Collaboration between Business Schools and Industry in the UK

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I, Andres Perez Ruiz, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Abstract

This thesis explores the collaboration between business schools and industry and how this compares with other university schools. The study extends our understanding of university-industry collaboration (UIC) by focusing on business school-industry collaboration (BSIC) and comparing it to the existing literature on UIC. The thesis focuses on the general features of BSIC (forms, motivations, initiation and process), success factors, associated risks and challenges, and the impact of their membership in business ecosystems. To achieve this, in-depth interviews were conducted with business school deans and the content of business schools' websites was analysed.

The study provides a new classification of forms of collaboration and identifies three main motivations to collaborate, six ways of initiating relationships, and five groups of success factors. The thesis also evaluates the risks associated with BSIC as relatively low. It also reveals differences between UK business schools with global reach and those more regionally linked and shows that membership in a business ecosystem provides additional motivation to engage with industry and contribute to successful BSIC. Overall, the analysis reveals significant differences between business schools and other university schools regarding collaboration forms, motivations, how relationships are initiated, success factors, and associated risks and challenges. One of the main differences involves research projects, which are less collaborative and financially demanding for business schools than for other university schools like engineering or biomedical. However, research relationships between business schools and industry can be more intense, as the research object is typically the business itself. These

differences have consequences for the academics' skillset (more relational for business schools), the risks involved (higher for technical schools), and the nature of the research's impact (on the business instead of a certain technology).

Impact statement

This thesis has a dual impact. First, it fills a gap in the academic literature on university-industry collaboration (UIC) by examining the special case of business school-industry collaboration (BSIC) and how this collaboration form differs from industry collaboration amongst other subject university schools (OSUS), e.g., engineering, biomedical, law or humanities. Second, the thesis also provides useful information for senior leaders in business schools (BSchs), who can use it to identify frameworks, models, and best practices on industry collaboration they may want to consider implementing in their organisations.

The relationship between higher education institutions and private businesses has been extensively studied in the academic literature under the construct of UIC. The previously dispersed literature has been unified in systematic reviews produced since 2014, providing a comprehensive framework for the analysis of these relationships. However, this systematic body of literature has focused on universities in general. Very little has been published about how industry collaboration unfolds at the school level and whether there are differences among different school disciplines. As suggested by Rybnicek and Königsgruber, *'It is reasonable that the scientific field might also impact UICs (…) and future research should investigate its specific role in that regard'* (Rybnicek & Königsgruber, 2018, pp. 238-239). No study has been identified where the framework of the collaboration between BSchs and industry is analysed in depth.

Regarding the impact on BSchs' leadership, this thesis provides a framework of reference through which school leaders (deans) can compare their institutions with others in the United Kingdom concerning how they collaborate with industry. In particular, research sub-question 1.a), about the

collaboration forms, will provide BSch leaders with examples of what other BSchs are doing. Sub-question 1.c) might facilitate the effectiveness in the initiation of new collaboration projects. Sub-question 1.d) can help senior readers remove factors that complicate the collaboration process and add bureaucracy, as well as contribute to making better-informed decisions regarding the centralisation of partnership management in university units. Sub-question 1.e) will give guidance on the benefits for the BSchs to engage with business ecosystems. Research question 2 will facilitate the identification of the success factors of BSIC, increasing the chances that the project achieves positive outcomes. Finally, question 3 will assist senior leaders in identifying and avoiding the risks associated with the BSIC projects.

The analysis and suggestions of this thesis will be disseminated through its publication in the usual University College London (UCL) and national (EThOS-British Library) repositories. Second, the research will be adapted to the format of one or various academic research papers, aiming to be published in journals specialising in education and leadership and publications targeting BSchs' senior leaders. Finally, it will be circulated individually on request as well. Some of the participating deans have already requested copies of the final thesis, which will be provided to them; this supports that there is active interest among the sector in the results of this research.

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Main abbreviations

BES	Business Ecosystem
BSch	Business School
BSIC	Business School-Industry Collaboration
KAM	Key Account Manager
KTN	Knowledge Transfer Network
KTP	Knowledge Transfer Partnership
IC	Industry collaboration
OSUS	Other Subject University Schools (non-business schools). Typically engineering, biomedical, humanities and other technical and social sciences schools, whatever the name they receive in their university (usually schools, faculties, or academic departments)
RQ	Research Question
SME	Small and Medium Enterprise
UIC	University-Industry Collaboration

CHAPTER 1: INTRODUCTION

1.1. Research aim and rationale

This research aims to contribute to our understanding of business school-industry collaboration (BSIC) in the UK. Specifically, this thesis explores business schools'[1] (BSchs) engagement with industry and examines the extent to which it demonstrates similar or different features to those of universities in general (University-Industry Collaboration, UIC) as described by the academic literature.

Since the transition from an industrial to a knowledge-based society, universities have played an increasing role in social development through innovation, entrepreneurship, and knowledge exchange, which is known as their **third mission** (together with the other two missions: education and research). This mission is developed in close collaboration with the private sector (industry), and the government—a tripartite collaboration that has been conceptualised via the model of the **triple helix** (Cai & Etzkowitz, 2020; Etzkowitz & Leydesdorff, 2000).

Among these three relationships, the phenomenon of **university-industry collaboration (UIC)** has attracted significant interest in the academic and professional literature, particularly due to its potential

[1] For clarification, universities tend to name their academic divisions in different ways, typically as 'schools', 'faculties', or 'departments'. This thesis generically refers to 'schools', whatever the name and organisational level across universities.

Regarding the academic subject specialism, the thesis will often refer to business schools, but also to other subject university schools (non-business schools) or OSUS. These typically include engineering, biomedical, humanities and other technical and social sciences schools.

contribution to regional wealth creation and development (Lehmann & Menter, 2016). A profuse but dispersed body of literature (Bovaird, 2007) was unified in the 2010s by several systematic analyses, four of which are particularly relevant to this research as they focus on UIC as a whole and not, for example, only on the 'knowledge transfer relationships'. The first review conducted by Perkmann et al. (2013) focused on academic engagement and commercialisation. The second study was undertaken by Ankrah and AL-Tabbaa (2015). The third review was the bibliometric analysis of Skute et al. (2017). Lastly, Rybnicek and Königsgruber's (2018) research focused on the success factors of UIC.

Importantly, most of the interest in UIC has focused on Higher Education Institutions (HEIs) in general. **BSchs** are, logically, included among these, but it is unclear to what extent aspects like the forms, motivations, processes, factors, and outcomes of collaborations with industry are the same for BSchs as they are for other HEIs or if peculiarities exist amongst academic disciplines, as posited by Rybnicek and Königsgruber (2018) and Perkmann et al. (2013). This absence of studies dedicated to specific academic disciplines was also noted by Vick and Robertson (2018) for the UK context in particular. Thus, the academic rationale for investigating BSIC in this study is to fill this literature gap while providing valuable information for senior leaders and practitioners in BSchs on how the sector is approaching industry collaboration (IC), thereby potentially helping them in their decision-making.

Industry is understood in this research according to the wider definition of the Oxford English Dictionary: *'Any commercial activity or enterprise'* [2] (Oxford English Dictionary, 2023). Specifically, its meaning is not limited to manufacturing (therefore, not services) or a certain type of activity (e.g. the car industry). The term 'industry' has been largely used by the UIC literature in terms of the 'triple helix' as defined by Etzkowitz and Leydesdorff (2000),

[2] The definition can be seen at https://www.oed.com/dictionary/industry_n#541009

and therefore meaning the 'private sector' in contrast with the 'government' or 'public sector'.

Special attention will be given here to BSchs that have developed particularly close links with their surrounding **business ecosystems (BESs)**. A BES was defined for the first time by Moore (1996) as '*an economic community supported by a foundation of interacting organisations and individuals'*. Skute et al. (2017) concluded that one of the largest clusters of academic publications on UIC involves an 'ecosystem approach'. This thesis will therefore explore how affiliation with a BES affects the way BSchs collaborate with industry.

1.2. Research outline and questions

As explained, this research **aims** to contribute to extending our understanding of UIC by exploring **BSIC** in the UK context. The objective is to generate knowledge that will contribute to both the academic literature and the professional practice of senior leaders in BSchs. This study proposes to:

1. Identify and analyse the main features of UIC in BSchs from the perspective of their organisational leaders (deans). This includes the collaboration forms with industry (what they do), motivations to establish collaborations (why they do it), how these collaborations originate (who does it) and operationalised (how they do it), and the impact of BESs in BSIC. Finally, Pettigrew and Starkey's suggestions that the relationship between BSchs and industry is more intense compared to other HEIs and that BSchs often operate as the interface between businesses and universities (Pettigrew & Starkey, 2016, p. 658) are also investigated.

2. Identify and analyse the success factors of BSIC and compare the results with those of Ankrah and AL-Tabbaa (2015) and Rybnicek and Königsgruber (2018) for UIC.

3. Examine the risks and challenges of BSIC. More specifically, the academic literature has raised the question of whether BSchs have lost their academic identity as a result of the multiple external influences on them of the corporate world (Khurana, 2007).

These aspects are investigated through a qualitative study exploring the perspectives of senior leaders at BSchs, and the analysis of the content of BSch websites regarding their collaboration forms. The following **research questions (RQs)** are formulated:

1. **What are the perceptions of senior leaders in business schools about their collaboration with industry? In particular:**
   - **(a) What are the collaboration forms between BSchs and industry?**
   - **(b) Why do BSchs collaborate with industry?**
   - **(c) Who initiates the projects?**
   - **(d) What factors affect the collaboration process?**
   - **(e) How does the BSchs' membership in a business ecosystem affect their collaboration with industry?**
   - **(f) How does BSchs' collaboration with industry compare with other university schools and faculties?**

2. **What are the factors contributing to successful collaboration and why?**

3. **What challenges and risks do BSchs experience when collaborating with industry? Is any collaboration form particularly risky? Why?**

Through **semi-structured interviews,** this thesis draws on the perspectives of eight BSch deans, as senior leaders of their institutions, to answer the RQs. Interviews allow for flexibility, elaboration, and discussion about the complex constructs that constitute the object of this research. To further explore the collaboration forms, a **documentary analysis** was undertaken to understand the content of twelve BSchs' webpages related to their IC.

Hence, the study identifies the perspectives of BSchs leaders, and not that of collaborators in industry. This is also the approach of most studies on UIC, which focus on the university rather than the industry's perspective (Skute et al., 2017, p. 933). However, it would be promising to investigate the industry's perspective in further research projects.

1.3. Relevance and impact of the research

Having worked at business schools for about 24 years, most of them in leadership positions, I have witnessed how critical the relationship with industry is. However, I have also seen tensions between universities and business schools that suggest they may have different understandings regarding partnerships and joint projects with industry. I have observed discrepancies regarding resources, processes and priorities. This problem led me to investigate further the phenomenon of BSIC and how it differs from UIC so that the peculiarities can be understood and policies and processes can be issued to accommodate the special needs of BSchs within the wider universities' organisations.

1.3.1. University-Industry Collaboration (UIC) and the academic gap

The academic literature considers UIC to be beneficial not just for both partners (universities and businesses) but also for society. Past studies provide evidence of the universities' contribution to regional industry, among other benefits (Lehmann & Menter, 2016, p. 1285). Tseng et al. (2020) also found a relationship between UIC and universities' innovation performance. Bikard et al. (2019) found that UIC can boost academic contributions to science. Per Rybnicek and Königsgruber, citing the *OECD Science, Technology, and Industry Scoreboard 2015* report, *'collaboration with industry has become an inevitable part of university funding'* (Rybnicek & Königsgruber, 2018, p. 222).

UIC has gathered a significant academic interest, initially resulting in a fragmented literature (Bovaird, 2007; Perkmann et al., 2013) followed by several systematic literature reviews aiming to unify the field of research. The most comprehensive study was published in 2015 by Ankrah & AL-Tabbaa, who *'examine and critically integrate the main aspects of this inter-organizational relationship through a systematic review, (…) guided by a principle research question: What are the main themes of UIC?'* (Ankrah & AL-Tabbaa, 2015, p. 388). Their findings are presented in Appendix 1 and include the information they extracted from various papers on the collaboration forms, motivations, formation processes, facilitating factors, and outcomes.

However, there is evidence to suggest that different schools within a university engage with industry in distinct ways. Authors including Rybnicek and Königsgruber (2018) have confirmed that a school's academic subject can be a moderating factor in UIC. In their words*, 'It is reasonable that the scientific field might also impact IUCs (…) and future research should investigate its specific role in that regard'* (Rybnicek & Königsgruber, 2018, pp. 238-239). Similarly, Perkmann et al. (2013) found evidence in the literature to suggest that the academic discipline is a crucial variable affecting individual academics' engagement with industry. It seems obvious that an engineering

school would collaborate with a technology company in a very different way than a law school would cooperate with a legal firm. However, although other studies also confirm the influence of the school's academic discipline in their IC (Perkmann et al., 2013), the literature remains unclear on what those differences are. This study thus responds to Rybnicek and Königsgruber's (2018) call for further research to explore the effect of the academic subject on IC and aims to fill this gap regarding specifically BSchs.

1.3.2. Contribution to the strategic leadership of BSchs

This research aims to inform decision-makers in BSchs regarding their collaboration with industry and give examples of practices currently implemented by other institutions.

Helping BSch leaders better understand IC is particularly relevant as this can contribute to the positive impact of BSchs on businesses and society. Pettigrew and Starkey identify a long list of benefits BSchs claim from their collaboration with businesses, particularly regarding job creation, the contribution of students to the local economy, and the products of research and its commercialisation. According to them, *'Business schools claim a unique intermediary role at the interface between business and universities, particularly in terms of improving productivity and innovation and in supporting start-up enterprises. It is also suggested that business schools have a particularly important role to play in supporting social enterprise'* (Pettigrew & Starkey, 2016, p. 658). In terms of the relevance of BSchs, according to Finch et al. (2016), the proportion of students studying at BSchs has increased by 30% globally in the past two decades, and BSchs are now generating about $30 billion in revenue.

This thesis also seeks to contribute to supporting BSch leaders' work by offering an analysis of not only how BSchs can benefit from engaging with BESs but also of the risks involved. Past literature has focused on the

significance of BESs to highlight how they contribute to their members' strategies and operational activities from very different perspectives. On one side, ecosystems are relevant to organisational strategy, as demonstrated by Lyman et al. (2018, p. 3) assertion that '*the current business models will be unrecognisable in the next five years, and ecosystems will be the main change agent'*. On the other side, from an operational perspective, Brusoni and Prencipe (2013) stress how ecosystems are highly efficient for organisational problem-framing and problem-solving. Another perspective is that of Bremner et al. (2017), who concluded that the collaboration of actors in the ecosystem can prevent technological bottlenecks. Finally, Cai et al. (2020, p. 1) state that the participation of HEIs in BESs allows them to unleash their full potential as an '*engine for innovation'* and '*catalyst for sustainability development'*.

