



**The Role of
Universities in
Innovation and
Regional Development**

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

Introduction

- **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)

Cases Review

Method

Findings

Discussion / Conclusion

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

Research Questions

Introduction

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(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

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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)

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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 biomedecine

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



From: UAB website

<https://www.uab.cat/web/detalle-noticia/las-start-ups-ubicadas-en-el-parc-de-recerca-uab-facturan-8-millones-de-euros-el-2014-1345680342040.html?noticiaid=1345683175895>

Södertälje Science Park (SSCP)

Södertälje: 50km from Stockholm

Introduction

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

Cases Review

Method

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

Findings

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

Discussion / Conclusion



From: SSCP website
<https://sscp.se/in-english/>

Interviews

Annex 1: Overview of the interviews.

Case	SSCP	PRUAB
Number of interviews	8	9
Min-max length of interviews	27 min – 1 h 36 min	28 min – 1 h 11 min
Number of organizations represented	7	9
- Of which, from the private sector	4	7
- Of which:		
○ SMEs ⁴	2	6
○ Established companies	2	1

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Method & Data

Case study based on interviews

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

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	1 st order analysis	2 nd order analysis	3 rd order analysis
Aim	Coding from the informants' discourses	Structuring the 1 st order coding into themes (overlap allowed)	Structuring the 2 nd order coding into aggregate dimensions
Number of iterations	3	3	2
Final number of:	Nodes	Themes	Aggregate dimensions
a) PRUAB	34	12	4
b) SSCP	58	13	4

Gioia step 2 and 3

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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

Aggregate dimensions

aligning the content of PhD education
with non-academic needs

facilitating the transition to the non-
academic labour market

implementing a supportive innovation
ecosystem

maintaining UI collaboration in the
S/RP context

2nd order themes - Södertälje case

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

Finding skilled workforce by companies
Academia-to-business career transition experiences

Making SP a facilitating element in R&D system
SP identity and role ambiguity
Shared interest in workforce attraction and regional promotion
Companies' perceived benefit from SP

Challenges for UI relations in the SP context
Desired state of UI relations in the SP context
Current state of UI relations in the SP context
Seeking a successful UI collaboration
Recognized importance of UI collaboration



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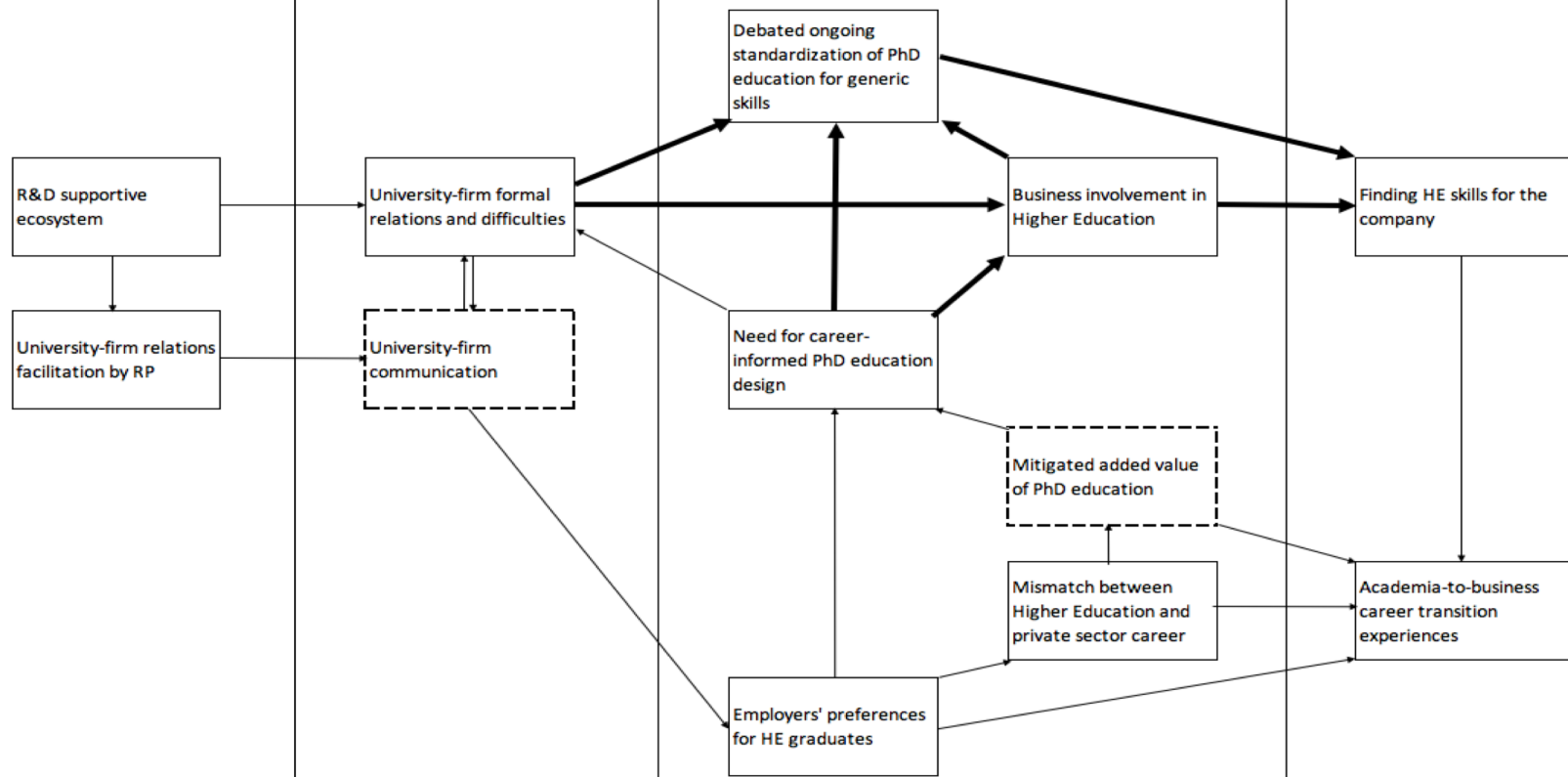
UAB Research Park (PRUAB)

