

Design of the Procedure Attached to the Process “Innovation Management” of Eidos, a Materials Science Research Group, and Analysis of its Influence on the Formation of Doctorates

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Abstract

Similar to the worldwide ISO, at the European level, Brussels-based CEN (the European Committee for Standardization) is the solely recognized organization for the planning drafting and adoption of European Standards in all major areas of business except electro-technology and telecommunications. Concretely, on July, 2013, was published the UNE-CEN/TS 16555-1:2013, the European Standard for Innovation Management. Thus, innovation, both as a field of study and as a practical discipline, has gained considerable traction over the past 15 years. In fact, as organizations become broader and more complex, the need for a systematic approach to new product, service or business development techniques strengthens accordingly. This idea can be extended to university research groups in which innovation is a crucial point: especially for the doctorates formation.

The UNE-CEN/TS 16555-1:2013 technical specification is focussed on establishing and maintaining an innovation management system (IMS). It is applicable to all public and private organisations regardless of sector, type or size. This document provides guidance on: understanding the context of the organisation; establishing the leadership and commitment of top management; planning for innovation success; identifying and fostering innovation enablers/driving factors; developing the innovation management process; evaluating and improving the performance of the innovation management system; and understanding and using innovation management techniques.

By using this document, organisations can increase their awareness of the value of an IMS, establish such a system, expand their capacity for innovation, and ultimately generate more value for the organisation and its interested parties. Since the innovation management system outlined in this document follows the PDCA structure (plan-do-check-act), so it can be integrated within other standardised business management systems existing in the organisations.

In this context, EIDOS, a Materials Science research group (UPV/EHU, University of the Basque Country), has been building its own management style inspired by the EFQM model. In fact, we have identified the formation of the doctorates as a key process, and the innovation management as an auxiliary process related to it. Thus, this work presents the design of the procedure related to the latter process in accordance with the EFQM spirit of excellence within the UNE-CEN/TS 16555-1:2013 European standard.

1. Introduction

An innovation is something original, new, and important—in whatever field—that breaks in to (or obtains a foothold in) a market or society. Innovation differs from invention in that innovation refers to the use of a better and, as a result, novel idea or method, whereas invention refers more directly to the creation of the idea or method itself. Innovation differs from improvement in that innovation refers to the notion of doing something different rather than doing the same thing better.

Innovation, both as a field of study and as a practical discipline, has gained considerable traction over the past 15 years. In fact, as organizations become broader and more complex, the need for a systematic approach to new product, service or business development techniques strengthens accordingly. In the organizational context, innovation may be linked to positive changes in efficiency, productivity, quality,



competitiveness, market share, and others. Additionally, recent research findings highlight the complementary role of organizational culture in enabling organizations to translate innovative activity into tangible performance improvements.

An important innovation factor includes clients buying products or using services. Regarding it, a great deal of innovation is done by those actually implementing and using technologies and products as part of their normal activities. This idea can be extended to university research groups in which doctorates receive formation (a service) to become doctors. Obviously, research and innovation go together, but formation of doctorates is also an important activity in many research groups at university; and therefore, innovation is a crucial point also in this field. Thus, the adoption of an innovation management system (IMS) can be a good way to improve the formation of doctorates in research groups.

On the other hand, Brussels-based CEN (the European Committee for Standardization) published the UNE-CEN/TS 16555-1:2013 on July, 2013: this is, the European Standard for Innovation Management. Similar to the worldwide ISO, at the European level, CEN is the solely recognized organization for the planning drafting and adoption of European Standards in all major areas of business (except electro-technology and telecommunications). The UNE-CEN/TS 16555-1:2013 technical specification is focussed on establishing and maintaining an IMS.

Taking into account the above mentioned aspects, this work presents the design of the procedure attached to the process of innovation in EIDOS, a research group in Materials Science at the University of the Basque Country (UPV/EHU), based on the UNE-CEN/TS 16555-1:2013 technical specification. The work discusses on the context of the organisation, on establishing the leadership and commitment of top management, on planning for innovation success, on identifying and fostering innovation enablers/driving factors, on developing the innovation management process, and on evaluating and improving the performance of the innovation management system.

2. Design of the Procedure

As previously mentioned, EIDOS is a research group in Materials Science, and its management is based on processes. Figure 1 shows the process map for EIDOS. As observed, we have visualized three operational processes (OP), three management processes (MP), and three supporting processes (SP).

Therefore, EIDOS products are scientific knowledge and doctors that are consumed by/delivered to the scientific community. This way, the scientific community is a client for EIDOS. However, as explained below, doctorates are also clients for EIDOS, and this fact is the crucial point to understand innovation on their formation.

In order to implement and IMS, the organization leaders must be committed with innovation. In EIDOS, this commitment is visualized by attaching the generation of new ideas to the organization vision (figure 2). This way, vision is management initiated but must be staff supported for innovations success. Vision is translated to ideas that can be originated at the staff level to get management supported.