Some BSchs consider themselves and are widely recognised as members of BESs. A prime example of this is the Stanford Graduate School of Business's collaboration with the Silicon Valley entrepreneurial and technology ecosystem. In the United Kingdom, similar examples can be found, like Cambridge Judge BSch's collaboration with the Cambridge entrepreneurial ecosystem (Neely, 2017) or Bayes Business School in London, which is located just between the financial hub of the City of London and the entrepreneurial hub of TechCity. Including BSchs with especially strong relationships with a surrounding BES in the study sample enabled exploration of the effect of this membership on schools' IC.

The thesis contains seven chapters. Chapter two will discuss the existing literature review on UIS and BSIC. The third chapter will present the methodology of this research. Chapters four to six will present and analyse the results obtained from the documentary analysis and the interviews, following the three main questions (general BSIC framework, success factors and risks associated). The final chapter will extract conclusions and identify limitations and proposals for further research.

CHAPTER 2: LITERATURE REVIEW

This chapter is divided into three sections. The first section discusses the broader conceptual foundations of the collaboration between universities and industry. It starts by presenting the triple helix model and the universities' third mission before introducing the various definitions of the concept of University-Industry Collaboration (UIC) and proposing a definition that is consistent with the scope of this research including all forms of UIC.

The second section links the literature with RQs 1 and 2 regarding the main features of the UIC framework and success factors. The section discusses the literature on UIC, particularly the four systematic analyses conducted in the last decade.

The third section focuses on the literature exploring the collaboration between BSchs and private companies on the risks and challenges associated with BSIC (RQ 3), with a special reference to the potential problem of the loss of autonomy and identity when BSchs engage with industry.

2.1. Conceptual framework in the literature for the collaboration between higher education institutions and industry

2.1.1. The triple helix model and the universities' third mission

A significant part of the literature recognises that collaboration between government, universities, and industry plays a role in societal progress. This framework is recognised as the 'triple helix' and was initially proposed by Etzkowitz and Leydesdorff (2000).

According to Etzkowitz and Leydesdorff (2000), the historical role of HEIs originally focused on teaching and disseminating knowledge started to shift in the late 19th century as academia became engulfed by a '*revolution*' characterised by the introduction of research emerging as a secondary mission compatible with education. It was not until the end of the Second World War, and more particularly after the Cold War, that the conceptualisation of a 'third mission' for universities as agents of social development, in conjunction with the government and the private sector, was widely acknowledged (Etzkowitz & Leydesdorff, 2000, p. 110).

Etzkowitz and Leydesdorff (2000) differentiate between three types of triple helix models. The 'etatistic model' predicates the pre-eminence of the state over the other two players, represented graphically as follows.

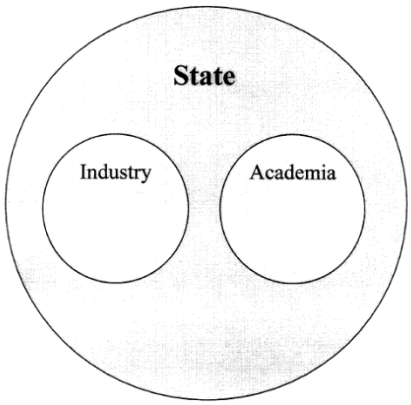

Figure 1. An etatistic model of university-industry-government relations. Source: Etzkowitz, Leydesdorff, 2000

The authors maintain that a clear version of this model could be identified in the former Soviet Union, while milder versions exist in many Latin American countries and several European countries, such as Norway.

The second model is called the 'laissez-faire model'. In this model, the three players appear as clearly separate entities that interact among themselves, but each of them is within their own separate ambits. According to Etzkowitz and Leydesdorff (2000), this approach is exemplified by the United States.

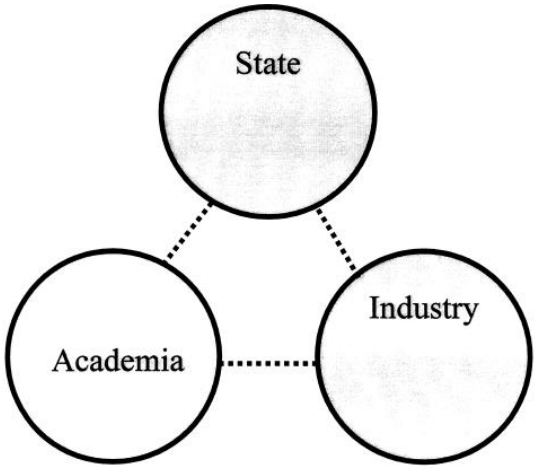

Figure 2. A 'laissez faire' model of university-industry-government relations. Source: Etzkowitz, Leydesdorff, 2000

Etzkowitz and Leydesdorff identified a third approach to the triple helix: the 'balanced model' where the three players show a certain level of integration that allows for the creation of spaces where hybrid initiatives take place. Most countries are nowadays showing forms of this triple helix approach.

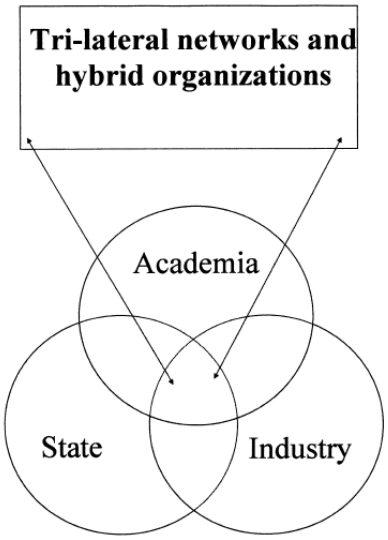

Figure 3. A balanced model of university-industry-government relations. Source: Etzkowitz, Leydesdorff, 2000

Etzkowitz and Leydesdorff stated in 2000 that the first model is widely considered a failed framework, with countries moving between the second and third models depending on the degree of intervention of the government in private matters. However, in a recent paper, Cai and Etzkowitz asserted that '*the global tendency is towards a balanced model*' (2020, p. 202), particularly concerning innovation, because it is within the spaces of intersection among the three players that the most favourable environments appear (Ranga & Etzkowitz, 2013).

Although the triple helix model is widely accepted today, it is still subject to debate. Etzkowitz and Leydesdorff (2000) recognise that some authors recommend the withdrawal of universities from their direct IC (Benner & Sandström, 2000). Authors such as Khurana (2007) have highlighted potential issues of legitimacy and loss of autonomy when universities interact with the corporate world, which will be discussed below and investigated in this research. RQ 3, in particular, focuses on the risks associated with collaborations between BSchs and industry.

Authors have proposed variations to the original model. Carayannis and Campbell (2009), Cai and Lattu (2019), and Etzkowitz (2014) propose the inclusion of civil society in the model they termed the 'Quadruple helix'. Cai and Liu (2015) and Liu and Cai (2018) reflect on the leadership of different layers of the local and central governments. Cheng et al. (2019) and Cai, et al. (2019) study the extension to the global ambit of the triple helix, whereas Cai and Etzkowitz (2020) study the success factors of the triple helix.

2.1.2. University-industry collaboration (UIC) as one of the relationships within the triple helix

The discussion of the triple helix is relevant to this research as it presents the general framework within which UIC unfolds. The graph below illustrates the emergence of a third mission for HEIs (contribution to economic

and social development) through collaboration with the government and industry. The three agents engage in various types of collaborative relationships in the different ways explained above. The aim of this research focuses on a specific relationship linking universities and industry, which is generally known as UIC.

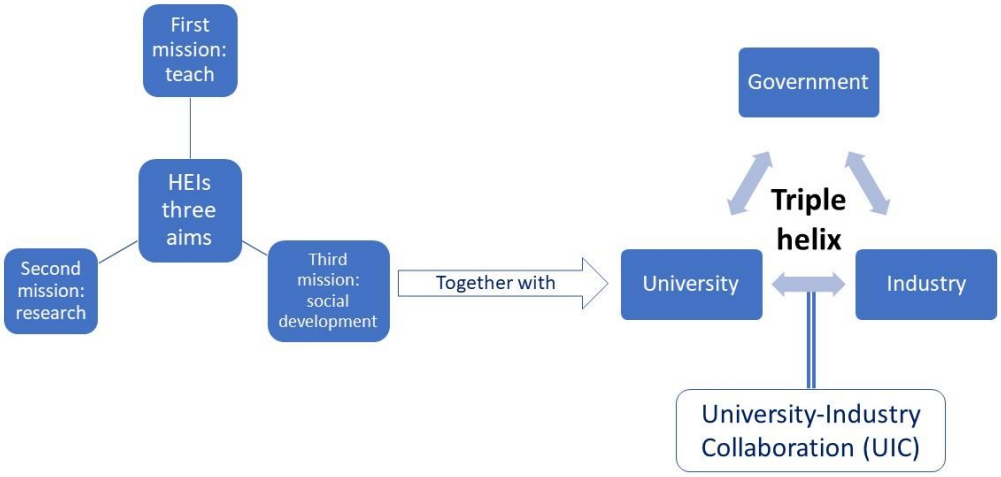

Figure 4. Conceptual relationship between the three aims of HEIs, the triple helix model, and UIC. Source: the author

2.2. Definitions of UIC

Interestingly, many of the studies considered in this research do not provide a clear definition of what they mean by UIC. Surprising examples are systematic reviews like Rybnicek and Königsgruber (2018) or works that aim to provide a comprehensive framework for UIC like Kauppila et al. (2015).

However, several definitions of UIC exist, mainly based on qualifying the aims of the collaboration. Ankrah & AL-Tabbaa include these at a very generic, high level: UIC *'refers to the interaction between any parts of the higher educational system and industry aiming mainly to encourage knowledge and technology exchange'* (Ankrah & AL-Tabbaa, 2015, p. 387).

The problem with this definition is that, by assuming a certain 'main' aim, it tends to treat some collaboration forms with other objectives as exceptions. As a result, other objectives behind UIC which are particularly relevant for BSchs such as offering students real-life work experiences, supporting entrepreneurship, promoting networking, or providing consultancy services become excluded.

Other authors take an even more restrictive approach. Skute et al. state that UIC '*refer to partnerships between one or several academic or research institutions and one or several firms operating in industrial markets focused on collaborative R&D activities*' (Skute et al., 2017, p. 917). This definition of UIC raises two potentially problematic elements. Firstly, the term 'partnership' is very precise and only identifies one of the forms of institutional collaboration (other forms include strategic alliances, networks, or ecosystems). Secondly, they restrict the ambit of collaboration to R&D alone and exclude any other aims such as '*employment opportunities for university graduates', 'better insights into curricula development',* and *'expose students and faculty to practical problems'* (Ankrah & AL-Tabbaa, 215, p. 392).

This research follows the fundamental aspects of the definition of UIC from Ankrah and AL-Tabbaa (2015), while also acknowledging that the focus on a single aim (*'to encourage knowledge and technology exchange'*) can be too limiting, particularly as BSchs deploy a variety of collaboration forms with other aims like, for example, facilitating real-world experience to students, fostering entrepreneurship or promoting networking opportunities. Consequently, the definition proposed for this research expands the aims of UIC to include ***'the interaction between any entities of the higher educational system and industry aiming to pursue joint initiatives'***.

2.3. Analysing UIC: An overview of the literature

The early interest of the academic literature in the triple helix, the third mission, and the collaboration of universities and the private sector led to a remarkable output scholarly production. However, these studies analyse certain aspects of UIC typically linked to specific aims (e.g. a focus on knowledge or technology transfer, like Vick & Robertson, 2018) or collaboration forms (e.g. collaborative research, like Hodgkinson & Rousseau, 2009) instead of the overall UIC framework. According to Ankrah & AL-Tabbaa, *'whilst a surge in UIC-related research can be realized, the extant literature is still relatively fragmented and lacks a comprehensive view*' (Ankrah & AL-Tabbaa, 2015, p. 388). Similarly, authors like Bovaird (2007) and Perkmann et al. (2013) highlight the extent to which the lack of unity of perspective has led to the production of studies without a clear overall framework.

This initial fragmentation of the academic literature on UIC was addressed by four relatively recent systematic reviews of the literature published between 2013 and 2018:

Year	Authors	Title	Papers included
2013	Perkman et al.	Academic engagement and commercialisation: A review of the literature on university-industry relations	36
2015	Ankrah and Al-Tabbaa	Universities-industry collaboration: A systematic review	109
2017	Skute et al.	Mapping the field: A bibliometric analysis of the literature on university-industry collaborations	397
2018	Rybnicek and Königsgruber	What makes industry-university collaboration succeed? A systematic review of the literature	103

Table 1. Systematic reviews of the literature on UIC. Source: the author

This section examined those studies in chronological order to give a sense of the evolution of the literature. The final sub-section elaborates on how the literature supports this research and the RQs.

Those systematic reviews on subjects related to UIC are contemporaneous with less comprehensive reviews that concentrate on, for

example, emerging markets (Schofeld, 2013) and knowledge transfer (Vick & Robertson, 2018). The latter is the only review specific to the UK review and therefore particularly valuable for this thesis. However, it is not used as a main reference for the overall comparison between UIC and BSIC because of its exclusive focus on knowledge transfer.

2.3.1. A first approach to UIC from the perspective of academic engagement: Perkmann et al. (2013)

Perkmann et al. (2013) provide the first attempt to systematically analyse existing literature on UIC. They focus on the concept of 'academic engagement' and explore how it could lead to 'commercialisation'. For these authors, academic engagement is, in fact, research with two additional factors: (1) *'representing inter-organisational collaboration (…) that link universities and other organisations, notably firms'*, and (2) *'pursue goals that are broader than the narrow confines of conducting research for the sake of academic publishing, and seek to generate some kind of utility for the non-academic partners*' (Perkmann et al., 2013, p. 424). Commercialisation (or 'technology transfer', and not necessarily for profit) of the product of the engagement may happen, typically through entrepreneurship or patents.

The authors' objective was to synthesise existing knowledge about the extent, types, determinants, and impact of academic engagement for academics, universities, and other stakeholders (Perkmann et al., 2013, p. 425).

Interestingly, Perkmann et al. (2013) consider academic engagement and commercialisation as individual tasks initiated by academics on the university side, particularly regarding the decision to engage; this is consistent with the vision of universities as 'professional bureaucracies' (Mintzberg, 1979) that operate through the autonomous initiative of highly qualified academics. Interestingly, this individual perspective is not followed by the

other systematic reviews, which rely on a more institutional view of UIC, although they also introduce elements of individualistic motivation. For example, Ankrah and AL-Tabbaa (2015) consider 'individual consultancy' or 'sabbatical periods' as motivators triggering UIC initiatives. This balance between individualistic and institutional motivations is explored further in this research when aiming to answer RQ 1.b).

