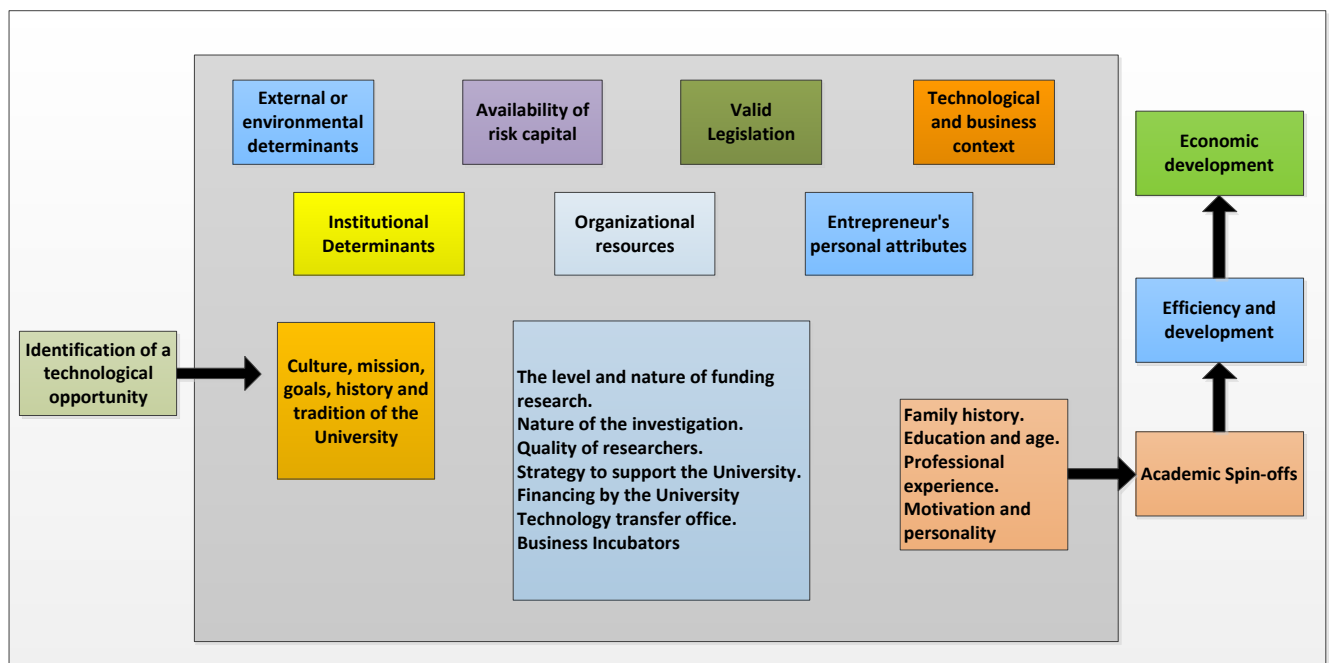


Figure 1. Determinants of the generation of academic spin-offs.

Elaborated by the authors on the basis of O’Shea et al (2007) [3].

Article 35 of Spain’s Science, Technology and Innovation Law 14/2011 [4], of 1st June, establishes the guidelines for the valuation and transfer of knowledge. Article 84 likewise establishes the features for creating foundations and other legal entities: “To promote and develop their goals, Universities, alone or in collaboration with other public or private entities, with the approval of the Board of Trustees, may create companies, foundations or other legal entities in accordance with general legislation”.

Innovation, human capital and entrepreneurial activity in general and the creation of knowledge-based companies in particular have accordingly taken on special importance [5] within the context of a changing society and adopted measures must be aimed at fostering environments that encourage knowledge transfer, such as networks, spin-offs, patents and licences [6].

As can be seen in Figure 2, the evolution of the creation of spin-offs in Spain is slow. Despite the upturn in the number of academic spin-offs in 2009, their weight remains small and the studies carried out show that it is necessary to introduce additional mechanisms to stimulate their creation.

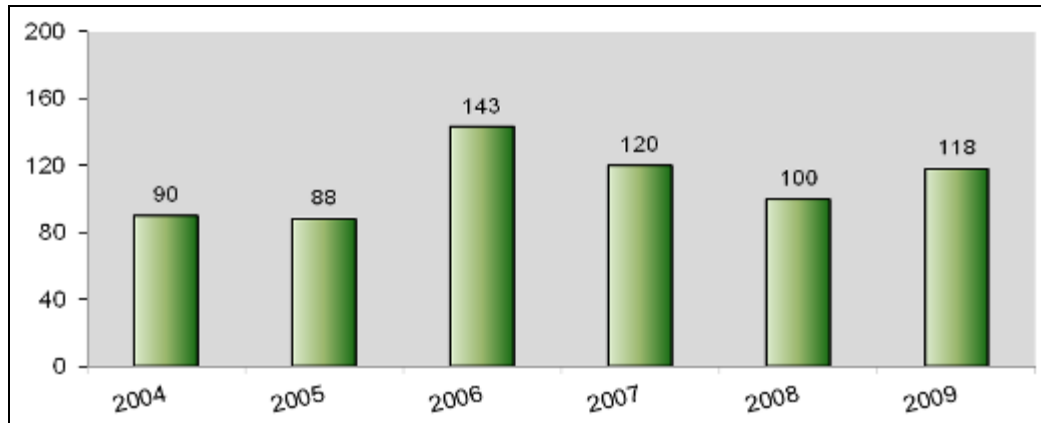


Figure 2. Evolution of the creation of spin-offs in Spain.

