

## **The Importance of Social Capital at the Individual level for KTE in the context of Open Innovation: Spanish University spin-off companies**

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**Objectives:** To study the relevance of social capital in enabling Knowledge Transfer and Exchange (KTE) from Higher Education Institutions (HEI) to spin-off companies. This study of spin-off companies involves staff from HEIs in Spain and both extends and revisits previous UK studies by considering the role of social networks and individual social capital in facilitating KTE and the contributions to open innovation in regional innovation system.

**Approach/Methodology:** Based on a literature review on the topic, analysis of previous studies (especially Lockett et al., 2008; Lockett et al., 2009; Johnston et al., 2010) and eighteen semi-structured interviews with managers of HEI KTE offices, managers of spin-off companies, and other KTE related stakeholders, conducted in the Malaga province area (Southern Spain). This approach is based on prior work in the context of Open Innovation (OI) (Chesbrough, 2004; Almirall and Casadesus-Masanell, 2010) that mention how all agents involved in KTE work closely to convert knowledge into innovation. HEIs may play a crucial role since they are institutions that cooperate and share knowledge with other organizations in KTE processes. University spin-off companies (Lockett et al., 2003; Clarysse and Mora, 2004), as knowledge-intensive firms, need to be aware of knowledge evolution generally but academic knowledge in particular. They have relationships with HEI research groups that act as quasi firms (Etzkowitz, 2003). Siegel et al. (2003) found that the most successful HEIs regarding KTE and entrepreneurship were those that had clear strategies towards the spinning-out of companies and the use of subordinated external entrepreneurs to the HEI in the process because of having better network and commercial awareness. Moreover, it has been found that KTE and networking in HEI spin-offs decreased after their early years but at the same time the relationships with customers increased (Pérez and Martínez, 2003). KTE processes have gained increasing importance in terms of the beneficial impacts on economic growth and in the promotion of technology-based companies. However, there are only a few studies focused at the HEI spin-off companies and how KTE specifically takes place in these kinds of companies. From a KTE perspective, social capital could be particularly important in maintaining relationships with HEIs.

**Results:** All interviewees acknowledged the importance KTE, Spanish researchers also mentioned the lack of recognition for KTE engagement (poorly designed reward systems as mentioned by Siegel et al., 2003; Lockett et al., 2008). Some companies mentioned KTE as necessary if they were to continue to innovate and that this required them to develop and maintain relationships with HEIs in order to gain access to University knowledge. Interestingly, the most successful initiatives related to working together both researchers and spin-off companies' employees in collaborative projects, instead of acquiring or licensing products/services from HEIs. The relationship of KTE with innovation is clear, most of the interviewees stated that the best way to measure KTE success was through market results of the R&D projects. Among the barriers identified were: issues regarding unknown capabilities of research groups; bureaucratic obstacles and perceptions among companies regarding of free access to researchers findings because they work in a public institution. The most significant

barriers to the adoption of entrepreneurial-friendly policies continue to be cultural and informational (Franklin et al., 2001). Informal contacts are mentioned as relevant to know the researchers' capabilities and the possibilities of cooperation.

**Implications and Recommendations:** The main implications of this paper are for HEI KTE managers need to pay attention to the informal and formal relationships (social capital) between managers in spin-off companies, researchers and other agents. In addition, there are important recommendations for spin-off companies about keeping in the time their contacts (formal and informal) with HEI researchers and HEI KTE managers in order to benefit from HEI research.

**Areas for development/further research:** There is a plan to include in the analysis spin-offs from other countries, in particular from the UK, with the objective of developing internationally some lines of research already mentioned in previous papers (Lockett et al., 2008; Lockett, et al., 2009).

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