One benefit of engaging with industry for academics is higher research productivity (Blumenthal et al., 1996; Gulbrandsen & Smeby, 2005), although there is also evidence that they may publish less over their overall career. Lin and Bozeman (2006) discuss a 'U-shape' in which academics engaged with industry publish more at the start and the end of their careers. Additionally, academics who register patents publish more frequently and papers achieve more recognition than those who do not (Agrawal & Henderson, 2002; Azoulay et al., 2007; Breschi et al., 2007; Fabrizio & Di Minin, 2008), improving their prestige and reputation (Moutinho et al., 2007; Owen-Smith & Powell, 2001; van Rijnsoever et al., 2008).

Perkmann et al. (2013) start by identifying all the relevant research published on university-industry relations between 1980 and 2011, which initially produced 428 documents. After two successive processes of selection and refinement, they ended with just 36 papers for their review, reflecting the level of their selection and the frequent production of research on UIC without adequate quality or relevant data. Their publication years indicate how interest in the subject has recently increased.

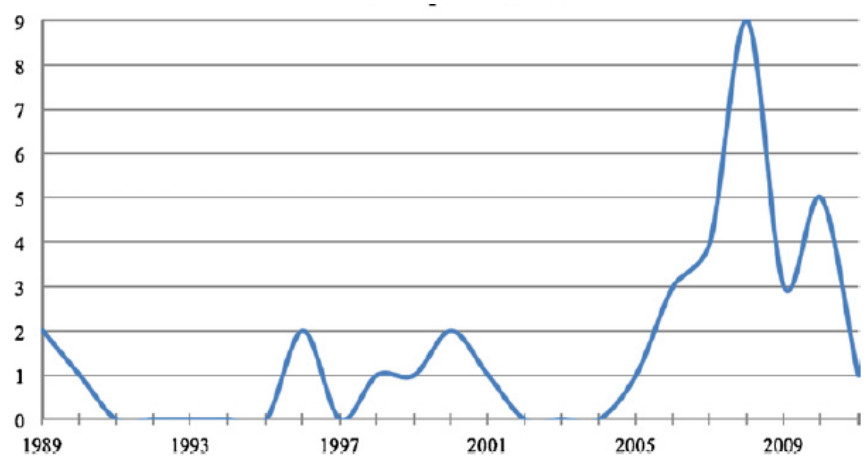

Figure 5. Articles published per year. Source: Perkmann et al. (2013), p. 425

Note: For 2011, the graph shows the number of publications from January to March only, hence the drop

The 36 resulting studies were subject to a detailed analysis. The descriptive data presented below details how research and technology transfer journals are usually the vehicles of publication for these papers. The research is mostly quantitative and developed mainly in the United States and Europe.

	Number of articles
Research Policy	13
The Journal of Technology Transfer	10
Technovation	3
The Journal of Higher Education	2
Others	8
Quantitative data	33
Qualitative data	3
US	18
UK	5
Other Europe	11
Asia	1
Other countries	1
Sum	36

Table 2. Breakdown of articles according to journal, type of data, and empirical focus. Source: Perkmann et al., 2013, p.425

Perkmann et al. (2013) identify several 'antecedents' (precursors) of academic engagement with industry, which they group into three sections:

- Individual characteristics: According to Perkmann et al.'s findings, male academics are significantly more likely to engage with industry (Azagra-Caro et al., 2006; Boardman, 2008; Giuliani et al., 2010; Goktepe-Hulten, 2010; Link et al., 2007), whereas age has ambiguous effects, with some studies presenting a positive relationship (Boardman & Ponomariov, 2009; Haeussler & Colyvas, 2011; Link et al., 2007) and others a negative relationship. Seniority, however, seemed to have a positive impact in most studies (Boardman, 2008, 2009; Boardman & Corley, 2008; Bozeman & Gaughan, 2007; D'Este & Perkmann, 2011; Haeussler & Colyvas, 2011; Link et al., 2007; Ponomariov, 2008), and the same is true for academic productivity (Bekkers & Bodas Freitas, 2008; Gulbrandsen & Smeby, 2005; Haeussler & Colyvas, 2011; Louis et al., 1989).

- Organisational context: Mostly related to the departmental level. A counterintuitive conclusion is that the effect of the institution's age and academic quality on academics' participation in collaboration activities is negative (D'Este & Patel, 2007; Ponomariov, 2008; and Ponomariov & Boardman, 2008). Perkmann et al. (2013) suggest that this may be because institutions with fewer resources are less able to support collaborative projects, which makes individual academics' initiatives more relevant. Meanwhile, academic affiliation with research centres within the university was found to be positively related to engagement (Bozeman & Gaughan, 2007).

- Institutional context: Related to the political and academic level, above the organisation. Perkmann et al. found evidence to support that academic discipline is a crucial variable affecting academics' engagement with industry, specifically mentioning Bekkers and Bodas Freitas (2008) and Martinelli et al. (2008). They also found that applied fields of research like engineering made IC more likely, citing Bekkers and Bodas Freitas (2008), Boardman (2008, 2009), Bozeman and Gaughan (2007), Lee and Bozeman (2005), Lee (1996), and

Ponomariov (2008). This is further explored in this thesis in the case of BSs, particularly in RQs 1.a) and 1.f). Perkmann et al. also claim that in the social sciences, knowledge is mainly transferred through personal contacts, reinforcing the idea that academics' individual initiative is crucial in collaboration projects, which is analysed in RQ 1.c).

In summary, Perkmann et al.'s study provides interesting conclusions to explore further the case of BSs in this thesis, because it reinforces that the subject discipline affects individual academics' IC. This would mean that different schools within universities would have their academics collaborating with industry in different ways; as such, the UIC model describes the general framework, but schools are internally heterogeneous and individually include different features regarding IC. This supports the hypothesis that UIC and BSIC have significant differences. This thesis investigates these points via RQs 1.a (collaboration forms), 1.b (motivation), 1.c (initiation), and 1.f (comparison across disciplines).

2.3.2. A comprehensive approach to UIC: Ankrah and AL-Tabbaa (2015)

The collaboration between HEIs and industry goes beyond academic engagement and commercialisation, as Ankrah and AL-Tabbaa's (2015) systematic literature review demonstrates. Their work is especially relevant for this research as it includes a comprehensive list of the organisational forms of UIC found in the literature and their motivations. They also explore how these collaborations are formed and operationalised, the factors that facilitate or inhibit their operation, and the outcomes of the collaboration. This provides a valuable framework for comparing the extent to which BSchs are aligned with or separate from the general HEIs.

The authors identify six main themes in the academic literature about UICs, from which they identify six questions as criteria to classify the studies

in the systematic review. The questions include the following (Ankrah & AL-Tabbaa, 2015, p. 389):

1. *'Does the study address the collaboration between Universities and Industry for technology exchange as a main inquiry?*
2. *Does the study address UIC's motivations?*
3. *Does the study examine UIC forms?*
4. *Does the study provide information on the formation and operationalisation of UIC?*
5. *Does the study include factors that facilitate or inhibit UIC?*
6. *Does the study mention the outcomes (benefits or drawbacks) of UIC?'*

Five themes emerge to describe the UIC framework: organisational forms, motivations, formation processes and activities, factors that facilitate or inhibit operation, and outcomes. For each theme, they collate and classify the literature contributions into a list. Because of their importance for this thesis, these lists can be found in Appendix 1. They are used as a reference for comparison with this research's results to illustrate the differences between UIC and BSIC regarding RQs (RQs) 1.a (forms), 1.b (motivations), 1.c (initiation), 1d (complexity), 2 (success factors), and 3 (risks).

The authors also discuss '*rational*' (institutionally led) and the '*irrational*' (determined by the informal individual connections of academics) views of UIC, acknowledging that the first usually dominates (Ankrah & AL-Tabbaa, 2015, p. 399); this differs from Perkmann et al.'s, (2013), approach to investigating individual academics' engagement.

In summary, Ankrah and AL-Tabbaa (2015) present the most comprehensive and balanced approach to the UIC framework as it aims to cover all aspects of UIC and not just some of them (conversely, Rybnicek & Königsgruber, 2018, focused only on success factors). It also integrates the institutional and individual academics' perspectives (Perkmann et al., 2013, considered mainly the individual approach). Finally, it provides separate and comprehensive lists for each aspect (collaboration forms, motivations,

formation processes and activities, facilitating factors, and outcomes), going beyond merely identifying and classifying papers. As a consequence, it will be used as the main—though not exclusive—reference point to compare UIC with BSIC.

2.3.3. A bibliometric analysis to identify emerging patterns: Skute et al. (2017)

The third systematic review of the literature on UIC is Skute et al.'s (2017) quantitative bibliometric analysis.

The authors start by stating that '*the U-I literature experienced a notable increase in the past decade, transforming into a multi-faceted and ambiguous research field, characterized by highly complex interlinks*' (op. cit., p. 221). They identify three levels in the literature: individual, organisational, and institutional. They then proceed to elaborate on the findings and conclude with an agenda for further research.

The study includes both a co-citation and a bibliographic coupling analysis, each of which produces several clusters. The co-citation analysis suggests that the UIC research field can be grouped around four thematic clusters (Skute et al., 2017, p. 918):

(1) the impact of geographical distance and complementarity among partners,

(2) the antecedents and consequences of academic entrepreneurship,

(3) the ecosystem perspective regarding governance mechanisms and policy developments, and

(4) the efficiency of the available interaction channels and knowledge transfer.

Notably, the authors highlight the importance of the ecosystem perspective as one of the four clusters for classifying academic literature; this

supports the importance of this thesis' analysis of how BSchs interact with industry within the boundaries of existing BESs.

The study then presents statistical data about each of the clusters, which can be graphically summarised as follows.

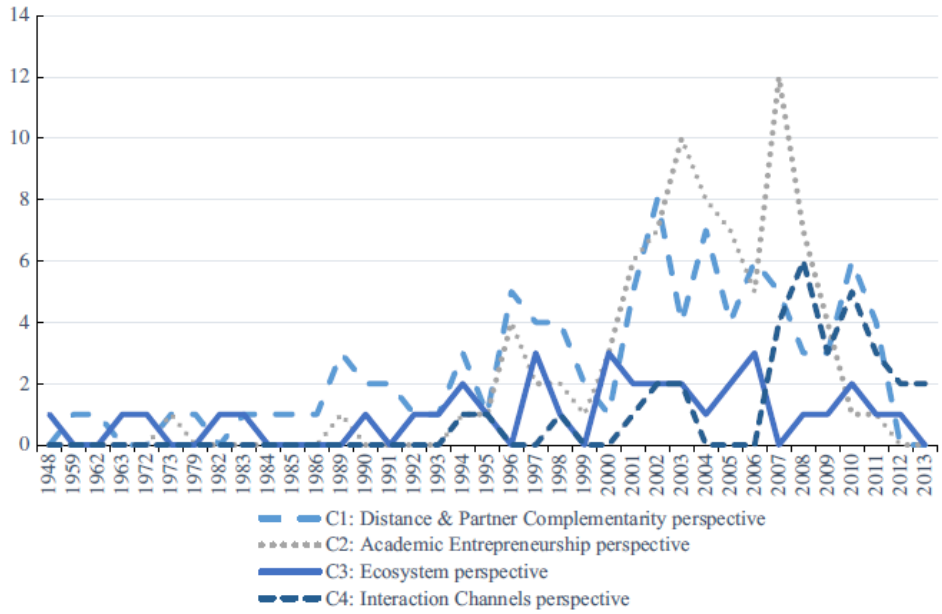

Figure 6 Overview of the evolution of four thematic clusters per year, representing the number of articles based on the references of the initial dataset using the co-citation analysis technique. Source: Skute et al., p. 932

The bibliographic coupling analysis produced the following thematic groupings of current and emerging academic papers (Skute et al., 2017, p. 918):

C1: Ecosystem perspective, 96
C2: Social relations perspective, 93
C3: Academic entrepreneurship perspective, 74
C4: Distance perspective, 64
C5: Interaction process and knowledge transfer perspective, 38
C6: Policy implications perspective (on university engagement), 32

The most populated cluster is the one that takes an ecosystems perspective, which again highlights the importance of this approach and supports the special focus of this thesis in exploring how BSchs embedded in BESs relate to industry. This is analysed for BSchs in RQ 1.e).

Again, the authors analyse these clusters one by one, including the frequency of publication by year:

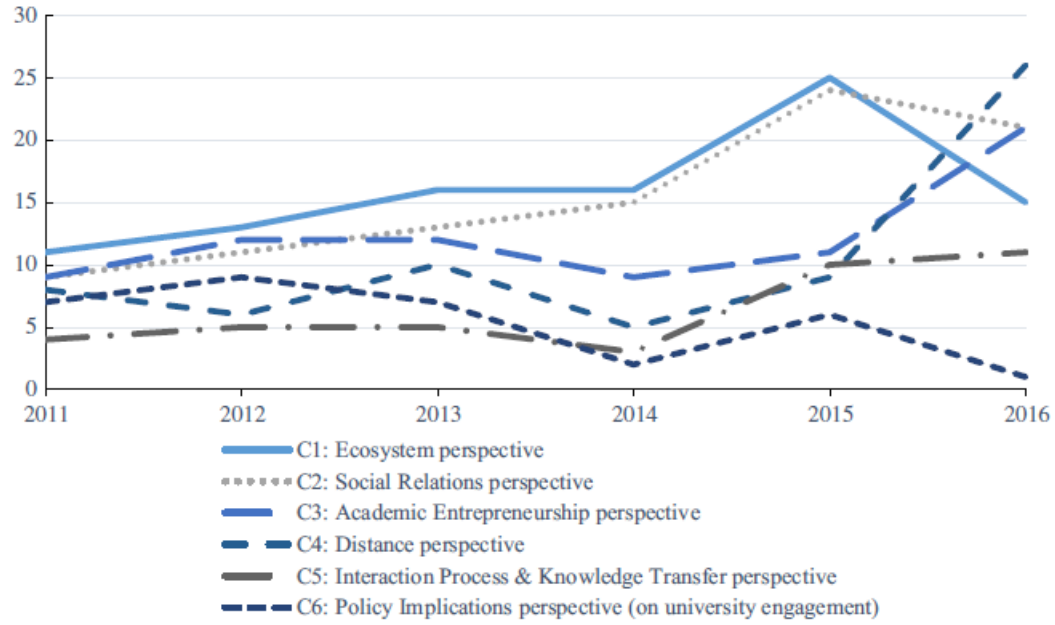

Figure 7 Overview of the evolution of six thematic clusters per year, representing the number of articles published each year from the period 2011–2016 using the bibliographic coupling technique. Source: Skute et al, 2017, p.933

Both analyses (co-citation and a bibliographic coupling) suggest some degree of interconnectivity among clusters, which leads the authors to confirm the multi-layered nature of UIC research. Three interconnected levels emerge: the '***individual level*** *(corresponding to the social relations perspective, academic entrepreneurship perspective, i.e., young graduates and academic staff level) and interaction process and knowledge transfer among individuals);* ***organisational level***, comprising mainly the university level *(distance perspective, academic entrepreneurship perspective* and *organisational interaction process and knowledge transfer); and* ***institutional level***, above the individual universities (ecosystem *perspective and policy*

implications perspective)' (Skute et al., 2017, p. 933). How these levels interact in the case of BSchs is also explored in this thesis. This multi-layered analysis is particularly relevant concerning certain collaboration forms like consultancy among individual academics or the institution (RQ 1.a); the concurrence of private and institutional motivations to engage with industry (RQ 1.b); the case of BSchs embedded into BESs (RQ 1.f); and the possible risks related to the confluence of individual, organisational, and institutional interests (RQ 3).