Thus, from vision to idea we have the bottom-up innovation, where the opposite way is top-down. Both are complementary, and construct the innovation culture in EIDOS. This culture is also visualized in the EIDOS process map, where the management for excellence is the process governing the whole organization activity. This process is based on the EFQM Excellence Model that is a management framework used by over 30 000 organisations in Europe and beyond. Often used as a diagnostic tool, the model takes a holistic view to enable organisations, regardless of size or sector to assess where they are, helping them to understand their key strengths and potential gaps in performance across 9 criteria: 1) leadership, 2) strategy, 3) people, 4) partnerships and resources, 5) processes, products and services, 6) people results, 7) customer results, 8) society results, and 9) key results.

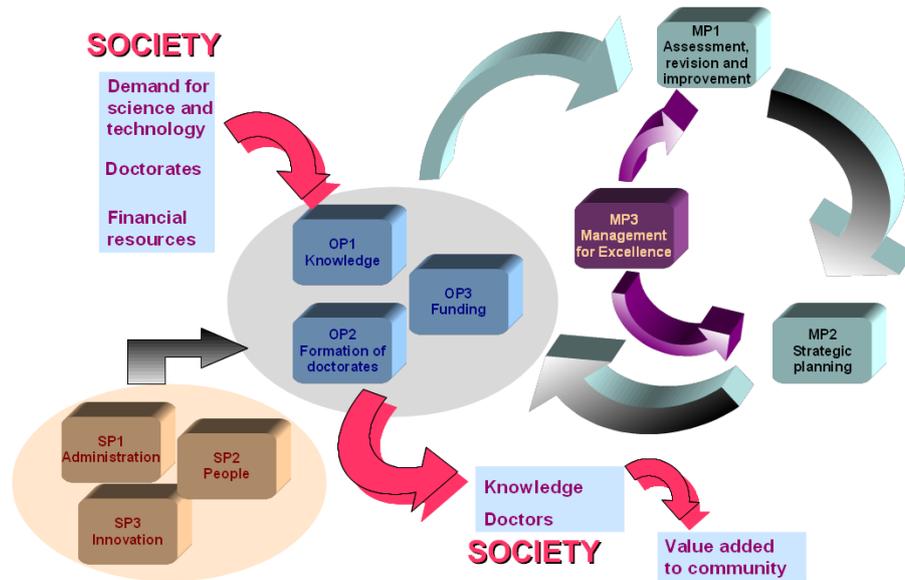


Figure 1. Process map for EIDOS

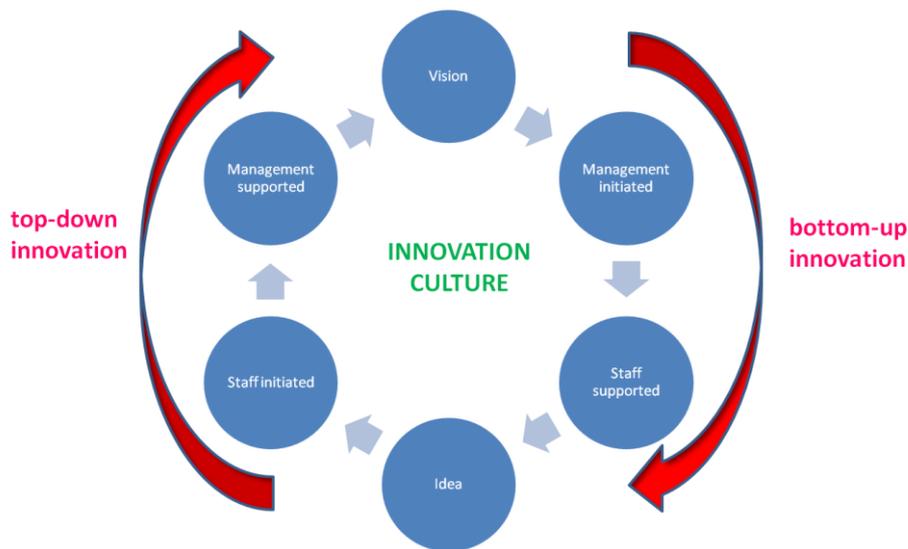


Figure 2. Innovation culture in EIDOS: top-down and bottom-up approaches

As concluded from figure 1, EIDOS products are scientific knowledge and doctors that are consumed by/delivered to its clients: the scientific community members. However, EIDOS also provides a service to doctorates consisting of giving formation to them. So, doctorates are also organization people because their research contributes to the generation of new scientific knowledge (OP1) and they are clients because they receive formation to become doctors (the second EIDOS product). Therefore, innovation planning applied on formation of doctorates must take into account this double role of doctorates in the organization. The identification of the driving factors affecting the formation of doctorates in EIDOS provides the tools to foster innovation on this operational process. As shown in figure 3, doctorates need to acquire specific and transversal competences. Transversal competences are defined by the Dublin descriptors, and specific ones correspond to the activity of EIDOS.

The Dublin Descriptors provide very general statements of typical expectations of achievements and abilities (competences) associated with awards that represent the end of a Bologna cycle. General level



descriptors have been developed for the 'short cycle within the first cycle' and the first, second and third cycle.