Elaborated by the authors on the basis of the REDOTRI 2010 report (Source: RedOTRI 2004-2009 Survey)

The Spanish universities with more spin-offs in 2009 were the Polytechnic University of Madrid, the Universities of Granada and Almeria, the Polytechnic University of Catalonia and the University of Seville.

1.1. Technical Office for Quality and Innovation (TOQi).

Within the University of Oviedo, a **spin-off** [8] [9] [10] [11] was created to exploit the know-how acquired in recent years in the Quality and Innovation Plans managed and executed by the University. The spin-off was created to further the themes of Quality and Innovation, to help universities in the process of adaptation to the European Higher Education Area (EHEA) and to support SMEs and organisations in questions of continuous improvement through the design and implementation of Management Systems and in the reengineering of their service-providing processes. It is also an innovative spin-off due to the area of specialisation within which it is located.

The name of the spin-off is the **TECHNICAL OFFICE FOR QUALITY AND INNOVATION (TOQi)**.

Features of the spin-off:

- Created from the **Process Management technology** developed by the Technical Unit for Quality.
- Arising from within the university.
- Established with the participation of university staff and with the backing of the academic institution.
- We maintain close links with the academic institution of origin (University of Oviedo).
- We are flexible, innovation-based and adaptable to change.
- We provide goods and services with high added value.

TOQi's Mission:

Professional services in Quality and Innovation whose scope includes universities, SMEs and organisations (both national and international) with the ultimate goal of improving management, processes, products and services.

Vision:

To be a referral service for the entire university community in questions of management and assurance of excellence in the field of Higher Education. To be a reference for SMEs and organizations in terms of quality and innovation at a National, European and International level.

Our values:

- Young company with highly qualified professional staff.
- Ability to respond to new obligations and tasks.
- Result-oriented, with a strict adherence to deadlines.
- High value-added services.
- Planning and monitoring of activities and projects.
- Permanent, personalized attention to stakeholders.
- Partnerships with strategic organisations in the Spain.

2. Case report.

The starting out situation for the creation of the spin-off was the **Technical Unit for Quality (UTCAL) at the University of Oviedo**. The Technical Unit for Quality was created in June 2000 with the aim of promoting the pursuit of Quality, Innovation and Continuous Improvement of the University System through the on-going analysis of Teaching, Research and Service activities at the University. In the ten years it has existed, the UTCAL has contributed decisively to promoting and expanding the culture of Quality and Continuous Improvement in University Policy and has become a benchmark “in quality management” within the university community [12]. The UTCAL has provided technical support throughout these years to all the units which have participated in the Quality Plans concerning Degrees, Departments, Services, Centres, etc.

It has also been a key player in meeting the quality requirements demanded by the Spanish Assessment and Accreditation Agency (Spanish acronym, ANECA) in the verification process of the new degrees at the University of Oviedo for their adaptation to the EHEA, its main objectives being to promote Quality at the University of Oviedo and to ensure improvement in the new Bachelor’s and Master’s degrees. The UTCAL has also collaborated with Asturian as well as national organisations and SMEs in the design and implementation of management systems and other University-Business projects.

UTCAL staff at the University of Oviedo have learned to manage and implement Spanish University Coordination Council and ANECA **quality plans** and to promote Quality initiatives within the University and its organisational units (Centres, Departments, Services, Institutes, etc.). This is a know-how of significant value for the implementation and improvement of Internal Quality Assurance Systems (IQAS) within the context of the new European Higher Education Area degrees and which constituted the basis for the creation of TOQi spin-off. In addition, the mechanisms of personnel management at the University are cumbersome and do not guarantee sufficient continuity of personnel to perform these activities. This can produce a situation in which this valuable know-how ends up getting lost and not being used in the University’s benefit.

The creation of spin-off was consequently considered a good opportunity to retain this know-how and represents an improvement for the staff that will form part of the spin-off. The idea of the spin-off is to continue within the University of Oviedo at first, providing high value-added services to make itself known and to seek out new customers with the aim of growing at both a regional and national level.

2.1. Creation of the Spin-Off.

The spin-off was created as a **sustainable alternative** to non-stable recruitment mechanisms at the University which did not ensure the continuity of people in a work context in which this factor is decisive for the provision of a service in matters of Quality and Innovation.

The interaction of creativity with the conditions of the university environment has supposed an opportunity around which a service provider has been created [13] [14].

This is an innovative initiative (a spin-off in the field of Quality and Innovation consulting services) that also involves risk, as it does not involve a specific material technology.