2.3.4. A focus on the success factors: Rybnicek and Königsgruber (2018)

The final systematic analysis of the literature was conducted by Rybnicek and Königsgruber in 2018. The authors identify four categories of factors affecting the success of UIC and issue a recommendation to practitioners for each factor.

- Institutional factors: these include the impact of resources, structure, and the participant's willingness to change. The recommendation is to pay attention to *flexibility* in the sense of being open-minded (Barnes et al., 2002; Ryan, 2007) and acknowledging that partners may have other priorities besides the individual's/organisation's (Poston & Richardson, 2011).

- Relationship factors: these include the impact of communication, commitment, trust, and culture. The authors advise focusing on *honesty* in the relationship between the partners.

- Output factors: these include the objectives and aspects of knowledge and technology transfer. The recommendation here is for *clarity*, particularly regarding aims and expectations.

- Framework factors: these include the impact of the environment, contracts and intellectual property rights, and geographical distance. The authors recommend that partners '*raise awareness of current economic, legal, political or social developments'* (Rybnicek & Königsgruber, 2018, p. 235).

It will be particularly interesting for this research to explore the extent to which these factors apply to the collaboration between BSchs and industry. Furthermore, it will be useful to determine whether there are other factors that the interviewees consider more critical for the success or failure of BSIC initiatives. These points are addressed in RQ 2, which focuses specifically on success factors.

However, the most important aspect of Rybnicek and Königsgruber's systematic review concerning the objectives of this thesis is that it also identifies other factors termed *moderators*. These moderators might influence the factors, but their actual effect is unclear because, even when they are suggested in the literature, the authors did not study them in depth. Rybnicek and Königsgruber mention the following moderators (Rybnicek & Königsgruber, 2018, pp. 236-239):

- The phase of the collaboration (different success factors can operate during different phases)

- The scale of the partners (the size of universities and companies may have an impact on the success factors)

- The organisational level (e.g., institution leaders and researchers may have different priorities)

- The academic and scientific discipline, which is a crucial aspect of this thesis. The authors state that '*there are good reasons to suggest that scientific disciplines might moderate the relevance of some of our*

identified factors' (Rybnicek & Königsgruber, 2018, p. 238). After arguing that the articles in their review do not analyse this question at all, they acknowledge Niedergassel and Leker's article, which concludes that their findings on UIC Research and & Development collaboration projects might have provided different results for other disciplines (Niedergassel & Leker, 2011). They also mention Cummings and Kiesler (2007), who stated that their research on multi-university collaborations may have provided different results for different academic disciplines. Thus, Rybnicek and Königsgruber conclude that '*it is reasonable that the scientific field might also impact IUCs'* (Rybnicek & Königsgruber, 2018, p. 238), which is a core question for this thesis. In their words, '*Hence, we assume that the (scientific) discipline is a potential moderator for our success factors, and future research should investigate its specific role in that regard'* (Rybnicek & Königsgruber, 2018, p. 239); this is a contribution this thesis aims to offer.

A summary of Rybnicek and Königsgruber's (2018) factors and moderators is available in Appendix 2. As mentioned, its singular importance resides in the recognition of the academic subject as a moderating factor, which supports the claim that different subject schools show different features in their IC.

2.3.5. Literature published after the systematic reviews: A focus on university centralisation

Broström et al.'s (2019) study analyses the recent phenomenon of universities introducing '*new elements of support and central coordination of outreach activities*' (Broström et al., 2019, p. 575). Three main conclusions are relevant to this thesis. First, this top-down decision-making model can potentially create tensions with (and therefore resistance to) the traditionally decentralised model of industry relationships led by individual academics,

schools, or university research centres managed at a lower organisational level. Second, the introduction of structured relation units (under different names like, for example, ‘knowledge transfer department’, or ‘partnerships hub’) can be a powerful instrument for organisational evolution. Third, even when these initiatives are positive in general terms, they can increase bureaucracy. However, the study lacks a clear evaluation of the benefits and drawbacks. This thesis will explore this phenomenon concerning RQs 1a (collaboration forms), 1b (motivations), 1c (initiation), 1d (complexity), and 1e (cross-school interactions).

Another research line contributes to the discussion of success factors in specific areas. For example, De Silva et al. (2021) explore the effect of affective evaluation on the success of UICs through sentiment analysis. Tseng et al. (2020) focus on the effect on university innovation performance, and Cheng et al. (2020) on the universities’ knowledge innovation and achievement transformation.

Another frequent dimension of the recent literature points toward geographically-based characteristics. For instance, Ashyrov et al.’s (2019) work on Estonia concluded that free-market competition is a key factor that policymakers should prioritise to foster the development of sustainable knowledge transfer through UIC. Fernandez Guerrero’s (2020) research in Denmark found a positive correlation between companies’ employment of graduates and other forms of UIC. Other papers, focused on certain industries. For instance, two studies on biopharma:Giunta et al.’s (2016) work(who concluded for Italy that proximity, previous partnership and existing relationships with other businesses were predictors of UIC) as well as O’Dwyer et al. (2023) (who found in Ireland barriers and enablers for UIC like lack of trust and fear of knowledge leakage).

2.3.6. Conclusions and links with the research questions

The analysis of existing literature reveals three main themes that have captured the authors' attention; these themes inform the three RQs that will guide this thesis's study of BSch: the peculiar characteristics of BSIC, the success factors of the collaboration, and the risk associated.

General features of UIC (related to RQ1)

The main aspects of UIC described in the literature include the collaboration forms (what do universities and industry do together? – **RQ 1.a**), their motivations to engage (why do they do it? – **RQ 1.b**), and the main characteristics of the collaboration process (how do they do it, and particularly how are collaborations initiated? – **RQ 1.c**, and what factors affect the complexity of the process? – **RQ 1.d**). The most comprehensive and systematic analysis of these aspects thus far is by Ankrah and AL-Tabbaa (2015), showing in Appendix 1.

Perkmann et al. (2013) and Skute et al. (2017) introduce a valuable discussion about the individual and organisational (school or university) layers of UIC, with varying collaboration forms (**RQ 1.a**), divergent motivations (**RQ 1.b**) and various possible origins for the relationship (**RQ 1.c**). Skute et al. (2017) also highlight the importance of the ecosystems' perspective in the UIC literature and the existence of a third 'institutional' (above the university, including ecosystems) layer, which will be explored within **RQ 1.e**.

This thesis compares UIC and BSIC and therefore refers to Perkmann et al. (2013) and Skute et al. (2017), who state that the academic subject discipline has an impact on the way universities and industry collaborate, and therefore this collaboration shows different features for BSchs versus, for example, engineering, biomedical or law schools. Based on this hypothesis, the first question is whether the relationship with industry is more intense, more frequent, or privileged in any way for BSchs (as Pettigrew and Starkey

[2016] suggest) versus other schools like engineering (as Perkmann et al. [2013] claim). This will be explored in **RQ 1.f**.

Success factors (related to RQ2)

Ankrah and AL-Tabbaa (2015) and Rybnicek and Königsgruber's (2018) systematic reviews both include a list of aspects that positively impact collaboration between universities and industry. However, the points of view are slightly different. Ankrah and AL-Tabbaa (2015) discuss factors that facilitate or impede UIC, while Rybnicek and Königsgruber (2018) discuss success factors. Yet the difference between their approaches (factors that make positive outcomes either easier or more likely) is too subtle, as it will be evidenced by the interviews with the deans, who found difficulties in differentiating the character of the contributing factors. Therefore, this research defines 'success factors' as factors that make positive outcomes either easier to reach or more likely to be achieved.

The factors proposed by Ankrah and AL-Tabbaa (2015) and Rybnicek and Königsgruber (2018) are notably different. Table 3 offers a comparison. The cells highlighted in green show a good or at least a partial fit. Those in orange are mentioned in only one study.

Ankrah and Al-Tabbaa (2015)		Rybnicek and Königsgruber (2018)	
Factors		**Factors**	**Moderators**
– Adequate resources (funding, human and facilities)		– Resources	
– Incentive structures for university researchers			
– Recruitment and training of technology transfer staff			
– Capacity constraints of SMEs			
– Inflexible university policies including intellectual property rights (IPR), patents, and licenses and contractual mechanisms		– Contracts and intellectual property rights	
– Treatment of confidential and proprietary information			
– Moral responsibility versus legal restrictions (research on humans)			
– Leadership/Top management commitment and support		– Willingness to change	
– Collaboration champion			
– Teamwork and flexibility to adapt			
– Communication		– Communication	
– Mutual trust and commitment (and personal relationships)		– Trust and commitment	
– Corporate stability			
– Project management			
– Organization culture (cultural differences between the world of academia and of industry)		– Culture	
– Organization structure (university administrative structure and firm structure)		– Structure	– Different organizational levels
– Firm size (size of organization)			– Different scales
– Absorptive capacity			
– Skill and role of both university and industry boundary spanners			
– Human capital mobility/personnel exchange			
– Nature of the technology/knowledge to be transferred (tacit or explicit; generic or specialized; academic rigor or industrial relevance)		– Knowledge and technology transfer	
– Policy/legislation/regulation to guide/support/encourage UIC (support such as tax credits, information networks and direct advisory assistance to industry)		– Environment	
– Enhancement in reputation/prestige			
– Low level of awareness of university research capabilities			
– Use of intermediary (third party)			
– Risk of research			
– Cross-sector differences/similarities			
– Geographic proximity		– Geographical distance	
		– Objectives	– Different phases
			– Different disciplines

Table 3. Comparison of the risks and challenges identified by Ankrah and AL-Tabbaa (2015) and Rybnicek and Königsgruber (2018). Source: the author

Rybnicek and Königsgruber's (2018) factors are more generic than Ankrah and AL-Tabbaa's (2015), and it is, therefore, easier for them to fit different models of IC; this is important in a scenario where the prevailing

hypothesis (Perkmann et al., 2013; Skute et al., 2017) is that ICs of schools of different disciplines have different features. This thesis's results will be compared with both lists of factors.

Risks, challenges, ethical issues (RQ3)

Ankrah and AL-Tabbaa (2015) provide a list of 'drawbacks' of collaboration, which are essentially risks and undesired outcomes. The results of this research will be compared with this list to identify the differences between UIC and BSIC in this particular aspect.

Drawbacks	Outcomes
Deviation from Mission or Objective (Core Ethic)	— Threats to research autonomy or integrity for commercial advantage that may have a negative impact on culture of open science and affect the university mission
	— Confidentiality agreements may block the dissemination of knowledge
	— Could result in the abandonment of long-term basic research in favor of results-oriented, short-term, applied research and technology transfer
	— Concern that the end result of collaboration could be short-term contracts in which industry would require 'quick and dirty' solutions to problems, with university departments acting as extensions to the research activities of firms
Quality issues	— Potential diversion of energy and commitment of individual staff who are involved in interaction with industry, away from core educational activities
	— Could affect types of research questions addressed and reduce the quantity and quality of basic research
Conflicts	— Conflicts between researchers and company over the release of adverse results/damage in professional relationships among the researchers
	— Biased reporting by researchers sponsored by companies in favor of positive experimental results relating to company products
Risk	— Dilemma of either publishing results for short-term revenue and academic recognition or withholding until they are patented, with the risk of the technology becoming obsolete
	— Risks that academic-industry relationships pose to human subjects of research and to the integrity of academic investigation

Table 4. Possible drawbacks of UIC. Source: Ankrah and AL-Tabbaa (2015, pp. 398-399)

Thematic summary of the literature and links to the research questions

The following table summarises the links between the four systematic UIC literature reviews presented in this thesis and the RQs. As can be seen, all the RQs have been studied for universities in general by at least one of the systematic literature reviews, whose conclusions will be compared with the ones found in this thesis specifically for BSchs.

	UIC Systematic reviews			
	Perkman et al. (2013)	**Ankrah and Al-Tabbaa (2015)**	**Skute et al. (2017)**	**Rybnicek and Königsgruber (2018)**
GENERAL: Is UIC influenced by the school's academic subject?	X			X
1. What is the perception of senior leaders in business schools about their institutional collaboration with industry?				
a. What are the forms of collaboration?	X	X	X	
b. Why do business schools collaborate with industry?	X	X	X	
c. Who initiates the collaboration projects?	X	X	X	
d. What factors affect the collaboration process?		X		
e. How does business schools' membership with a business ecosystem affect their relationship with industry?			X	
f. How does BSch's collaboration with industry compare with other university schools and faculties?	X			
2. What do senior leaders in BSchs identify as the factors contributing to successful collaboration between business schools and industry? Why?		X		X
3. What challenges and risks do business schools find when collaborating with industry? Is any form of collaboration particularly risky? Why?		X		

Table 5. Summary of the links between the main four systematic reviews and the RQs. Source: the author

2.4. BSchs and their relationship with industry

Adapting the definition reached in section 2.2.1 regarding UIC, the following definition of BSIC is used in this thesis: ***"the interaction between any departments of business schools and industry aiming to pursue joint initiatives"***.