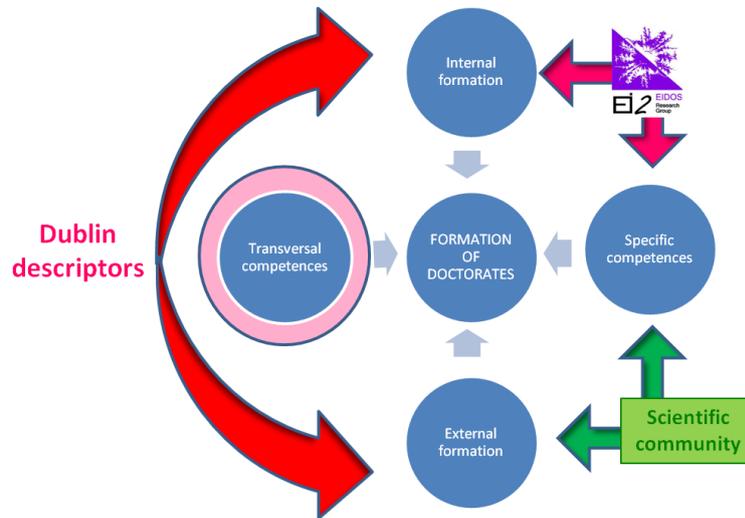


Figure 3. Driving factors affecting the formation of doctorates in EIDOS

The Dublin descriptors have been developed by an international group of experts, which has named itself the Joint Quality Initiative (JQI). The work of the JQI and Tuning is considered complementary by both parties. In order to get those competences, EIDOS leaders' commitment with doctorates also includes providing them with external formation. Thus, figure 3 also visualizes the need of both internal (coming from EIDOS) and external (coming from the scientific community) formation, as a driving factor for innovation in the formation of doctorates.

The innovation process on the formation of doctorates in EIDOS is intended to be developed by means of the pre-existent formation plan for doctorates. This approach takes into account the competences to be acquired by doctorates, the formation agents (internal and external), and the existing financial resources to produce a four-year formation plan. The goal is the acquisition of the desired competences, and innovation is included in it.

The last stages for an IMS consist on evaluation its performance with the aim of further implementation of improvements. In this sense, EIDOS uses the management process MP1: assessment, revision and improvement (figure 1). As a result of this process, improvement actions are formulated being next included in the strategic plan of the organization. In fact, this is the management process MP2.

Finally, the UNE-CEN/TS 16555-1:2013 standard fosters the understanding and use of innovation management techniques. In EIDOS, innovation of the operational process "Formation of doctorates" consists of the management of ideas, developed in the formation plan (project development). The diffusion and protection (via copyright) of the EIDOS formation plan for doctorates is intended not only to improve the EIDOS activity but also to provide other researches with better tools to achieve theirs (figure 4).

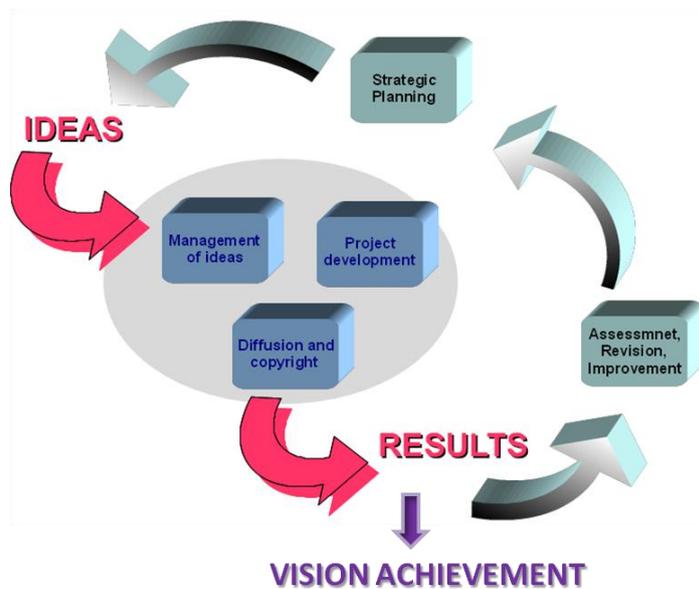


Figure 4. Understanding and using innovation management techniques in EIDOS

As observed in figure 4, the results are focussed to the consecution of the organization vision; therefore, attached to the creation of an innovation culture in EIDOS.

3. Conclusions

- EIDOS contextualizes its activity by means of a process map. Additionally, EIDOS identifies its clients according to the identification of its products/services.
- Innovation is a supporting process for EIDOS, and its whole activity is managed with a system inspired on the EFQM model for excellence.
- Innovation has been identified to influence the operational process “Formation of doctorates” by two main driving factors: acquisition of competences (specific and transversal) and formation agents (internal and external)
- Management processes in EIDOS provide the tools to evaluate and improve the performance of the innovation management system applied on the formation of doctorates.

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