The framework within which to implement and develop this Innovation Project has comprised the Spanish standards UNE 166.002:2006 requirements for R&D and Innovation Management System [15] and UNE 166.006:2006 Technological Surveillance System [16]. First, a thorough technological surveillance was carried out in the field of quality management in line with the scheme of the standard UNE 166.006:2006, represented in the figure below:

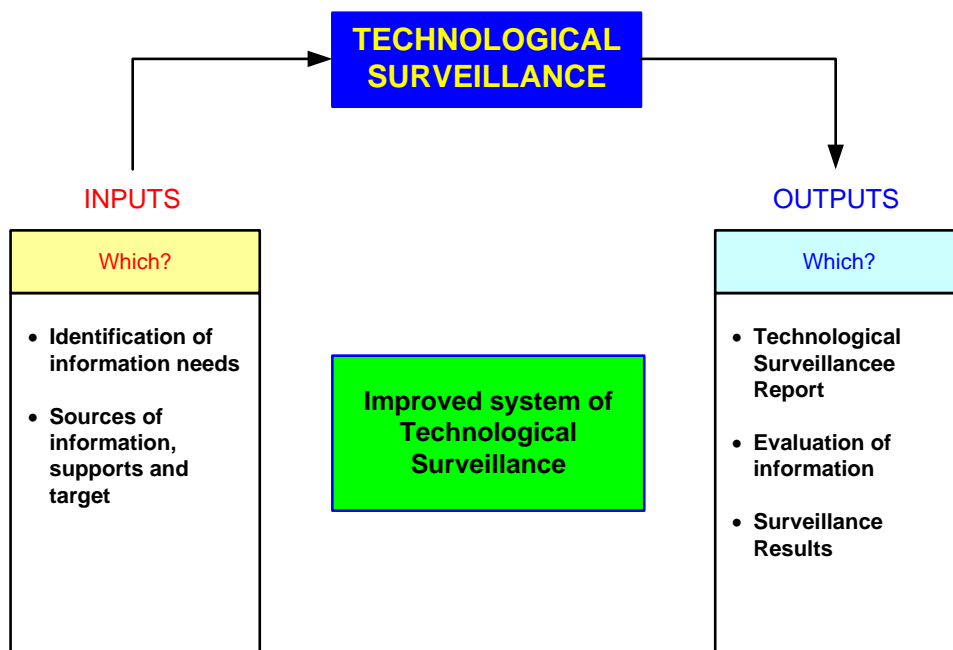


Figure 3. Schematic summary of technological surveillance.

The actions taken to create the spin-off are summarized below:

- Search for information, drawing-up of a technological surveillance report and development of proposals for the establishment of a spin-off to the Management Team of the University of Oviedo.
- Procurement of the main office and administration of equipment (mobile phone, blackberry, laptop, signage, stationery, etc.).
- Preparation of documentation for tender in accordance with the specifications of technical requirements for University of Oviedo technical assistance services.
- Planning and implementing of outreach activities to publicize the services provided by the spin-off.

TOQi has its own infrastructure:

TOQi. Technical Office for Quality and Innovation.

Catedrático José Serrano, 10. 2º E. 33006 Oviedo. Asturias

Telephone: 985 966 014. Mobile: 607 601 601. Fax: 985 966 032

www.toqi.es

toqi@toqi.es

2.2. Organization chart.

The technical staff has the following characteristics:

- Multidisciplinary team: PhDs, Graduates and Engineers from different fields of knowledge.
- More than eight years' experience as Quality Technicians in the University of Oviedo Technical Unit for Quality (UTCa).
- More than five years' experience in Strategic Management Consultancy, improving Organisational Management and improving the Providing of Services and Product Manufacturing.
- Training in standards related to Systems Management, Process Management, Auditing and Models of Excellence by the Centre for Quality in Asturias.
- Accredited Assessors on European and Latin American Excellence Models.
- Spanish Association for Quality Innovation Managers.
- Experience in R&D and Innovation management within the framework of the Principality of Asturias Plan for Science, Technology and Innovation and European Programmes.
- Reinforcing its technical background, the staff of the spin-off has extensive experience in University-Business project management and execution.
- Also worthy of note is the practical nature of the training imparted by the staff of the spin-off, with more than 15 courses and workshops organized in the last four years.
- The development of software applications that support the Management Systems designed by the spin-off is another of its strengths.
- In recent years, more than five applications have been developed for the Units, Services, Institutes and Centres at the University of Oviedo with whom we have collaborated.

2.3. Services.

- Consultancy, development, implementation, maintenance of Quality, Environmental, Occupational Health and Safety and Innovation Management Systems or any other system applied to universities, organisations, institutions and companies in general.
- Technical reports for universities and business.
- In-person training and networking in the areas of Quality, Environmental Management, Health and Safety, Innovation, Strategic Planning, etc.
- Drawing up of National and European project proposals.
- Events Management.
- Development of applications and software solutions that support the efficient management of organizations.
- Advice on Engineering projects.

The services provided by TOQi are divided into two distinct parts:

- Professional Services in matters of Quality and Innovation for Universities, Companies and Organisations.

An innovative methodological approach is employed to implement the processes which deploys thirteen levels of management.