The existing literature has focused on UIC without specifically exploring the specific framework of BSIC. According to Vick and Robertson (2018), there is '*a relative lack of studies exploring one specific sector/discipline and its particularities*' in the UK (Vick & Robertson, 2018, p. 582). They just found three studies focused on consulting and business/management (Vick & Robertson, 2018), but just one refers to BSchs: Laursen and Salter (2004) identify the features that prompt firms to use universities as a source of innovation, while Henderson et al. (2006) explore how a university-industry partnership can help develop Total Quality Management (TQM - a managerial approach aiming to minimise errors and generate success through continuous improvement) in the organisation. The third study mentioned, Marcos and Denyer (2012) discuss a failed case of collaborative research between a consulting firm and a BSch, illustrating the issues found but not addressing the BSIC framework holistically. A fourth study, Darabi and Clark (2012), refers to BSchs but from the perspective of the importance of trust to foster collaboration with SMEs. Outside the United Kingdom, other studies also focus on certain aspects of UIC for BSchs. For example, Dang et al. (2019) considers knowledge transfer in Australia.

The lack of literature that takes a holistic approach to UIC by academic subject is remarkable, particularly as several studies (Perkmann et al., 2013; Rybnicek & Königsgruber, 2018; Vick & Robertson, 2018) suggest that the academic discipline affects how academics and schools engage with industry. In the absence of a specific body of literature describing and analysing the overall framework of BSIC, the following sub-section presents the main themes in the literature concerning the relationship between BSchs and companies.

2.4.1. Three debates linked to the relationship between BSchs and companies: legitimacy, relevance, ethics

The first debate regards **legitimacy** and questions whether BSchs are at risk of losing their academic identity because of the external influences of politics, the corporate world, rankings, and continuous pressure from students and employers (Khurana, 2007). Authors include Wilson and Howard (2012), who focus mainly on accreditations and rankings and recommend that BSchs reinforce their legitimacy by 1) promoting a learning culture not overemphasising the link between management qualifications and higher salaries; 2) focusing on ethical considerations in modern capitalism, exploring the societal role of businesses and managers, and promoting corporate social responsibility; 3) researching and teaching impactful topics like social and economic policy, climate change, and the rising economic influence of China and India; and 4) adopting a more globally-oriented approach valuing diverse cultures, languages, and religions. Additionally, Thomas and Cornuel (2012) acknowledge that BSchs have been criticised for being too market-driven and recommends that they transition to a new model, more focused on academic priorities. Currie et al. (2010) propose initiatives to regain legitimacy after the 2007 crisis, including the possibility for MBA students to sign an equivalent declaration of the medical Hippocratic Oath. Thomas and Wilson (2009) use a PEST (political, economic, social, and technological) analysis of BSchs' competitive actions and strategic choices, many of which are connected with industry, and produce three '*conjectures*': 1) including the voice of practitioners in research, 2) produce research that can be disseminated and 'consumed' by practitioners, and 3) redefining the role of BSchs as professional schools that capture the practical essence of management. Starley and Tempest (2008) argue that BSchs need to '*rethink their focus on "school" as well as "business*"' (Starley & Tempest, 2008, p. 397). This discussion connects with BSIC and is further explored via RQ3. However, this debate is not exclusive to BSchs, as Ankrah and AL-Tabbaa (2015) noted in their systematic literature review. This thesis will explore similarities and differences between BSchs and OSUS.

The second main debate refers to **relevance** and describes the tension between those who think that the academic literature produced by BSchs is not connected to the real needs of management and the challenges of the professions, and those who defend the value of academic research. Authors include Butler et al. (2015), who investigate relevance of private activities like consulting or executive education in academics' engagement with industry. They conclude that arising conflicts with the norms of scholarly conduct can lead to trade-offs that compromise the academics' identity and research ethos. In this sense, Paton et al. (2014) argue that real value-added contributions by academics to practice happen when they *'resist the seductive tendency to capitulate to the immediate demands of the client'* (Paton et al., 2014, p. 267). Thomas and Wilson (2011) analyse the conflict between practical relevance and academic rigour and conclude that management education and research need a new model. Kieser and Leiner (2009) conclude that '*researchers and practitioners cannot collaboratively produce research*', as there is an '*unbridgeable gap*' between rigour and relevance in management research, so one has to be prioritised over the other (Kieser & Leiner, 2009, p. 516). Hodgkinson and Rousseau (2009) contradict this assertion, though, as they did not see any issue in business practitioners and academics researching together, and in fact, they declare it is happening. This thesis addresses this discussion via RQ 1.a.

The third theme covers **sustainability, ethics, and responsible management**. After the Enron incidents and the 2007 financial crisis, and the current concerns about the environment, the literature has intensified its call for BSchs to include these matters in their curricula. Currie et al. (2010) affirm that BSchs are complicit in the 2008 financial crisis as they had not given enough attention to subjects like ethics and sustainability, and welcome their initiatives to prioritise sustainable business in their teaching and research. Rodenburg and MacDonald (2021) offer suggestions for BSchs to foster ethical decision-making and sustainable business in their curricula. Robert (2020) focuses on BSch buildings as laboratories for fostering sustainability in

higher education. Painter-Morland et al. (2016) advocate for a 'Systemic Institutional Integration' of sustainability into BSchs beyond the curriculum. Akrivou and Bradbury-Huang (2015) propose using critical questioning and dialogue to educate management students on sustainability. Sigurjonsson et al. (2015) reveal that managers are disappointed with the ethics of graduate students and suggest actions for BSchs. Christensen et al. (2007) study education on sustainability at the top 50 *Financial Times ranking* BSchs. The connection of this discussion with UIC is evident not just because of how it was triggered (i.e., after the incidents involving Enron, a private business) but also due to the wider conversation about sustainability and ethics and the role BSchs should play in championing sustainable and ethical business rather than short-term profits. Critical Management Studies has focused on the purpose of BSchs within their challenge of the mainstream conceptualisation of management. Alvesson et al. (2009), in fact, suggest that BSchs' affiliation with universities has fostered Critical Management Studies's emergence in this ambit. In particular, Kitchener et al. (2022) illustrate several actions with which UK and French BSchs have intensified their external engagement invoking purposes of social responsibility, responsible management, public value, common good, social justice and having a better business school for the world. Many of these external engagement initiatives involve industry collaboration. That research concludes that '*the primary impetus for purposeful change is for business schools to operate in ways that better complement their essential worth and advance their purpose of making positive contributions to society'* (Kitchener et al., 2022, p. 10).

2.4.2. Business Ecosystems and BSchs

The concept of BESs is introduced by Moore (1996) as '*an economic community supported by a foundation of interacting organisations and individuals*'. Interactivity is, therefore, the key differentiating element between ecosystems and other business supra-organisations like markets, alliances or supply chains. According to Jacobides et al. (2018), a key factor allowing the

coordination of the businesses' multilateral dependence is the existence of sets of roles and rules shared across participants that obviate the need for individual agreements within the wider ecosystem organisation. Complementarity, and even integration are also key drivers, according to these authors. In a similar sense, Adner et al. (2013) talk about interdependence.

In a 2018 study called 'Cornerstone of Future Growth: Ecosystems', the strategy division of the consulting firm Accenture ran a global survey of 1,252 business leaders from diverse industries to research the degree to which companies capture ecosystem opportunities. Their findings showed that 60% of executives think ecosystems will soon be the main disruptor of business models (Lyman et al., 2018, p. 3), and this will also affect BSchs, so it is an important strategic factor that needs consideration. BESs have traditionally been linked to innovation (Autio & Thomas, 2014), entrepreneurship (Autio et al., 2018) and knowledge creation and exchange (Valkokari, 2015).

The literature has widely investigated BESs in certain sectors. One was personal computers (Baldwin & Clark, 2000, in a study devoted to modularity in design that facilitates collaboration among different players). Also semiconductor manufacturing (Adner & Kapoor, 2010, who found that vertical integration as a strategy to manage ecosystem interdependence becomes more effective as the technology life cycle progresses). Iansiti and Levien (2004) analysed the impact on healthcare, defending the stability of ecosystems as a group of entities with different individual interests that join together for efficiency and survival, versus the mere networks of organisations. Li and Garnsey (2014) analysed the case of a technology enterprise that built a supportive ecosystem that made it possible to develop innovative treatments for tuberculosis. Regarding telecommunications, Gawer and Cusumano (2002) identified two types of platforms: internal or company-specific, and external or industry-wide platforms, defining the latter as *'products, services, or technologies that act as a foundation upon which external innovators, organized as an innovative BES, can develop their own*

complementary products, technologies, or services' (Gawer & Cusumano, 2002, p. 417), and analysed the case of Intel and other global telecommunications companies. Jacobides (2005) analysed banking and the disintegration of the value chains in stages that are undertaken by vertically integrated companies and how this contributes to specialisation and efficiency.

Regarding HEIs, there are two identifiable trends in the existing literature. First, authors have investigated the role of HEIs in BESs. This scholarly production is fragmented, though, with various authors presenting different models. For example, Cai et al. (2020) identify three roles of HEIs in innovation ecosystems: *anchor organisation in knowledge exchange*, *trust-building between actors*, and *institutional entrepreneur*. Heaton et al. (2019) propose the *dynamic capabilities framework* for universities to manage their role in innovation ecosystems, which is defined as '*an organization's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments*'. The second research approach involves geographically-bounded studies on local BESs, which are often publicly funded. Examples include the Middlesex University and SQW (2019) study, which proposes a general ecosystem framework for London and presents the implications of an extensive literature review. Another research, by Clarysse et al. (2014), studied 138 innovative start-ups in the region of Flanders and found that the knowledge ecosystem is well established there and fully government-funded, encouraging policymakers to facilitate the conditions so that more ecosystems can develop

It is commonly accepted that some BSchs have developed a particularly close relationship with surrounding BESs. Yet, except for some examples, mostly focused on the Stanford Graduate School of Business and Silicon Valley there is no substantial literature on BSchs operating in BESs, and less a generic model describing how typically this collaboration unfolds. Examples of these partial studies are the research of Eesley and Miller, who concluded that *'For more than a century, the university [Stanford] has incubated ideas, educated entrepreneurs and fostered breakthrough*

technologies that have been instrumental in the rise and constant regeneration of Silicon Valley' (Eesley & Miller, 2018, p. 130). However, this research is aimed at the university level, not the school level, and just focused on innovation and entrepreneurship, which is just a minimal part of the collaboration forms between universities and industry. Another example is Finegold (1999), involving the BSchs but limited to talent and skills development. Adams (2009) compared two Engineering schools at different universities, Stanford and UC Berkley, and their interaction with Silicon Valley, and concluded that the main factor that allowed Stanford to excel in this collaboration was the strategic need to become entrepreneurial as they did not have access to the government funds that other public and private universities had. Arguably, this can also apply to the BSchs, but the author did not mention it. The same author concluded in another study that the factors that led the collaboration between Silicon Valley and Stanford to succeed were '*a concentration of brains, an entrepreneurial culture, and an infrastructure supportive of high-tech and entrepreneurial activity*' (Adams, 2005, p. 45), but put into doubt the general belief that these factors can be replicated elsewhere. All these examples suggest that collaboration between universities with industry is frequent and intense, but the literature is scarce regarding BSchs.

2.4.3. Conclusions and links with the research questions

Although they may not provide a complete depiction of the BSIC framework, the three themes outlined above (legitimacy; relevance; sustainability, ethics, and responsible management) play a crucial role in this research. They are intrinsically linked to the research topic as they delve into the function of BSchs in society, particularly regarding their collaboration with businesses and corporations. They also define the scope of potential risks, challenges, and ethical issues in those relationships. Investigating these themes will be the core of **RQ3**, particularly the ethical aspects of the relationship with industry due to the risks of losing autonomy and possibly

compromising their academic identity because of the powerful influence of businesses, and the individual identity of academics as independent experts. Finally, the effect of membership in a BES on BSchs will be analysed in **RQ 1.e**.

This chapter scrutinised the broader concept of UIC within academic literature.. However, there is limited research regarding the collaboration between industry and individual schools and faculties in different academic subjects (Broström et al., 2019; Rybnicek & Königsgruber, 2018). It remains uncertain whether the collaboration between BSchs and industry shows differences or commonalities with other schools regarding the overarching collaboration framework ('what', 'why', ‘who’ and 'how'). Additionally, if the collaboration is distinct for BSchs compared to other schools, and the impact of their integration within a BES. Finally, the factors that contribute to BSIC's success and the risks and challenges they pose require further exploration.

CHAPTER 3: METHODOLOGY

This chapter presents the research methodology used for the investigation of the RQs (see section 1.2). It will start by presenting the objectives of the fieldwork and then will discuss the research paradigm and design, the methods and sampling used, the analysis, the ethical considerations, and finally the limitations.

3.1 Objective of the Fieldwork

To investigate the RQs, the objectives of the fieldwork are: 1) to explore the collaboration forms with industry presented and communicated by BSchs on their websites, and 2) to capture the perspectives of senior leaders in BSch regarding their collaboration with industry. For that purpose, the study employed empirical research involving the analysis of the content of the web pages where twelve BSchs present their ICs and interviews with eight BSch deans. Twelve websites and eight interviews were deemed enough as the information provided by the last cases did not add any substantial new information, suggesting that the saturation point had been reached. Saunders et al. defined the saturation point as the moment in which, *'on the basis of the data that have been collected or analysed hitherto, further data collection and/or analysis are unnecessary'* (Saunders et al., 2018, p. 1893).

3.2. Research paradigm and design

The research was approached with a **social constructionist epistemology** because the objects of the research are social constructs: IC,

strategic external relationships, BESs, and how BSchs interact with them. This constructionist focus is also coherent with the nature of collaboration among institutions, which essentially requires human social interaction. '*Constructivism proposes that each individual mentally constructs the world of experience through cognitive processes while social constructionism has a social rather than an individual focus'* (Andrews, 2012, p. 39, citing Young & Colin, 2004). These relational and institutional aspects of BSIC clearly define the social nature of the construct and therefore justify the constructionist approach, versus the constructivist epistemology, which stresses the relevance of individual cognitive processes.

This constructionist epistemology, according to Crotty (1998), is compatible with an **interpretivist perspective** as the main issue of the research is the study of a social phenomenon that is interpreted by those involved in it (Burr, 2003); in this case, the interviewees were senior leaders who offered their opinions about the relationship between their BSchs and industry.

The research design is **qualitative**, which was chosen mainly because of the complexity of the relationships studied, whose investigation requires direct interaction between the researcher and the interviewees to frame the discussion, clarify the constructs, and prompt meaningful reflection. Also, because of the **inductive** approach of the research, as it tries to explore the perspective of senior leaders in BSchs and extract suggestions by analysing and comparing them. As Robson points out, qualitative research is preferred when '*an inductive logic is used starting with data collection from which theoretical ideas and concepts emerge'* (Robson, 2014, p. 19). This research relies on inductive logic to delineate the perspectives of BSch leaders and induce suggestions from them. The research is also pragmatic; as Robson (2014, p. 27) observes, *'to be pragmatic, in the general use of the word, indicates a concern for practical matters (…). Such an approach will be likely to be congenial to real-world researchers whose main concern is (…) to come up with answers to the problems they are trying to address*.' For this reason,

the pilot and early interviews shaped the interview protocol to exclude or refine questions for which the interviewees showed signs they found difficulties to answer (e.g. the fine differences between success and facilitating factors, as explained in the previous chapter).

