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## Editorial

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## 1 Introduction

When we were appointed as editors of this Special Issue of the *International Journal of Entrepreneurship and Innovation Management*, devoted to ‘Creation of knowledge and innovation entrepreneurship in Science parks’, we considered the points of our work as follows.

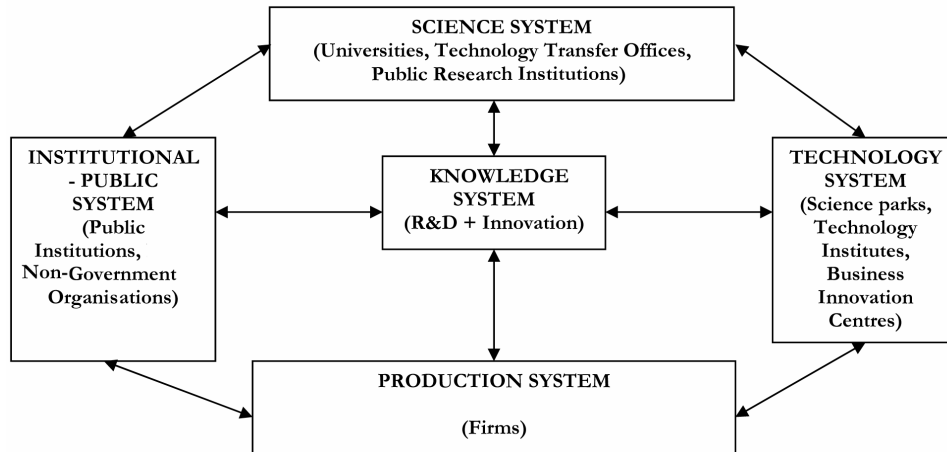
First of all, the call for papers should provide contributions made by authors from a wide geographical origin. Thanks to the aid of the Academy of Management, we have obtained good paper authored by scholars from New Zealand, Finland, the UK, Germany, Denmark and Spain.

The second was the consideration of the networks as the central idea of the analysis. As a growing trend in the literature shows, “networks are reshaping the global business architecture (...) [and] a distinguishing feature of the early twenty first century is the pervasiveness of many types of social, digital/electronic, and organizational networks”. (Parkhe et al., 2006, p.560). So, an updated study of creation of knowledge and innovation entrepreneurship in Science parks must consider the *network perspective* to deal effectively with the issue.

And the third was related to the framework of the theme of this Special Issue. We understand the creative activity of Science parks within a Technological System

embodied in a wider scheme centred on the Knowledge System (the one that is focused on Research, Development and Innovation), as the following Figure 1 shows.

**Figure 1** The knowledge system (research, development and innovation)



Source: Bueno (2001).

Within the so-characterised Knowledge System there are two types of spaces: the Creation and Knowledge Transfer Space and the Diffusion and Knowledge Implementation Space (Bueno, 2006).

The first gathers the following:

- organisational *bas* (interpersonal field to share and to create knowledge)
- internet websites to generate and to share knowledge
- science (and technology) parks
- knowledge markets (for intangible resources).

The later comprises the following:

- clusters and regions (communities or groups)
- cities and districts
- firms and organisations
- organisational units and social teams.

The Science park is a useful tool to provide a common ground for the relationships of those agents. The goal is to improve cooperation for innovation development. This objective requires technical and science knowledge, financial resources, clear policies and social guidelines from scientists, technological personnel, public institutions, firms and citizens.

We think that this perspective has a high potential to explain the themes linked to the point of this Special Issue (Science parks, Incubators, Technology-Based Small Firms (TBSFs) and so on).

We are greatly indebted to the members of IJEIM Editorial Board who have worked as highly committed reviewers for this Special Issue. Specially, to professors Pier Abetti (Rensselaer University), Keith Goffin (Cranfield University) and José Maldifassi (Universidad Adolfo Ibáñez).

To introduce this IJEIM Special Issue, first we show the main ideas contained in each paper and then we summarise them in Table 1. We hope that authors' efforts can shed new light on the study of the future configuration of the Science parks worldwide.