The main steps of this approach are:

- Planning: horizontal flowcharts of the main activities and an array of 13 vertical levels, including all the necessary information to ensure tracking of the process.
- Execution: implementation phase.
- Tracking: by means of indicators.
- Actions: Review of the system by Management.

The figure below presents a graphic description of the approach developed.

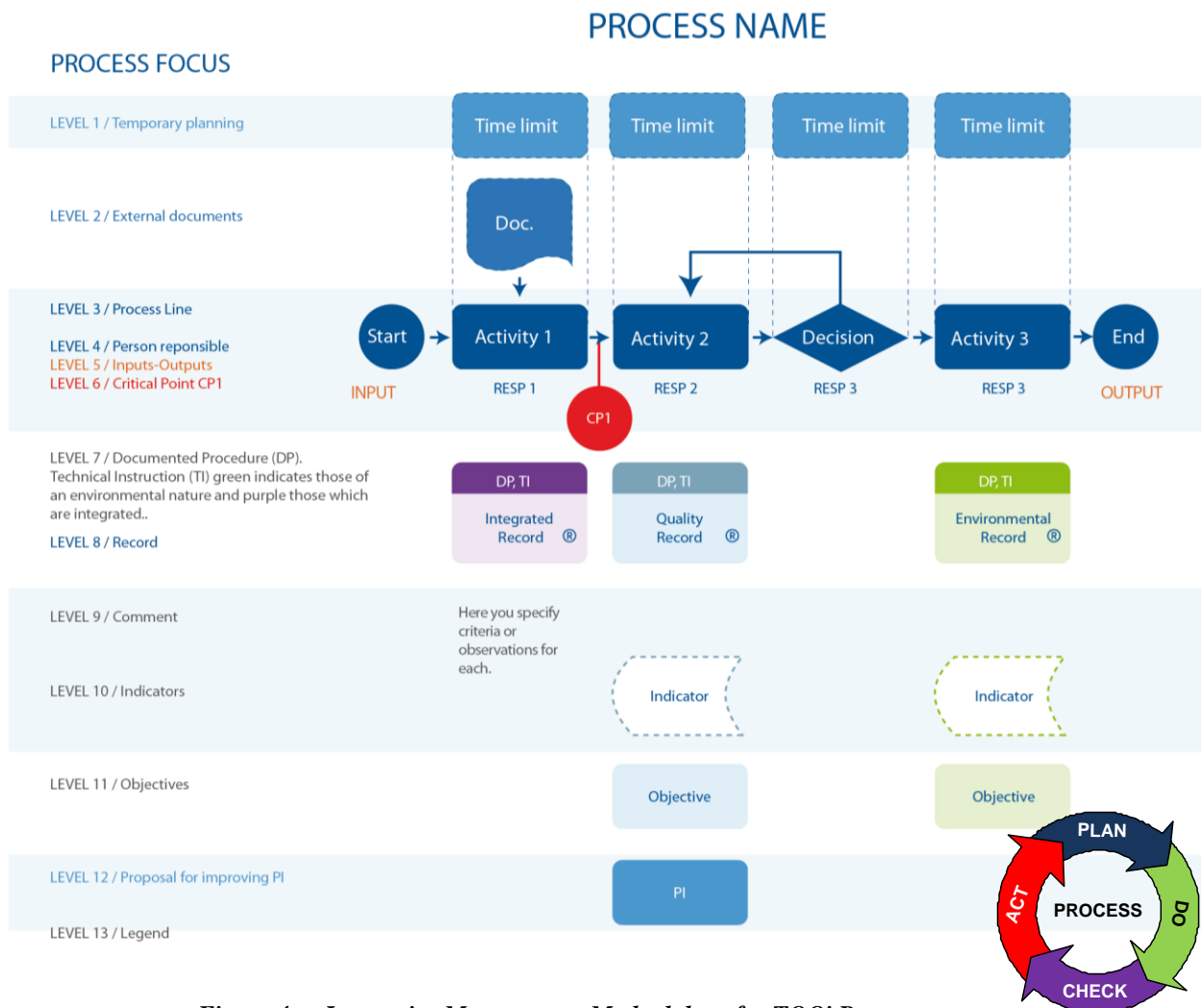


Figure 4. Innovative Management Methodology for TOQi Processes.

3. Results and discussion.

The main results of the implemented best practice at an internal level are:

- Creation of 3 jobs in Oviedo (Principality of Asturias).
- Establishment of the **Know-How transfer agreement** between TOQi and the University of Oviedo (under review).
- Design of a Catalogue of Services and the spin-off website (Services to Universities and Services to SMEs and Organisations).
- Brand protection of the **TOQi brand name** (Brand Product Class 10 and 41) as a guarantee of the quality of the company.
- Awarding of 2 **technical assistance** contracts with the University of Oviedo in matters of quality for the implanting of Internal Quality Assurance Systems and to coordinate and develop a comprehensive survey of Bachelor's and Master's studies.