3.3. Methods

Two methods are used in this research. First, a **documentary analysis** of the content of twelve top BSchs' websites was conducted to frame the discussion and explore the collaboration forms between BSchs and industry (the first element of RQ 1). The documentary analysis only covered the collaboration forms because the websites did not usually provide information about the other aspects of the RQs. This documentary analysis provided a point of reference for the interviews and constituted an additional source of data to be compared with the interview results.

The second method was the **semi-structured interviews** with eight BSch senior leaders. Interviews allowed direct interaction with the interviewees, unlike with a questionnaire or a desktop review of documents. As Robson states (2014, p. 280), '*Face-to-face interviews offer the possibility of modifying one's line of enquiry, following up interesting responses and investigating underlying motives in a way that postal and other self-administered questionnaires cannot.*' Accordingly, the interviewees were prompted to explain aspects that may have been unclear and to elaborate when appropriate, which was particularly relevant in this study as the object is a rather complex strategic relationship between institutions. This way, the answers were issued after reflection and understanding of the complexity and richness of the multi-faceted relationships between BSchs and industry. The moderate flexibility of the semi-structured interview also allowed for the adaptation of the protocol '*based on the flow of the interview'* and for '*additional unplanned questions asked to follow up on what the interviewee said*' (Robson, 2014, p. 280).

3.3.1. Data collection: sampling

The choice of BSchs for the documentary analysis

For the **documentary analysis** of websites' content, the sample consisted of the top twelve UK BSchs in the 2022 *Financial Times* ranking of European BSchs. The *Financial Times* (*FT*) is widely acknowledged as the most professionally oriented ranking, as it includes executive programmes that others do not (executive education in particular) and prioritises criteria like students' career outcomes. The *FT* ranking results are periodically audited by the consulting firm KPMG, and the threat of exclusion from later editions is so undesirable that it deters schools from providing false or biased information.

Selecting BSchs based on rankings has the advantage of using published data based on the results of an extensive student survey. The ranking of European Business Schools (https://rankings.ft.com/home/regional-rankings) combines the results of all the FT rankings across programmes (Undergraduate, Master, MBA and Executive Education). Therefore, the top schools deliver consistently high quality across all programmes in the portfolio and arguably can engage with industry in a wider variety of ways than others that do not offer, for example, MBAs or Executive Education. It could be argued that focusing only on top BSchs generated a potential bias. However, the documentary analysis does not consider opinions but just counts the number of times that the collaboration forms are offered on the website, so the sample should offer as many forms as possible.

The sample of deans for the semi-structured interviews

Interviewees were exclusively BSch deans as they are at the top level of their organisations and therefore have responsibilities over strategic

matters, particularly regarding external relationships.. Although interviewing other members of staff might have enriched these views by adding the perspective of different departments and different levels of seniority in the organisation, the aim of this research is linked to the strategic dimension of BSIC, which is better addressed by deans as leaders at the top of the organisation. By interviewing just deans, the sample becomes homogeneous, the information is more comparable among interviewees and BSchs, and the saturation point is reached with fewer interviews. Guest et al. (2006) suggested that saturation occurs with fewer participants in homogeneous groups, like staff at a certain position or level in the organisation.

To select the BSchs, the rankings were used again, for the reasons explained above. BSchs were invited to participate in this order:

1. Position in global rankings for BSchs
    1.1. *Financial Times* European BSchs ranking
    1.2. QS ranking, subject Business and Management

2. Position in UK-specific rankings
    2.1. The Complete University Guide
    2.2. *The Guardian*

The advantages of inviting schools based on the rankings are the same as the ones mentioned above for the documentary analysis. However, the fact that the acceptance rate was so low meant that the interviewed deans' BSchs ended up representing very different levels in the rankings, from some in the top ten to some others with much more modest positions, limiting the risk of any biases based on the position.

The sample produced eight school cases for institutions located in different places in the United Kingdom and with a range of approaches to IC. They have diverse positions in rankings and accreditations. Some are widely recognised as embedded into a BES, and others consider themselves

members or even promoters of an ecosystem formed by a closely-knit local industry. They could be classified according to different criteria. However, as it emerges from the data, and will be further discussed in the next chapter, the most significant classification groups them into 'global' (highly ranked and triple-accredited, exceptionally well known, used to work with multinational and large companies) and 'community-linked' BSchs (lower position in rankings, bonded with their regional industry and civil society, used to work with small and medium-sized enterprises). Four schools from the sample meet the criteria to be considered 'global' (A, B, D, H) and the other (C, E, F, G) can be labelled as 'community linked', so both clusters are equally represented.

BSch A

Highly ranked, BSch A belongs to a multi-disciplinary university. It excels in taught postgraduate programmes, especially traditional master's, and also offers post-experience awards, mainly MBAs and executive master's, some as level 7 apprenticeships. The school also focuses on executive education, primarily custom programmes. Their collaboration model relies on the concept of 'partnerships' with businesses engaged in various collaboration forms. The interview emphasised service exchanges with industry over student-centric engagement like placements or guest speakers. The dean believed that the relationship with industry is usually stronger for BSchs than for other schools, but not necessarily the entry door.

BSch B

BSch B is part of a top-ranked university with numerous schools. Executive education and advisory board membership drive their IC model, which is aided by substantial endowments. The interview emphasised strategic industry changes and the role of BSchs in that scenario. Outward-looking culture, tied to legitimacy and purpose, is vital. They consider the school to be embedded into a global ecosystem more than a local one, within which collaborations pivot around entrepreneurship. The dean believed that

IC is stronger for BSchs than for other subject university schools (OSUSs) but disagreed that they are the entry point for companies to collaborate with other schools.

BSch C

This school ranks not as highly as others in the sample. The dean views their IC level as relatively low, with listed forms representing aspirations rather than current achievements. Despite ample academic and student resources, direct research-industry links are missing. However, there are successes in applied research with various organisations. The dean did not perceive BSchs as being more engaged with industry or the main entry point for companies.

BSch D

This highly ranked school is integrated into a BES. The dean emphasised the need of well-trained relational staff. The conversation extended to the centralisation of collaboration services at their university, where the BSch is notably the biggest school. Private engagement by academics, differences among schools, and the role of impact on research were explored in depth. They perceived BSchs as moderately intense collaborators with industry, falling between technical schools and the less engaged humanities and social sciences. The facilitation of cross-school engagement opportunities was not deemed significant.

BSch E

This school holds a mid-high ranking position as well as various accreditations. For them, industry engagement is central to supporting

industry and policy-makers. The interviewee highlighted two key contextual factors. First, being the largest school in their university, they hold substantial influence. Second, the university's origin as a technical college founded by local manufacturers instilled a practical focus on business engagement as it was designed to be immediately beneficial to businesses. They consider themselves close to local industry, organisations, and civil society, particularly in matters related to inclusiveness and ethnic minority groups, but there was no spontaneous mention of the word ‘ecosystem’. The dean asserted that BSchs indeed hold stronger industry relations, yet they are not the gateway for other schools.

BSch F

This school holds a mid-level ranking. Some collaboration forms on their website were recently reinvigorated by the new dean, who perceives that their BSch holds a pivotal role within the local industry's BES, which is a part of their mission. The school’s origins can be traced back to the initiative of local industry. BSch F aims to foster collaboration by transcending silos and uniting efforts for a coordinated model. The dean advocates for an engaged culture and believes that BSchs enjoy stronger industry ties compared to other schools. They aspire to be the entry point for companies seeking collaborations with other schools, although this has not happened yet.

BSch G

Ranked moderately, BSch G heavily emphasises IC through career development and employability. Their dedicated employability team, initially BSch-driven and now centralised at the university level, facilitates placements, and projects across diverse industries like tourism, sports, and financial services. The dean noted that contacts fostered by the careers team often extend to broader collaboration. The BSch is expanding into executive

education and apprenticeships, with new facilities underway. The dean does not believe they are embedded in an ecosystem, but they actively encourage networking within their local industry. The dean sees industry relations as distinct but not weaker or stronger than in other schools. Partner management is now overseen by the newly established, university-wide Partners Hub.

BSch H

Ranked highly, this school's industry involvement has been steadily increasing, especially in the executive education and research domains. Their strong, outward-looking culture fosters strong company collaboration, with a notable focus on sustainability and growth. Their collaboration strategy aligns closely with the university's overall strategic plan. While the dean acknowledged varying approaches among schools, they hesitated to label BSch relationships as stronger or weaker. They view any school as a potential entry point for the university's wider collaboration with industry.

In summary, the sample of BSchs produced a variety of scales, positions in rankings, geographical locations, affiliation to BESs, and approaches to BSIC that enriched the diversity of perspectives in this research.

3.3.2. Structure of the interviews

The interviews were planned to last for about 45–60 minutes, in person if possible or virtually when not feasible. Deans were invited to participate directly by email after being identified on the Internet or through the author's network of contacts. The email explained the aims of the research and the purpose of the interview (*"having your views about how your business school*

collaborate with industry"), so they had time to reflect on it and consider if they wished to participate.

An initial interview protocol was prepared (Appendix 3) and tested in a pilot interview. Thanks to the feedback received, the protocol was adjusted for the final interviews.

The pilot interview

It was held on 14th November 2022 with a similar role to the target sample. The interview took about 60 minutes and provided valuable learning points. Firstly, the original introduction seemed too long and dull. In general, the time control was an issue. To keep the interview within the hour, some sections had to be reduced.

The order of the sections did not work well. Starting with the question '*Will you please briefly describe your role and how it relates to IC at your BSch?'* proved too open, and made deans lose the point at times. Therefore, the subsequent question on collaboration forms seemed repetitive. As a result, the question was deleted and the on about the collaboration forms became the first one, after briefly reminding the interviewee of the forms appearing on their BSch's website.

Some other sections seemed repetitive. For example, when asked *'What kinds of activities usually do your collaborations with industry include?'*, which was aiming to enquire about the types of interaction (e.g. meetings, calls, or conferences) the interviewee went back to explain the collaboration forms, and when prompted he felt the question was somehow insubstantial compared to the strategic level of the others. Therefore, that section was removed.

Some sections did not directly enquire about the differences between BSchs and OSUS, expecting that the interviewee would bring this to the fore, which did not always happen. As a consequence, in the revised protocol this was explicitly asked in each section.

In general, it proved useful to first ask a more general question and then to enquire about trends and opinions regarding how the BSch compared with other schools. This gave a stable structure across sections to which the deans soon accustomed.

The structure of the final interviews

The final amended protocol is available in Appendix 4.

After the explanatory introduction, the deans were asked about the collaboration forms between their BSch and industry, the motivations, the way these engagements are initiated, their complexity, the success factors and the risks involved, particularly the potential loss of autonomy and academic identity. Two final questions provided an overall perspective on the comparison between BSchs and other subject schools regarding IC (if IC was more intense for BSchs than OSUS, and if they often are the entry point or interface for industry to collaborate with other schools). A question exploring the impact of their membership to a BES was inserted in the early stages of the interview, usually when discussing the collaboration forms. Due to the semi-structured design of the interviews, questions sometimes were asked in a different order where relevant to maintain the narrative of the interviewee.

For every section, deans were first asked the main question (e.g. what their collaboration forms are, or what the motivations for their BSchs to collaborate with industry are). Then, two additional questions followed to enquire if they had identified any trend or innovation in recent years, and if

they believed there were differences between BSchs and OSUS in that particular subject.

Invitations to participate, response rate, and accepted formats

The first emails were sent in early January 2023 to 45 deans. Eight of them answered, of which 6 accepted to participate in the research and 2 sent apologies. The researcher continued inviting deans to participate until reaching a point of feeling comfortable with the consistency and saturation of the answers was obtained with 8 interviews.

Most of the interviews were held between January 31 and April 5, 2023. One interview was completed on May 25 due to the earlier unavailability of the dean. Although a face-to-face interview was offered as the first choice, most of the deans chose to meet online. Two meetings were held face-to-face. There was no perceived difference in the dean's engagement with the conversation depending on the format.

The actual duration of the interviews was between 30 and 50 minutes, with an average of approximately 45 minutes.

Perceptions during the interviews

The deans started by enthusiastically talking about their schools and the collaboration forms. Some seemed to grow tired or distracted as the interview progressed. While there was no perception of a loss of quality in their responses, earlier questions were often answered in more depth. The researcher sometimes changed the order of the questions to facilitate the flow of the interview and skipped some questions when the information would be repetitive.

When asked, most of the deans were able to identify and describe what other schools do, although some stated they would not know in detail. The question on motivation appeared to surprise some of the deans. They considered IC to be an integral part of BSchs, and therefore explaining the reasons behind it seemed challenging for them. A few innovative types of IC were referred to when explicitly asked for, but some deans spontaneously mentioned trends and innovations when they presented their collaboration forms with industry. Several deans expressed interest in receiving the research results, underscoring the value of this research for leaders in BSchs.

3.4. Data analysis

The method of analysis used is qualitative content analysis (QCA). According to Krippendorff, *'Content analysis is a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use*' (Krippendorff (2004, p. 18). QCA was defined by Patton as *'any qualitative data reduction and sense-making effort that takes a volume of qualitative material and attempts to identify core consistencies and meanings'* (Patton, 2002, p. 453). The purpose is not, therefore, quantifying words or aiming to extract any objective conclusions, but to examine text meanings and patterns in a way that allows researchers to scientifically understand a social phenomenon, even with some degree of subjectivity (Zhang & Wildemuth, 2009).

Even when the QCA method has been criticised as simplistic by some quantitative researchers like Morgan (1993), it is widely used according to Elo and Kyngäs (2008), and it provides some important advantages, particularly in terms of its focus on content and meaning (Krippendorff, 2004) and its flexibility (Harwood & Garry, 2003).

According to Zhang and Wildemuth (2009), the process of the QCA can vary depending on the aims of the research. Salvi (2019) compared the phases proposed by Elo et al. (2014) and Schreier (2014):

Phases (Elo et al., 2014, p. 1–2)	*Steps (Schreier, 2014, p. 174)*
Preparation	1 Deciding on a research question
	2 Selecting material
Organization	3 Building a coding frame
	4 Segmentation
	5 Trial coding
	6 Evaluating and modifying the coding frame
	7 Main analysis
Reporting of Results	8 Presenting and interpreting the findings

Table 6: Main phases and steps in QCA. Source: Salvi (2019), p. 444

Following the guidelines proposed by these authors, the process followed in this research for the QCA of the interviews was:

1. Preparation

Interviews were held face-to-face, over the phone and online in various platforms (Zoom, Teams), which caused challenges for transcription. The transcripts were produced by Otter.AI. The tool was accurate and often proved valuable alongside the direct transcript from Zoom or Teams. However, using this tool came with certain risks as it sometimes misinterpreted the interviewee's message, so the researcher checked them all, facilitated by Otter.AI's ability to sync audio and text.