## 2 The papers

Gibb paper, titled *Optimising intellectual capital development: a case study of brokering in a science park*, offers an excellent integration of the key components of the intellectual capital and the main aspects of the networks. The main consequence of her work is that those components can be leveraged through the network, as she has observed in 'Innovation Waikato', a New Zealand science park. So, this paper is related to the huge literature trend arising in the recent years aimed to establish relationships between the network concept (and the ideas developed within the network analysis) and the competitive advantage of the firm (from the knowledge-based view).

*Which Firms Benefit Most From the Incubators?* is the question addressed by Hitty and Maki in their paper. Taking into account the Finnish experience, they find that incubators are increasingly offering its services to those firms able to use efficiently the offered services. This strategy represents a shift in the incubators' procedures towards a process-oriented view. The rationale is that incubators must optimise their resources and offering its services to a wide range of firms is not the best way to do that. Hitty and Maki deals first with the issue of what kind of firms seem to benefit most from their location in the incubator. Then, they proceed to analyse if the firms that should benefit most from the incubator are actually able to claim these benefits. The conclusion, aligned with other findings in the literature, is that 'the incubator benefits most the relatively young firms that have not extended their stay at the incubator for over two years'. The firm's orientation towards international markets also appears as a factor related to the frequent use of the incubator services. Finally, another proposal that echoed Gibb paper: "the incubators need actively to develop and improve the quality these specialist services by for example networking with other incubators".

Taylor and Ullah, from the University of Liverpool, have written a paper titled *Spin-Offs, Stages of Growth and Funding Issues: Some UK Evidence*. Authors focus on the financial issues of the so-called 'TBSFs', arising from universities and other research organisations. Results from a survey sent to 825 British TBSFs (with a response rate of 22.45%, this is, 133 responses) show differences related to their origin. So, TBSFs derived from University spin-offs report funding problems wider than those companies derived from Non-university spin-offs or Parent company spin-offs. This interesting issue could suggest a recommendation for policy-makers: success in University spin-offs could be enhanced if Universities would be able to obtain cheap and sufficient amounts of money.

**Table 1** Summary of papers in this Special Issue

<i>Author(s)</i>	<i>Title</i>	<i>Keywords</i>	<i>Core research questions</i>	<i>Main purpose of the paper</i>
Gibb	Optimising intellectual capital development: a case study of brokering in a science park	Science park; brokering; intellectual capital; social networks	What the sources of science parks' intellectual capital are? What are they located in a special case (Innovation Waikato, New Zealand)?	To analyse the intellectual capital management in science parks from a network perspective
Hitty and Maki	Which firms benefit most from the incubators?	Incubator; incubation process; segmentation of client firms; services	What firms seem to benefit most from their location in the incubator? The firms that should benefit most from the incubator are actually able to claim these benefits?	To understand the incubation processes and related services
Taylor and Ullah	Spin-offs, stages of growth and funding issues: some UK evidence	Technology-based Small Firms (TBSFs); spin-offs; universities; research organisations; entrepreneurship; parent companies; innovation and venture capital	Nature of the financing problems faced by TBSFs (causes, temporal dimension and relation to the firm origin)	To explore funding issues at early stages of development of TBSFs

**Table 1** Summary of papers in this Special Issue (continued)

<i>Author(s)</i>	<i>Title</i>	<i>Keywords</i>	<i>Core research questions</i>	<i>Main purpose of the paper</i>
Lendner and Dowling	The organisational structure of UBIs and their impact on the success of start-ups: an international study	University Business Incubator (UBI); network; technology transfer; research commercialisation; science park; start up company; spin-off; entrepreneurship; regional development	What the success factors for start-ups in UBIs are?	To examine the goals, structure, network size and strength and the strategies of UBIs and their impact on the incubator's firms
Barge, Lemus, Núñez and Modrego	Research and technology organisations: how do they manage their knowledge?	Technology Institutes; R&D organisations; intellectual capital management; organisational knowledge; human capital; structural capital; relational capital	Measurement of the intellectual capital of the technological institutes	To study the practice of the intangible assets management in technological institutes
Bueno and Rodríguez-Pomeda	On knowledge, networks, social capital and trust in innovation environments	Knowledge, networks, social capital, trust, innovation	What are the shaping ideas of the present and future role of innovation environments like Science parks?	To gather and classify relevant contributions in several fields

This is a result aligned with other research conclusions. More original conclusions are attained when authors analyse financial issues and other organisational aspects of the TBSFs. It is very interesting to study funding problems along the TBSF history. Taylor and Ullah found – in their research sphere – that University spin-offs were financially constrained at all of the first four evolution stages (the stages are as follows: seed, start-up, market research, expansion, initial public offering and management-buy-out), but the problems are higher in the start-up and in expansion stages. TBSFs derived from Parent company spin-offs have a slightly different profile, with decreasing financial problems as company evolves.