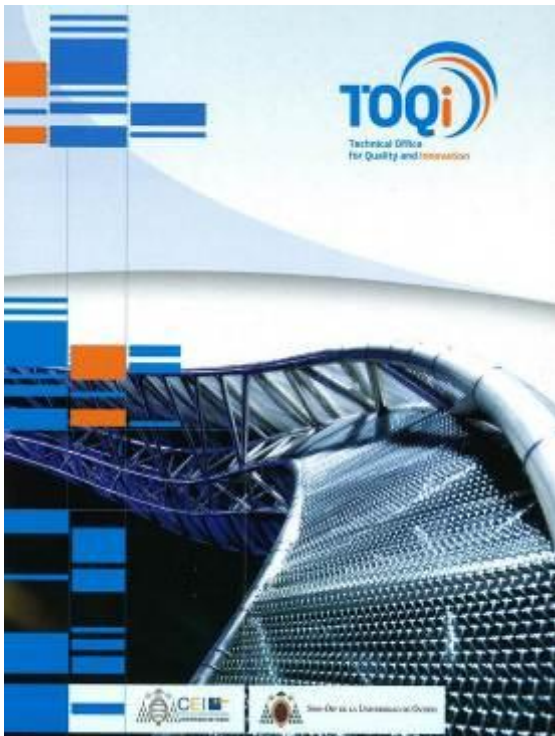


Figure 5. Catalogue of Services and the TOQi website.

- Publication of the **monograph** “Management by Processes. Case Studies”.



Figure 6. Cover of the “Management by Processes” monograph.

- The percentage of turnover outside of the University of Oviedo in relation to total turnover is 20%.

Analysis of the establishment and development phase of the spin-off shows that a series of measures should be taken by universities to try not only to promote the generation of spin-offs, as has happened so far, but also to provide the innovative companies that they originate instruments that allow them to expand and achieve higher level goals.

Greater support by the academic institution of origin would result in superior results from the standpoint of economic growth, trade and, in particular, staff.

Externally, the following has been achieved:

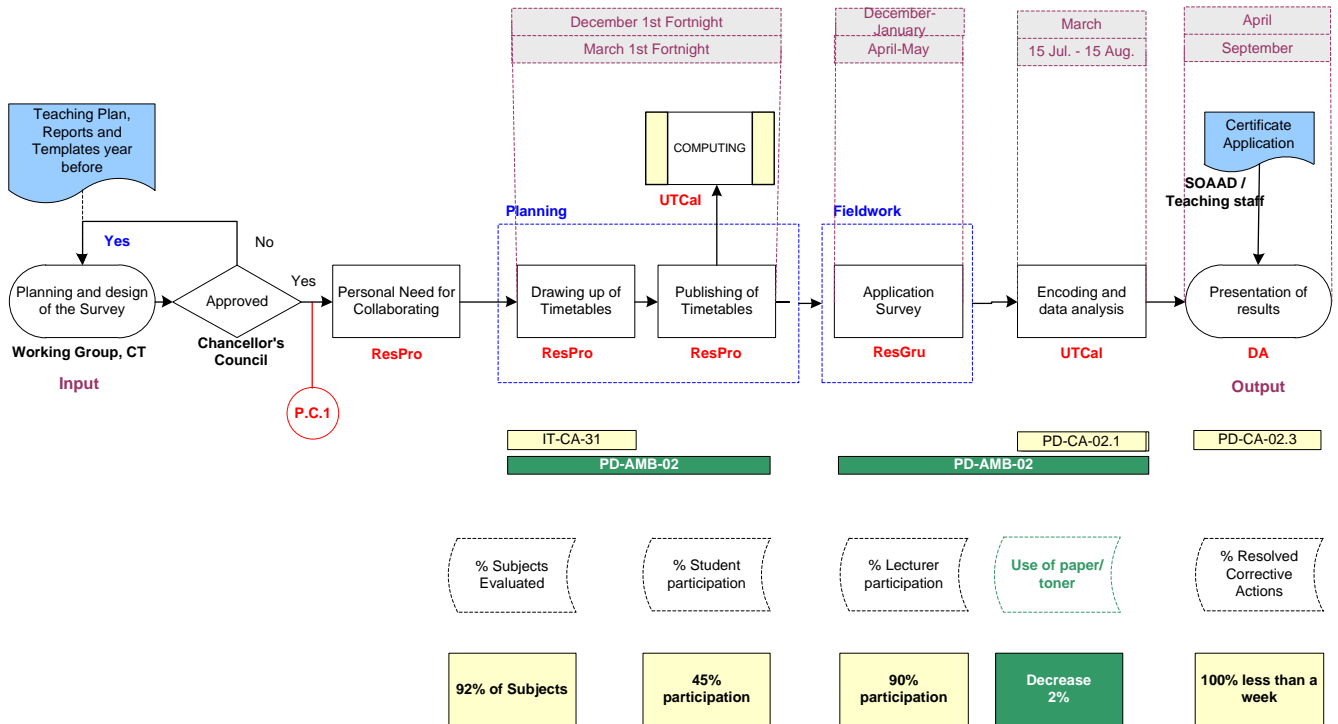
- Support for 3 University of Oviedo lecturers to accede to the post of University Lecturer (hired PhD lecturer, assistant PhD lecturer and collaborating lecturer) according to the ANECA Lecturer Assessment Program for recruitment (Spanish acronym, PEP).
- Approval of a collaborative project in terms of Quality with the Haemodialysis Unit at Nalón Valley Hospital, dependent on the Principality of Asturias Health Service.