However, the resulting text was a direct reflection of spoken language, with numerous ‘filler tags’, repetitions, mid-sentence changes of opinion, and confusing expressions. For complex paragraphs, the researcher occasionally used a text-generative AI tool to transform this ‘oral English’ into standard written English. The prompt used was ‘This is a text in oral English, please convert it to written British English.’ The researcher manually ensured the tool did not alter the interviewee's statements’ meanings, while improving

readability and understanding. According to Braun and Clarke (2013), '*There are many different styles of transcription, which suit different analytic methods'* (Braun & Clarke, 2013, p. 161). Some aim to transcribe phonetic or paralinguistic features (Jeffersonian) and others just spoken words (orthographic). Other styles allow for some justified and limited editing. A recent approach, based on the use of software tools to assist the transcriber, has been called 'Intelligent transcript' by Kawahara (2007). Of course, to avoid ethical issues, there is an expectation that the style of transcription chosen is explained and justified in the methodology section of the research and, according to Braun and Clarke (2013), it does not affect the analytical method. This is the case of this thesis, focused on what the Deans meant more than how they said it. In fact, some minor degree of editing without changing the meaning can be an expectation for some research users. According to the survey conducted among senior research users (including policymakers, research managers and academics) by Corden and Sainsbury (2006), '*There was a general assumption that authors probably tidied up excerpts from transcripts to present as quotations, taking out some of the 'ums' and 'ers' and word repetitions which were normal parts of spoken language. This was generally acceptable because otherwise spoken language could look random and incoherent, and it could be hard for the reader to get the sense of the point being made. (…) It was recognised that, depending on the kind of research and the topic of enquiry, hesitations and uncertainties held within the 'ums' and 'ers' sometimes formed part of the research evidence. However, research users in this study group generally did not see much research output based on conversation or narrative analysis. Their general view was that readability and understanding was easier if some of the everyday hesitations and repetitive speech were taken out of the quotations they saw.'* (Corden & Sainsbury, 2006, p. 19).

While this software-assisted edition helped with lengthy or intricate paragraphs, it also introduced significant misinterpretations. Consequently, the researcher manually checked every single edit, avoiding unintended changes of meaning. As examples of the kind of editions that were produced,

a literal expression by Dean F was *'Sure, I think there are things if I was to compare, compare directly compare with other subject disciplines, the sciences really stand out for things like knowledge transfer partnerships, and they work very efficiently and effectively and… and you will see a consistent and use of knowledge transfer partnership projects funded by Innovate UK, for example*'. That was edited to state that the interviewee believes *'in comparison with other subject disciplines, the sciences really stand out for things like knowledge transfer partnerships. They work very efficiently and effectively, and you can see a consistent use of knowledge transfer partnership projects funded by Innovate UK, for example'.* As another example, Dean D textually said: '*So we have, we used to have a few people in the business school doing that, now the university has kind of centralised a number of those functions, (…), so whatever, but what we actually have in the school is, you know, there's one or two people who are experts in basically brokering these commercial relationships*', and that was edited to '*we used to have a few people in the business school doing that, but now the university has centralised a number of those functions (…). What we actually have in the school is one or two people who are experts in basically brokering these commercial relationships'*. If the original expressions had not been edited to improve readability, the numerous quotes throughout the thesis would have made it confusing and difficult to understand. A longer example to further illustrate this point is provided as Appendix 5, which includes the first response received from Dean A to the first question.

2. Organisation:

According to Zhang and Wildemuth (2009), codes can be generated inductively or deductively. *'In studies where no theories are available, you must generate categories inductively from the data. Inductive content analysis is particularly appropriate for studies that intend to develop theory, rather than those that intend to describe a particular phenomenon or verify an existing theory'* (Zhang & Wildemuth, 2009, p. 3). This thesis developed the research questions based on the main debates in the literature on UIC and, therefore, an existing body of knowledge. The RQs shaped the interview protocol.

Therefore, the generation of codes in this research is closer to the deductive than the inductive approach.

This facilitated the process of identifying and checking codes. The deans typically covered them at the same point of the interview in response to the same questions. For example, when the question referred to the risks associated with BSIC, their answers were all focused on that specific aspect (the code would be ‘risk’, in this case). Not frequently, but sometimes they might have mentioned risks in other moments of the interview. Those cases were manually identified, and the information was taken to the appropriate code.

The deans’ answers were organised into an extensive table, with codes by row and BSchs in columns. This enabled a two-dimensional content comparison: reading it horizontally offered insights on each code from all deans, and reading it vertically offered each BSch's perspective across all codes. Both angles proved valuable for analysis, facilitating the identification of similarities, disparities, agreements, polarised views, or a lack of patterns due to random responses. This was particularly effective for classifying the collaboration forms and clustering the BSchs.

3. Report

The first version of the report included the conclusions obtained by horizontal comparison of the rows of the matrix across the BSchs. They were analysed, identifying similarities and differences among BSchs, the level of agreement (unanimity, majority, diverse or polarised opinions) and if any significant classification could be established (e.g. northern schools do this, while southern schools do that). An overall narrative was developed based on this information, and some hypotheses were raised (often identified as subjects for further investigation).

A subsequent version of the report, already in the thesis format, was enriched with relevant examples extracted from the interview transcripts, with

numerous quotes from the deans to exemplify their perspective and support the narrative. This was related to the literature and the RQs in the appropriate sections.

A simpler process was followed for the analysis of the content of the BSchs' websites, although the approach in this case was more literal and quantitative. First, the collaboration forms presented on the websites were identified, counted and added to a table with the forms in the columns (codes) and the BSchs in the rows. Then, the forms were grouped based on the content of the service (e.g. offer of educational services or related to student recruitment), and the times they aggregately appeared were counted. Finally, the quantitative results obtained were discussed (details are in the next chapter).

To clarify, this was not a 'website analysis' (therefore involving aspects like navigation, usability, performance or the placement of information), but an 'analysis of the text contained on the websites', and in this sense, not different to any other documentary analysis in another format.

3.5. Ethical aspects

This research was conducted according to the British Educational Research Association's (BERA) Ethical Guidelines for Educational Research, fourth edition (2018). BERA's responsibilities regarding participants include consent, transparency, the right to withdraw, rules on incentives, harm arising from participation in the research, privacy and data storage, and disclosure. To uphold these responsibilities, the Participant Information Sheet and Consent Form (in Appendix 6) was used to ensure transparency and consent. Participants were given the right to withdraw at any point before the submission of this thesis and instructions if they wished to do so, including the author's contact details. No incentives were offered. No risk or harm was

expected due to participation in the interviews, no sensitive issues or materials were included in the research, and the information obtained was not confidential.

Confidentiality is essential to this research, particularly as the interviewees are often public figures and notorious members of their communities. According to Cohen et al. (2017), '*A participant is considered anonymous when the researcher or another person cannot identify the participant from the information provided*', while confidentiality involves '*not disclosing information from a participant in any way that might identify that individual or that might enable the individual to be traced. (…) This means that although researchers know who has provided the information or can identify participants from the information given, they will in no way make the connection known publicly*' (Cohen et al., 2017, pp. 129-130). Hence, in strict terms, as the researcher is aware of the interviewees' identities, achieving complete anonymity in this research is not feasible. However, this thesis must maintain confidentiality. This necessity arises from the deans discussing their own perspectives and practices in their BSchs, which may touch upon sensitive issues related to their institutions, industry members, and even the government. Failure to ensure the confidentiality of their identities, and consequently remaining anonymous to readers, might lead to adverse consequences, either in the form of negative repercussions if the deans openly articulate their opinions or biased responses if they avoid making sensitive statements. These consequences may be individual, resulting in damaged relationships or professional repercussions, or they may extend to their institutions, for instance, if critical statements affect relationships with industry partners. For those reasons, the interviewees were anonymised, and their opinions have not been linked to any particular organisation Accordingly, the schools represented in the interviews are identified using a code as suggested by Frankfort-Nachmias et al. (2008), in particular a letter (A to H), and the content has been revised to avoid hints that might lead to identification. As it was a requirement to keep the interviewees anonymous,

certain identifiable information was omitted in the final thesis document. The BSchs description in section 3.3.1 was kept to a minimum.

The intelligent, software-assisted editing of some excerpts of the transcripts can also prompt ethical issues, as discussed in the previous section. Several steps were taken to keep the chosen transcription system within ethical limits. First, the approach, details and limits were presented in the methodology section of the thesis, particularly how any single edition was manually checked by the researcher to ensure the meaning of the statements was not affected. Second, the rationale of improving the readability and clarifying potentially distracting and confusing expressions across a long document with numerous quotes was also justified, with references to published research supporting the approach. Third, references and arguments were provided in section 3.4.1. to support that intelligent editing is compatible with the analysis method used in the research, based on what the Deans meant more than the literal expressions they orally used. Finally, two edition samples were provided to illustrate some of the editing done, showing the benefits and that the meaning was not altered as a result.

Regarding the researcher's position within the research, due to his leading role at a BSch, the researcher already knew some of the deans invited to participate, which might have raised ethical concerns regarding the possibility that some deans might have been compelled to participate due to this previous relationship. To avoid any pressure, deans known by the researcher did not receive any special contact (like a phone call) apart from the standard invitation email, and if they did not answer or declined, no different action was taken compared to deans unknown to the researcher. The researcher strictly followed the order presented in the previous section for BSch sample selection.

The data gathered was proportionate to the research aims, was stored under a password in a private domain on OneDrive and protected by Microsoft

security. The interviews and personal data will be deleted six months after the results of the thesis have been received.

3.6. Limitations of the methodology

The decisions regarding methodology were primarily driven by two factors: the complexity of BSIC and the absence of literature identifying its main features, particularly in comparison with UIC. While qualitative research, using semi-structured interviews and supplemented by documentary analysis, appears to be a reasonable approach for this initial comprehensive exploration of a complex phenomenon, it is not without limitations. Three of them are particularly noteworthy. Firstly, the need to ensure confidentiality required the anonymisation or deletion of some obtained information to prevent the potential identification of BSchs or deans. Secondly, QCA may be more susceptible to the researcher's influence than quantitative, software-assisted analysis, even when this susceptibility is mitigated by the researcher's role as a senior leader in BSch, allowing for a consistent interpretation of the interview results from a similar perspective to the interviewees. Lastly, generalisation cannot be assured, and consequently, the thesis will analyse the results and draw conclusions based on what they 'suggest' rather than what they incontrovertibly 'prove' or 'evidence'.

CHAPTER 4: THE MAIN FEATURES OF BSIC

Sections 4.1 to 4.4 present and discuss the data obtained regarding the main aspects of the BSIC general framework (RQ 1): collaboration forms between BSchs and industry (RQ 1.a), motivation for BSchs to collaborate with industry (RQ 1.b), who takes the initiatives to initiate them (RQ 1.c), and their complexity (RQ 1.d). To complete the analysis of the general features of the BSIC framework, Sections 4.5 and 4.6 discuss the influence of BESs (RQ 1.e) and if the BSIC is different compared to industry's collaboration with OSUSs (RQ 1.f).

All sections share a common structure, starting with presenting and analysing deans' perspectives and proposing classifications. They then examine school differences and similarities, identifying patterns among BSchs. Subsequently, each section discusses trends and innovations highlighted by interviewees. Finally, they explore the similarities and differences between BSchs and OSUS, along with distinctions between BSIC and existing UIC literature.

4.1. Collaboration forms between BSchs and industry (RQ 1.a)

Based on the documentary analysis and interviews of the deans, this section presents the identification and classification of the collaboration forms between BSchs and industry.

4.1.1. Results from the documentary analysis

Before approaching the interviews, twelve websites' content was analysed between October and November 2022. The pages where BSchs refer to their IC were visited, and the collaboration forms were identified to establish a preliminary inventory of the BSchs' collaboration forms.

Four types of collaboration emerge from the websites, by grouping similar forms. In the order of the frequency in which they appear on the websites: providing services to companies (25), recruitment-related (14), research-related (12), and supporting students and education (12).

BSchs mainly use their websites to promote ways for businesses to collaborate with them, and less frequently present successful cases or examples. For example, one BSch refers to their Consultancy activity in these terms (paraphrasing to avoid identification): *Utilise the knowledge and research proficiency of our academics to address your challenges. Our Consulting service is dedicated to fostering innovation and devising strategies for the growth of your business. Collaborating with our academics, we provide guidance, valuable insights, and practical solutions tailored to seamlessly integrate into your operations*. From the twelve websites analysed, eight took this 'promotion' approach alone, and three combined it with the presentation of cases and examples. This shows that websites have a commercial approach to IC, by proposing options to companies, rather than trying to institutionally explain the forms in which the BSch engages with industry (let alone why or how).

The combination of these two findings (the types of collaboration forms mentioned and the 'promotion' approach) suggests that the primary objective of the BSch websites is to promote direct educational services to companies. For example, another school offered their programmes to industry this way (paraphrasing): *Our customised learning initiatives are designed to assist you in achieving your business objectives. Tailored to align with your*

organisational goals, our programs deliver tangible and valuable real-world impact for your business. These specially crafted initiatives enable you to tackle the specific challenges within your organisation, fostering transformative change and promoting excellence. This is a rather transactional and instrumental aim for pages devoted to 'partnerships' (the name most commonly used for IC on the webs analysed, which is present in the title of 6 of the 12 websites).

Compared with the list of collaboration forms that Ankrah and AL-Tabbaa (2015) provide (see Appendix 1), the websites do not mention the more 'formal' collaboration forms (e.g., associations, licensing, and patents), and the variety of research-related forms is much shorter. A more detailed comparison and conclusions are presented later in this section, together with the analysis of the interviews.

The results are summarised in the following table.