Some questions remain opened after the research, because, as authors say, it is not clear why University spin-offs are so fund hunger. At least two explanations could be possible: that these kind of TBSFs are higher-technology business (compared to the other TBSFs types) or that they have higher levels of risk due to the academic nature of their technology and entrepreneurs.

Lendner (from the University of Applied Sciences Deggendorf) and Dowling (from the University of Regensburg) present a paper titled *The organisational structure of university business incubators and their impact on the success of start-ups: an international study*. They have created a database of 363 potential University Business Incubators (UBIs) worldwide. After screening with several criteria (responding to the authors consider as UBI characteristics), they obtained a ‘net’ database with 310 UBIs. Its geographical roots are as follows: 46% located in America (90% of these in the USA), 42% in Europe (49% of them in the UK), 10% in Asia and 2% in Australia. The final sample consists of 130 UBIs (44% response rate).

Lendner and Dowling test some hypotheses developed from network theory. Following the literature, they believe that networking activity and the growth of entrepreneurial firms are linked. Issues related to the entrepreneurial firms’ survival, growth and performance depend on its network of inter-firm relationships. So, they formulate several hypotheses taking into account these relationships and dependent variables measuring success (like employee growth rate, financing rate, sales growth rate and survival rate).

Correlation analysis support two of the five hypotheses (“The stronger the relationship between a UBI and its university partner, the higher the employee growth for firms within the incubator” and “The higher the number of organisational services provided by the UBI, the higher the financing rate for the incubator firms”) and partially another one (“The stronger the relationship between a UBI and its financing partners, the higher the financing rate of the start-up firms in the incubator”).

As the main conclusion, Lendner and Dowling consider that their research provide some support for an explanation of the benefits of incubators for start-ups based on network theory. Within this argumentation, links to financial institutions (as well as relevant industry and government partners) could be critical for the UBIs’ success.

Finally, they point to open questions like the need of a comparative analysis of non-university start-ups (one of the points of the Taylor and Ullah paper) and the examination of longitudinal results of UBIs’ strategies.

Sometimes firms build networks to develop cooperative R&D. In Spain, they are called Technology Institutes and are non-for-profit organisations aimed to improve firms’ competitiveness offering them new directions in science and technology developments.

Barge et al. show how the practice of these Institutes is based on the use of tacit and explicit knowledge, the analysis of the available technical options and on a wide use of networks. So, they conclude, Spanish Technological Institutes leverages their intellectual capital in order to perform efficiently their activities.

The point is to establish a system to collect, aggregate, manage, disseminate and analyse the knowledge arising from its human, structural and relational capital.

As a result, the authors offer a diagnosis of these Institutes, gathering a set of indicators obtained through an empirical investigation on 61 Technological Institutes implemented in 2001. These Institutes have a huge heterogeneity: some of them use advanced Intellectual Capital tools and other are not compelled to utilise them. Differences in the geographical origins of the Institutes aid to explain that heterogeneity in Intellectual Capital practices. The rationale for these differences is based on the policy variations of the regional governments.

Bueno and Rodríguez-Pomeda paper is a review of recent literature on the analysis of innovation locus determinants, as knowledge management, networks, social capital and trust.

The conclusion is that a comprehensive view (with contributions from economics, strategic management, organisational theory, sociology and social networks analysis) is needed to deal with the present and future role of Science parks.

It appears clearly that the creation and implementation of new technologies within the knowledge society (and its organisations) requires a 'mixed culture' approach. This culture is the result of scientific, technical and humanistic efforts done by innovation agents in the Science park environment. So, the innovative culture built at the Science parks (as an efficient organisational *ba*) is the 'perfect link' in the present knowledge society.

Intellectual capital and its management, within Science parks, arises as a key concept to deal with knowledge creation and sharing nowadays.

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