Dossier 508/2009, Hospital Valle del Nalón.

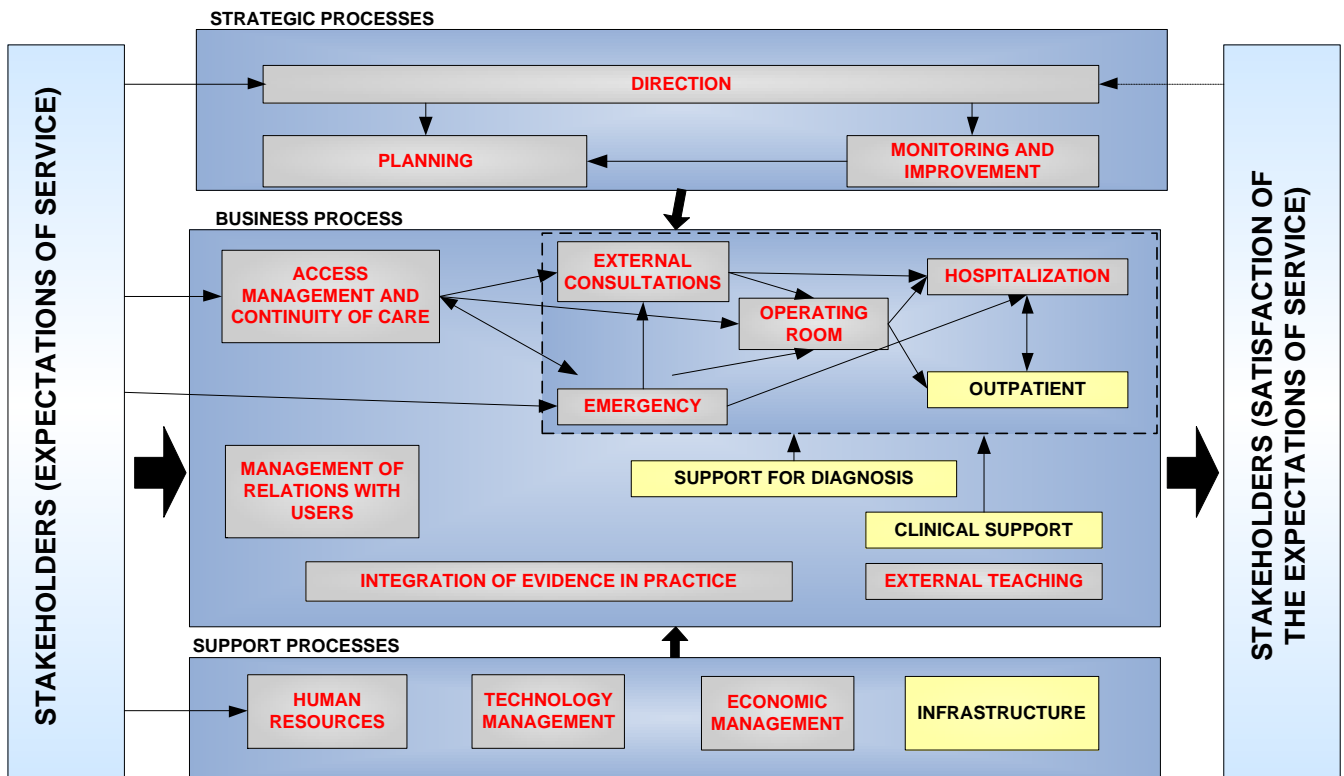
- Maintenance of Integrated Management Systems (Quality, Environment, R&D and Innovation, Information Security, IT Services, etc.) in 5 organisations from different sectors in the Principality of Asturias.
- **11 official cooperation agreements** have been established.

It worth noting that the same methodological approach by means of processes designed by TOQi is being employed in all the implemented projects, being highly successful in all cases. That is, the TOQi brand image has been created for implementing process management in organisations, the proof of which comprises the following examples:

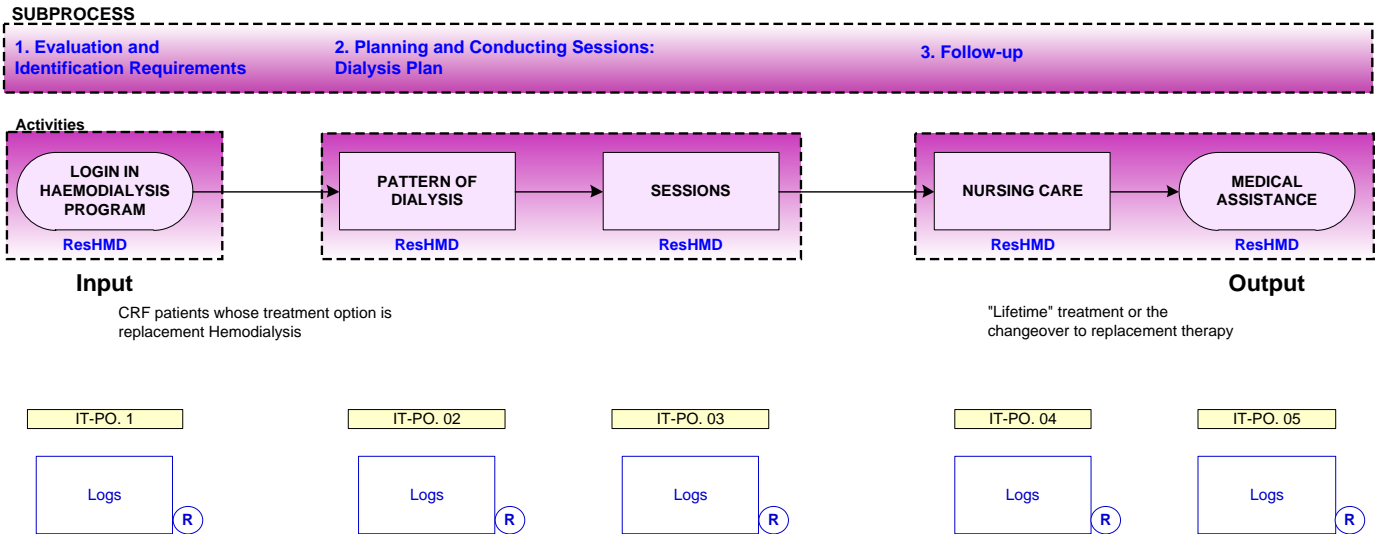
University, General Education Survey (Spanish acronym, EGE).



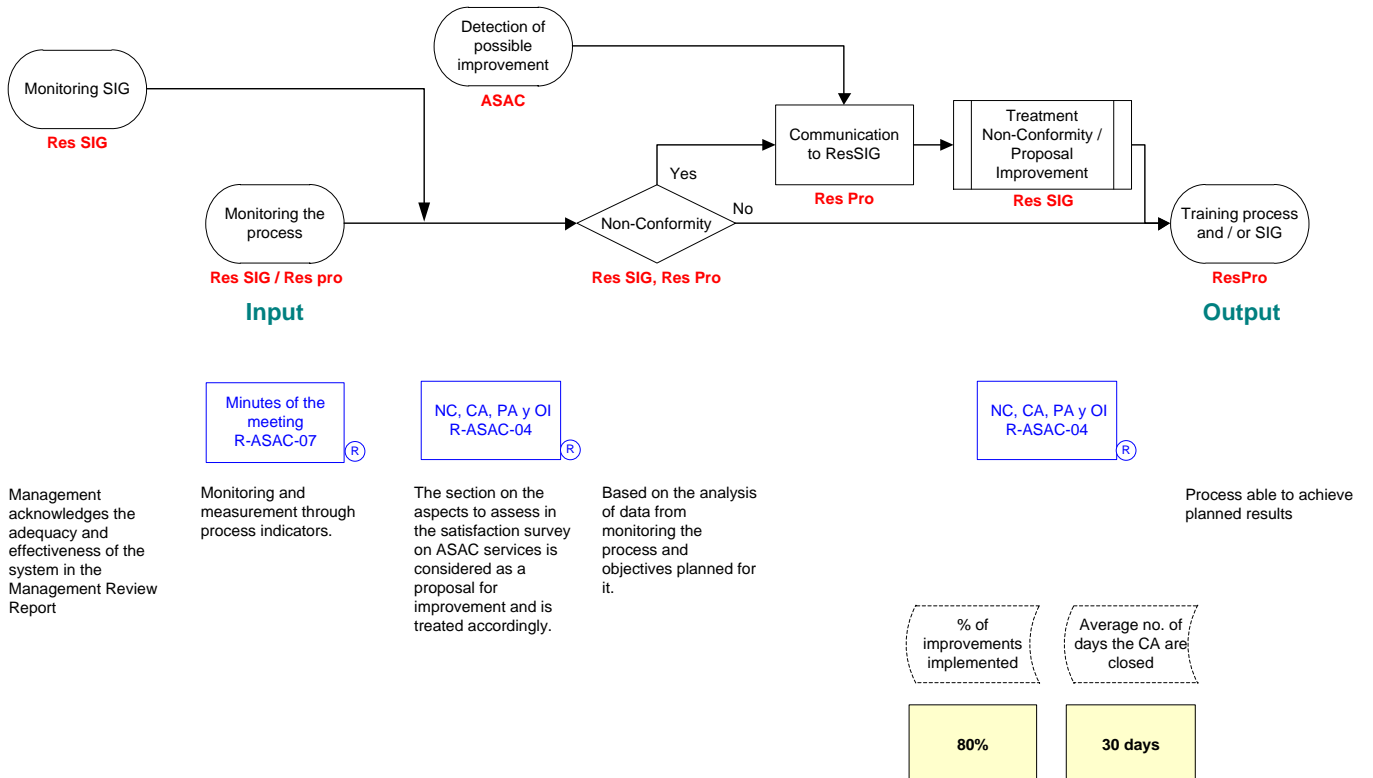
Public Organisation, Haemodialysis Service, Nalón Valley Hospital.