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



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Södertälje Science Park (SSCP)

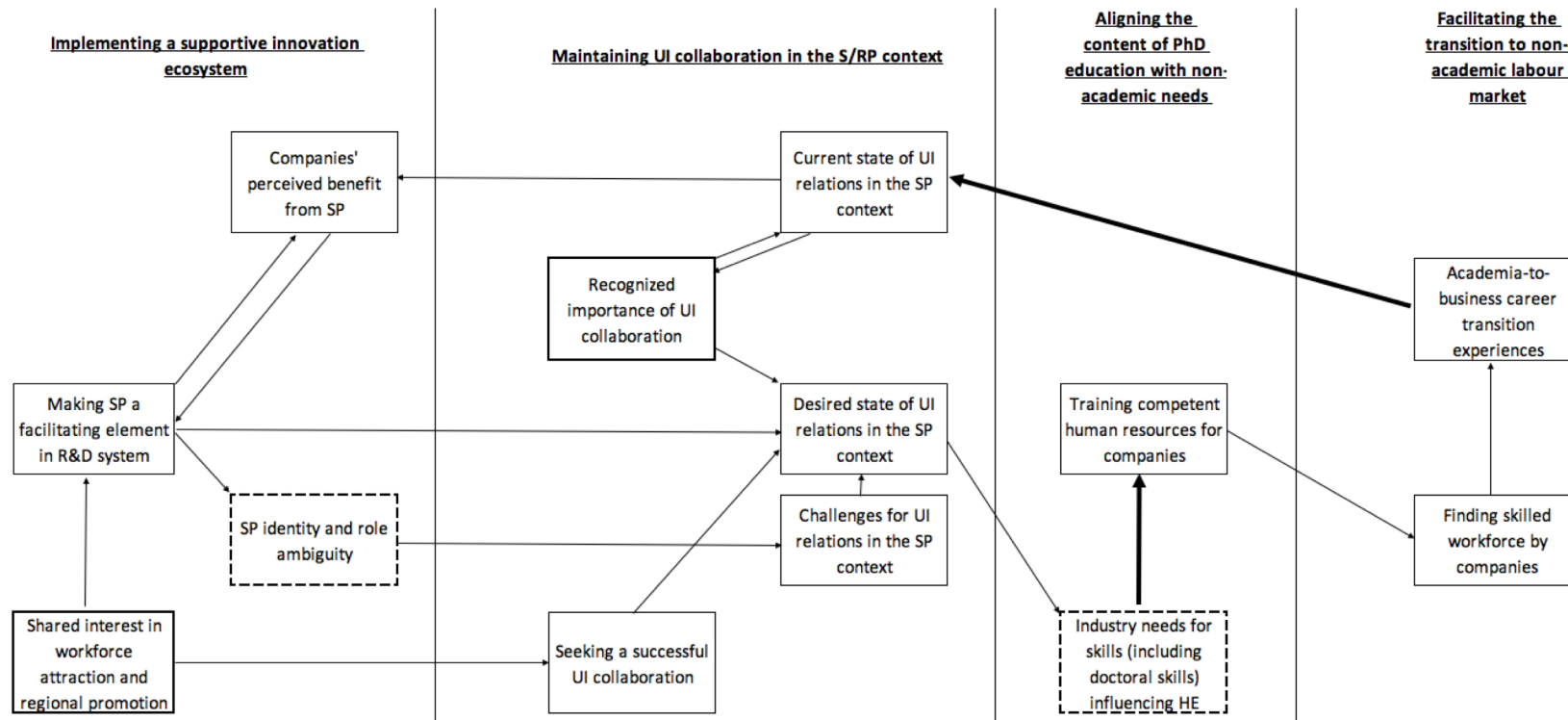
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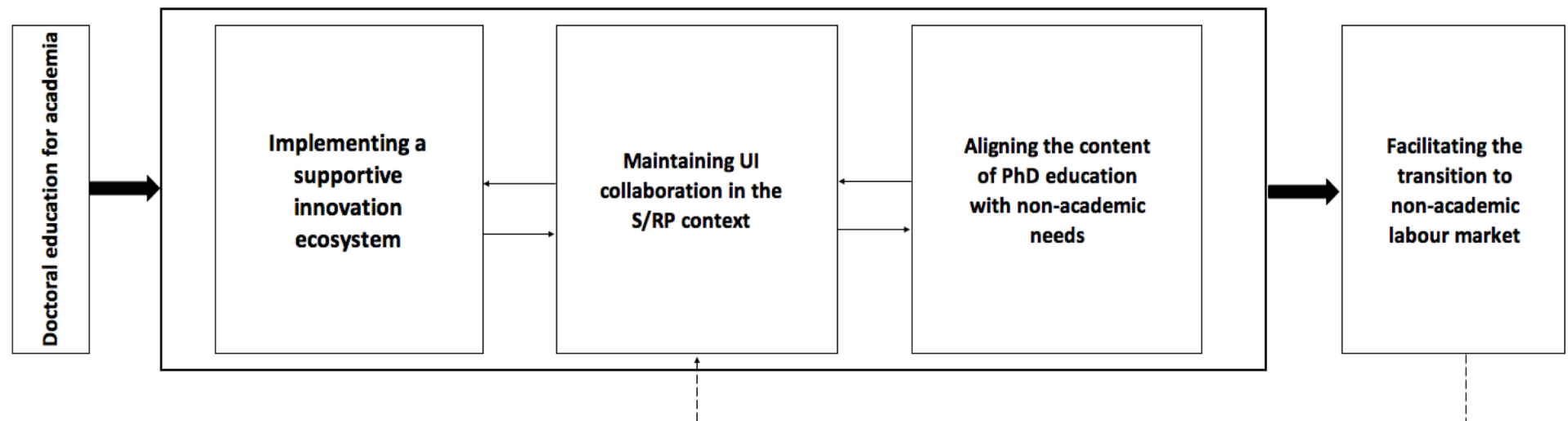
Findings

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A similar process is observed in the cases

Adaptation of doctoral education to non-academic needs



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Different stages of development of Triple Helix Spaces

Based on Ranga & Etzkowitz (2015):

	Knowledge Space <i>University</i>	Innovation Space <i>Park + tenants</i>	Consensus Space <i>University - Park collaboration + public support</i>
PRUAB	Very well developed	Well developed	Not so developed
SSCP	In development	Well developed	Well developed

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Answering the Research Questions

Introduction

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

Cases Review

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

Method

(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?

Findings

- Parks → geographical proximity + development of **Consensus Space** (cognitive proximity) → *reduction of mismatch*

Discussion / Conclusion



Implications

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- 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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Thank you for your attention

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