Providing doctoral skills to the regional labour market: Cases of University relations with Science Parks

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Providing doctoral skills to the regional labour market

- **Regional knowledge-based economy** in the form of Triple Helix Systems are an answer to the European strategy.

- Doctoral graduates are a **key resource** for the regional knowledge-based economy.

- But empirical findings point to a **skills mismatch** between business sector employers’ expectations vis-à-vis the acquired competencies during the doctoral education (Usher, 2002; Morgavi et al., 2007; De Grande et al., 2010).

**Study aims at exploring if geographical proximity can contribute to the reduction of the mismatch?**
Research Questions

(i) How do universities and Science Parks currently contribute to the processes of providing doctoral skills?

(ii) Do the Research and Science Parks configurations help, through geographical proximity to their adjacent universities, a cognitive proximity favouring the provision of doctoral skills?
Literature review

Doctorate holders’ labour market

- overproduction of doctoral graduates (Andalib et al., 2017)
- skills mismatch (CEDEFOP, 2016)
- need for intersectoral mobility (between industry and academia) stems out of studies of:
  - Employers’ expectations (Garcia-Quevedo et al., 2012; Herrera & Nieto, 2013)
  - Personal preferences of doctorate holders are extensively studied (Roach and Sauermann, 2010; 2017)

Science Parks & Triple Helix Systems

- Typologies of S&T Parks exist:
  - In function of focus on science or on business (Almeida et al., 2009)
  - In function of degree of university involvement (Albahari et al., 2017)
- S&T Parks are tools of Regional Innovation Systems (RIS):
  - Entrepreneurial ecosystems (Mason & Brown, 2013)
- S&T Parks can in some cases be considered as Triple Helix Spaces (Ranga & Etzkowitz, 2015)
UAB Research Park (PRUAB)

Introduction

UAB Campus in Bellaterra (20km of Barcelona)

PRUAB created in 2007 to "... facilitate interaction between research, business and society" (PRUAB, 2018)

Board: University, Institute of Agrifood Research and Technology, Spanish National Research Council

Main fields of activity: ICT and biomedicine

Criterion for grant of membership: interest in working with research centres and/or the university

From: UAB website
Södertälje Science Park (SSCP)

Södertälje: 50km from Stockholm

Place of production sites of 2 multinational companies + campus of KTH (Swedish engineering school) + many small companies (biomedical sector and organic food)

Initiative from companies, university and municipality to create a SP in 2016 after the closure of important R&D site

- **To re-brand Södertälje** as a knowledge place (focus on Sustainable Production)
- **To attract workforce and capital**
## Interviews

### Annex 1: Overview of the interviews.

<table>
<thead>
<tr>
<th>Case</th>
<th>SSCP</th>
<th>PRUAB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of interviews</strong></td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td><strong>Min-max length of interviews</strong></td>
<td>27 min – 1 h 36 min</td>
<td>28 min – 1 h 11 min</td>
</tr>
<tr>
<td><strong>Number of organizations</strong></td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td><strong>represented</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Of which, from the private sector</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>- Of which:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- SMEs⁴</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>- Established companies</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
## Method & Data

*Case study based on interviews*

*Use of methodology developed in Gioia et al. (2013) with Nvivo software*

<table>
<thead>
<tr>
<th>Aim</th>
<th>1st order analysis</th>
<th>2nd order analysis</th>
<th>3rd order analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coding from the informants’ discourses</td>
<td>Structuring the 1st order coding into themes (overlap allowed)</td>
<td>Structuring the 2nd order coding into aggregate dimensions</td>
</tr>
<tr>
<td>Number of iterations</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Final number of:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) PRUAB</td>
<td>34</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>b) SSCP</td>
<td>58</td>
<td>13</td>
<td>4</td>
</tr>
</tbody>
</table>

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Gioia step 2 and 3

2nd order themes - Barcelona case

- Need for career-informed PhD education design
- Business involvement in Higher Education
- Debated ongoing standardization of PhD education for generic skills
- Employers’ preferences for HE graduates
- Mitigated added value of PhD education
- Mismatch between Higher Education and private sector career

2nd order themes - Södertälje case

- Aligning the content of PhD education with non-academic needs

Aggregate dimensions

- Training competent human resources for companies
- Industry needs for skills (including doctoral skills) influencing HE

Method

Findings

Discussion / Conclusion
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A similar process is observed in the cases

Adaptation of doctoral education to non-academic needs

Implementing a supportive innovation ecosystem

Maintaining UI collaboration in the S/RP context

Aligning the content of PhD education with non-academic needs

Facilitating the transition to non-academic labour market
Different stages of development of Triple Helix Spaces

Based on Ranga & Etzkowitz (2015):

<table>
<thead>
<tr>
<th></th>
<th>Knowledge Space</th>
<th>Innovation Space</th>
<th>Consensus Space</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>University</td>
<td>Park + tenants</td>
<td>University - Park collaboration + public support</td>
</tr>
<tr>
<td>PRUAB</td>
<td>Very well developed</td>
<td>Well developed</td>
<td>Not so developed</td>
</tr>
<tr>
<td>SSCP</td>
<td>In development</td>
<td>Well developed</td>
<td>Well developed</td>
</tr>
</tbody>
</table>

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Answering the Research Questions

(i) How do the universities and Science Parks currently contribute to the processes of providing doctoral skills?

• **Similar process** but **different strengths and weaknesses** for each Park.

(ii) Do the Research and Science Parks configurations help, through **geographical proximity** to their adjacent universities, a **cognitive proximity** favouring the provision of doctoral skills?

• Parks $\rightarrow$ geographical proximity + development of **Consensus Space** (cognitive proximity) $\rightarrow$ **reduction of mismatch**
Implications

- Need for **systematized anticipation of needs** for skills by employers;
- Need for **systematized communication** of these needs by employers to universities;
- Need for a **feedback loop** from industry to university;
- Need for creation, communication and support of **opportunities of inter-sectoral mobility**.


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References


Thank you for your attention

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