CHRONIC HAEMODIALYSIS PROCESS



SME belonging to the ICT sector, ASAC Comunicaciones.



4. Conclusions.

- The character of the spin-off is completely innovative as it entails a new way of managing Technical Units for Quality at Spanish Universities and offers more flexible alternatives for the providing of services and personnel management.
- In the case of TOQi, the close relationship with the University of Oviedo has enabled the existence of technical assistance services to launch initiatives and Quality and Innovation projects.
- Leveraging the synergies of UTCal and TOQi furthers the development of joint projects.
- The possibility of expanding the scope of the spin-off to meet and manage the needs of other University Services. It constitutes a comprehensive Services Engineering resource providing support to University Units.
- The management of projects aimed at designing and implementing quality management and environmental management systems, among others, together with organisations in the Principality of Asturias, Cantabria and Madrid.
- Participation in university working groups, in collaboration with the Technical Unit for Quality, allows us to keep abreast of developments in the management of Academic Quality and Innovation.
- Marketing and dissemination activities (brochures, websites, the Telescopi network, etc.) that enable potential customers to become acquainted with the implemented project.
- Internationalization, in collaboration with the Technical Unit for Quality, e.g. in the Draft Programme of Interuniversity Cooperation and Scientific Research (Spanish acronym, PCI).
- The production of economic returns for the university, thus diversifying its financial base.
- The introduction of changes in the management of UTCal, i.e. moving on from the concept of the traditional university to that of the entrepreneurial university.
- Creating a corporate identity or brand image around the TOQi process approach that has gained very good acceptance in all the organisations in which Quality and Innovation projects have been implemented.

This practice is included in the Telescopi network Observatories' Network on Best Practices for the Strategic Management in Latin America and Europe 2011.

<http://telescopi.upc.edu>

5. Bibliographical References.

- [1] Rubiralta, M. Transferencia a las empresas de la investigación universitaria. Descripción de los modelos europeos. Fundación COTEC para la Innovación Tecnológica, Madrid, 2004.
- [2] Ley 4/2007, de 12 de abril, por la que se modifica la Ley 6/2001, de 21 de diciembre, de Universidades.
- [3] O'Shea, Rory P.; Allen, Thomas J.; Morse, Kenneth P.; O'Gorman, Colm and Roche, Frank. Delineating the Anatomy of an Entrepreneurial University: The Massachusetts Institute of Technology Experience. *R&D Management*, 37(1), 1-16, 2007.
- [4] Ley 14/2011, de 1 de junio, de la Ciencia, la Tecnología y la Innovación.
- [5] Beraza Garmendia, J.M. La creación de spin-offs universitarias en la Universidad Española: marco legal. *Revista de Dirección y Administración de Empresas*. Número 17, diciembre 2010.
- [6] Pulido, A. El futuro de la Universidad, un tema para debate dentro y fuera de las Universidades. Universidad Autónoma de Madrid. Delta, Publicaciones Universitarias. Madrid, 2009.
- [7] CRUE. Memoria RedOTRI 2010. Madrid, 2011.
- [8] Ministerio de Educación y Ciencia (MEC), Everis. La creación de empresas de base tecnológica en el ámbito universitario a partir de la reforma de la LOU. Madrid, 2008.
- [9] Condom, P. y Valls, J. "La creación de empresas desde la universidad: las spin-off", *Iniciativa Emprendedora*, nº 38, pp. 52-69, 2003.
- [10] Ortín, P. Salas, V. Trujillo MV. y Vendrell F. El spin-off universitario en España como modelo de creación de empresas intensivas en tecnología. Dirección General de Política de la Pequeña y Mediana Empresa.
- [11] Universia Investigación: "Una aproximación al concepto de spin-off". <http://investigacion.universia.es/spinoff/concepto/index.htm> [1 de abril de 2009].
- [12] AENOR, 2000. Norma ISO 9001:2008. Sistemas de Gestión de la Calidad. Requisitos. Madrid. Asociación Española de Normalización y Certificación.
- [13] Montiel Campos, H. y Solé, F. Existencia, descubrimiento y explotación de oportunidades tecnológicas. *Revista de Administración, Finanzas y Economía (Journal of Management, Finance and Economics)*, vol. 2, núm. 2 (2008), pp. 104-124.
- [14] Solé, F. Llinàs-Audet, X. De la burocracia profesional a la tecnópolis: los desafíos estratégicos de la gestión universitaria. Cátedra UNESCO de Dirección Universitaria. Universitat Politècnica de Catalunya.
- [15] AENOR, 2006. Norma UNE 166.002:2006. Gestión de I+D+i. Requisitos del Sistema de Gestión de la I+D+i. Madrid. Asociación Española de Normalización y Certificación.

- [16] AENOR, 2006. Norma UNE 166.006:2006. Gestión de I+D+i. Sistema de Vigilancia Tecnológica. Madrid. Asociación Española de Normalización y Certificación.