		Services to the companies							Recruitment-related			Research-related						Support students and education				
Web section title	**Approach**	Consulting	Management of Knowledge Transfer Partnership	Impact Accelerator Funding	Talent development (education & coaching)	Custom Executive Education	Attend events	Subscribe to publications	Job offers	Recruitment assistance	Offer students internships	Support research (generic)	Endowment of chairs and scholars	Member of a research Initiative	Case writing	Collaborate in research / knowledge exchange	Generic endowment	Support entrepreneurs	Fund scholarships	Fund student prices, awards and activities	Collaboration with clubs and societies	Provide guest speakers
Partnering with recruiters and organisations	Promotion				X	X	X	X	X	X		X							X			
Corporate partnerships	Promotion											X	X	X	X				X	X		
Opportunities for your organisation	Promotion								X		X					X			X	X	X	X
Corporate relations	Promotion				X	X			X								X					
Partners	Cases/examples				X	X			X							X						
Business Services: Developing your business	Promotion	X							X		X							X				
Collaborate	Promotion				X	X			X			X				X						
Partner with us	Both	X			X				X									X			X	
The (…) Partnership	Promotion				X	X												X				
For Business / Access our expertise	Both	X	X	X	X	X			X		X					X			X			
Our partners / For Business	Both	X			X				X		X					X						
Learning for the new world of work	Promotion	X			X	X																
		5	1	1	9	7	1	1	9	1	4	3	1	1	1	5	1	3	4	2	2	1
	Count	**25**							**14**			**12**						**12**				

Table 7. Collaboration forms presented on the websites of 12 sampled BSchs. Source: the author

4.1.2. Collaboration forms: the interviews

Interviewees were enthusiastic to present their current activities and plans.. The table below summarises the collaboration forms mentioned in the interviews and how the deans described them.

FORMS OF COLLABORATION IDENTIFIED		Mentioned in interviews
Customised executive education	Uncredited, tailored programmes privately delivered by BSchs to companies' staff, typically at the senior or middle level. They sometimes require some previous collaborative study of the needs and ambit	7
Research	Systematic and scientific investigation by BSchs in collaboration with industry aiming to create new knowledge. Contract research refers to research commissioned to a BSch, typically for a fee	6
Apprenticeships	Government scheme in which employers pay 0.5% of their annual pay bill and obtain credits they can use to train staff in approved programmes at BSch	4
Student projects, placements, and internships	Member of industry requires a BSch student to undertake a targeted project or engage in a work placement or internship (different regulations apply)	4
Student recruitment	BSchs actively provide graduate students to members of industry and facilitate hiring. This typically involves a variety of activities, from sharing information to holding multiple contacts and often employment fairs or presentations to students on campus	4
Entrepreneurship support	An array of services offered by BSchs to entrepreneurs, typically including advice, education, hosting (facilities), and/or access to funding. For free or for a fee	3
Advisory boards	Membership of senior industry leaders on BSch advisory boards	2
Consulting	Provision by the BSch of advisory services to companies in an area of specialisation	2
Help to Grow	Government scheme in support of small and medium enterprises (SMEs), including highly subsidised places in programmes at BScs listed by the Small Business Charter	2
Institutional fundraising	Financial contribution by businesses to BScs without expected return or material consideration. Normally involves some publicity	2
Knowledge Transfer Partnership (KTP)	Government scheme that allows a business or NGO to partner with a BSch, which will also hire an 'associate' graduate to work on an innovation-related project, often involving the transfer of knowledge or technology	2
Networking	BSchs take the initiative to connect various businesses so that they can benefit from the relationship in a variety of ways. BSchs typically provide the platform (facilities or online) and several participating academics who enrich the exchange	2
Scholarships, bursaries	Financial support by a member of industry to a BSch student based on academic merit or financial need	2
Fund students' activities	Financial contribution by a member of industry to student activities, often including sponsorship	1
Guest speakers	Masterclass delivered by a senior industry leader to a group of students within their programme of studies or as an extracurricular activity	1
Knowledge Transfer Network (KTN)	Government scheme that helps businesses reach the full potential of their innovative capabilities by connecting them with each other. BSchs and often academics can contribute by serving as the platform where the connection happens	1
Mentors	Experienced business staff provide practical mentoring and advice to an existing or recently graduated BSch student	1
Use of BSch facilities	Members of industry hire rooms or other facilities on the BSch's premises	1
Visits and field trips	A member of industry invites students to visit their premises and learn through practice	1

Table 8. Collaboration forms mentioned by the interviewees. Source: the author

As can be seen, the most frequent collaboration form by far is custom executive education, which can be combined with apprenticeships as they both are forms of delivering educational programmes to industry. Second is research, and third, very close, student recruitment and several initiatives to support their studies (projects, placements, internships and recruitment). This result is similar to the one obtained in the website content analysis. More will be said in upcoming sections, and a special focus will be given to the most frequent collaboration forms (Customised executive education, Research, Apprenticeships, Student projects, placements and internships, Student recruitment and Entrepreneurship support).

Some collaboration forms generated specific discussions affecting their conceptualisation as BSIC. For example, none of the deans mentioned **consulting** as a collaboration form if it was not institutionally provided by their BSch. Therefore, the deans did not seem to view consulting projects pursued privately by individual academics as a collaboration form. This is understandable, as this service is not institutionally provided, but it somehow excludes this private activity from the array of possible ways in which industry can benefit from the existence of BSchs, in this case by producing skilled academics capable of advising companies. Some websites even offer 'find an expert' sections, despite lacking institutional consulting, indicating these private relationships might nevertheless be acknowledged and facilitated.

Regarding **research**, as defined by the deans, industry is usually the object of BSchs' research. This typically involves industry letting the researcher gather information about their organisation, their markets, their processes, their strategy, or any other aspect academics aim to investigate. This type of research is knowledge-based and will normally not include external funding. The deans also suggested that collaborative research (projects conducted jointly by staff of both organisations) is very rare for BSchs. Deans placed the concept of impact as the main aim of research. In the words of Dean D, '*When academics are doing research, they need to show there is an impact case study associated with it, so collaboration with the real*

world of business is crucial.' Dean C identified the introduction of impact as a main criterion in the Research Excellence Framework (REF) as the cause for this, but it is also derived from the general government policy on research. This connection between REF and impact has been widely studied and confirmed by the literature, in particular by Hughes et al. (2019) for the business and management discipline. Dean D expanded upon the causes: '*One is the REF, but the second is that if you look at the opinion pages, university conferences, and what deans are saying about the emerging strategies of many BSchs, it's very much focused on having a positive social impact*'. Dean C refers to a personal example to illustrate how, for them, impact is the crucial element when producing research: *'It's probably the proudest moment of my academic career, actually finding out that something I have done has made a difference, because I am paid for publishing in a great journal and getting lots of citations, but actually, in the end, what I exist for is not just to make collections of things, but to hopefully make a difference through my thoughts*.'

Deans mention there can be some confusion between **contract research** and consulting. Dean D used both terms for the same concept. According to Dean C, *'There can be misalignment if we're seeing [the project] as a piece of research and they're seeing it as a piece of consultancy, and motivations are very different between the two. My definition is that, with research, I have a question I don't know if I can answer. With consulting, I have a question I know I can answer, and I know how to answer it. I just need to spend the time doing it.'* There is therefore a need to identify case by case if the project is a disguised consulting work or contract research.

Regarding **supporting entrepreneurship**, the services BSchs offer are very heterogeneous. Most BSchs just offer advice and guidance, in the form of mentorship or training to entrepreneurs, but some schools offer additional services. For example, Dean G mentioned '*We have got an incubation hub, or innovation hub. It's called the generator. So that works with businesses and start-ups and we do hackathons. So we'll have industry*

partners in to set scenarios and problems, and then both the students and alumni get involved in the various activities there.' On their side, BSch D mentions on their website a fund available to support entrepreneurial projects, and Dean G discussed their provision of financial support to the winners of their start-up contest.

It is noticeable that deans did not mention the provision of undergraduate or postgraduate programmes as a form of collaboration with industry. Although these programmes are ultimately in benefit of industry, as BSchs train the businesses' future graduate workforce through them, the deans just mentioned cases of direct collaboration with a company (typically linked to apprenticeships, and mostly at level 7, therefore not undergraduate studies) and the particular aspects in which a specific collaboration happened within the programme (e.g. guest speakers, company visits, placements or recruitment). Although further research is needed to explore the reasons, from the interviews it became evident that deans and BSchs identify the collaboration with industry in terms of offering them graduate workforce through their carer departments and businesses hiring the graduates, and therefore focusing on the final point of contact for recruitment purposes instead of the programme itself.

4.1.3. Collaboration forms: Comparison between the interviews and the websites

As expected, the aggregate lists of collaboration forms generated by the documentary analysis and the interviews were very similar. For completeness, the table below shows the three collaboration forms found in the website analysis but not in participant BSch interviews (the three of them could be considered special cases of collaboration forms already mentioned, though).

FORMS OF COLLABORATION FOUND IN THE WEBSITE ANALYSIS BUT NOT IN THE INTERVIEWS	
Collaboration with clubs and societies	Support these students' initiatives in a variety of ways, from providing guest speakers to facilitating visits or even financially
Collegial interchange	BSch takes the initiative of organising contacts between their academic and industry experts to foster exchange. It can be considered a more specialised form of networking
Talent development (coaching)	A BSch expert provides coaching to a member of industry staff for their professional development. It is sometimes a follow-up to customised executive education

Table 9. Collaboration forms found in the website analysis but not in the interviews. Source: the author

However, what each individual school's website stated versus what their deans explained did not always match. This became obvious at the beginning of the interviews, when deans were reminded of the collaboration forms presented on their websites and then asked if there were other forms or if any of them were not fully developed. The list of collaboration forms between BSchs and industry, including both the views of the deans and those mentioned on the BSchs' websites, are below:

	BUSINESS SCHOOL CODE								Times mentioned (frequency)			
FORM OF COLLABORATION	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	Not mentioned on the website	Not mentioned in the interview	Confirmed in the interview	**Total times mentioned**
Research	Research	Support research	Research	Research with impact	Research	Research	Collaborate with research centres	Research	1	2	5	13
Custom Executive Education	Executive Education	Executive education	Executive Education	Executive Education	Executive education, CPD & work-based learning		Executive Education	Executive Education	2		5	12
Entrepreneurship support	Entrepreneurship support	Entrepreneurship support	Entrepreneurship support	Entrepreneurs support (expert advice and funding)	Entrepreneurship support	Support entrepreneurs (expert advice, education, network and foreign in need)	Entrepreneurship support (incubator and innovation hub, foreign in need)			4	3	10
Student recruitment		Student recruitment	Student recruitment	Student recruitment	Student recruitment	Student recruitment & support careers event	Student recruitment			2	4	10
Student projects, placements and internships			Student projects, placements and internships	Students Business Projects		Student projects, placements and internships	Student projects, placements and internships				4	8
Apprenticeships	Apprenticeships				Apprenticeships		Apprenticeships	Apprenticeships	1		3	7
Consultancy	Consultancy		Consultancy	Consulting (contract research)						1	2	5
Help to Grow						Help to Grow	Help to Grow				2	4
Institutional fundraising	Fund Scholarships	Fund faculty, endowment									2	4
Knowledge Transfer Partnership (KTP)			Knowledge Transfer Partnership (KTP)		Knowledge Transfer Partnership (KTP)		Knowledge Transfer Partnership (KTP)		1	1	1	4
Networking	Networking				Industry clubs	Networking	Networking		2	2		4
Scholarships	Scholarships	Scholarships							1		1	3
Advisory boards		Advisory boards					Advisory boards		2			2
Fund students' activities		Fund prices and student activities									1	2
Guest speakers						Guest speakers	Guest speakers		1	1		2
Knowledge Transfer Network (KTN)						Knowledge Transfer Network (KTN)					1	2
Mentors							Mentors				1	2
Use of business school facilities							Use of facilities				1	2
Visits and field trips							Visits and field trips		1			1
Collaborate with clubs and societies						Support clubs			1			1
Collegial interchange												0
Talent development (coaching)												0
COLOUR CODE:												
Not mentioned on the website												
Confirmed in the interview												
Not mentioned in the interview												
Recent or not very active												

Table 10: Collaboration forms between BSchs and industry: comparison between the documentary analysis and the Deans' interviews. Source: the author

Note: some collaboration forms were just found on BSchs' websites used for the documentary analysis

As can be seen, 97 collaboration forms were mentioned on the websites or in the interviews. 12 of them (12.4%) were noted by the deans but were not on the websites, while 13 (13.4%) were on the websites but not noted by the deans. In total, 25 out of 97 collaboration forms (25.8%), showed a mismatch (the collaboration forms that the deans recognised as underperforming were not considered a discrepancy; if these are included, the mismatch ratio increases to 30.4%).

The reasons are diverse. In the majority of cases, the collaboration form was in latent status, awaiting some interest from industry, or was simply not considered relevant by deans in terms of BSIC and therefore was not worth discussing. Dean C declared that some of the collaboration forms presented were '*aspirations*', and Dean G identified some of the forms as '*plans under development*'. Dean F mentioned that some of the collaboration forms mentioned on BSch F's website '*had not gathered the anticipated interest*'. Not all collaboration forms are equally affected by the mismatch, though. Most of the orange cells appear for the collaboration form termed 'Support entrepreneurship'. Four deans' omission of this collaboration form in interviews, despite its presence on their websites, implies its lesser significance compared to other initiatives. Deans mentioning it often deliver these services through local partnerships with industrial bodies and civil society. This is especially evident in BSchs originated by industrial initiatives (E and F) for the provision of a trained workforce. A collaboration form presenting 100% mismatches between deans and websites is 'networking' (mentioned four times, twice just by deans and twice just by websites). It is difficult to discuss the causes without more information, but it suggests that the activities included under the generic label of 'networking' might be not very well defined.

4.1.4. Classification of the collaboration forms emerging from data

The academic literature has highlighted the difficulty of establishing a classification of the collaboration forms between universities and industry (Blackman & Segal, 1991). Ankrah and AL-Tabbaa (2015) proposed a classification based on the intervening parties and the formalities required for the collaboration, following Bonaccorsi and Piccaluga's (1994) classical classification. The groups proposed are listed below (the collaboration forms in each group can be seen in Appendix 1, which will help understand what each group includes).

Groups of forms of collaboration - Ankrah and Al-Tabbaa (2015)
Personal Informal Relationships
Personal Formal Relationships
Third Party (author's note: meaning organised by a third party)
Formal Targeted Agreements
Formal Non-Targeted Agreements
Focused Structures (author's note: very formalised structures)

Table 11. Classification of collaboration forms in Ankrah and AL-Tabbaa (2015)

These groups represent increasing levels of university involvement (Ankrah & AL-Tabbaa, 2015, p. 390). However, this ordering does not align with the deans' perceptions. For instance, Ankrah and AL-Tabbaa do not consider personal engagement as a form of BSIC unless established through an institutional platform. 'Personal formal relationships' often relate to recruitment or student projects/internships, requiring considerable resources through career and HR departments; this also applies to 'third-party' collaborations, organised externally but involving BSch participation due to constraints like SME administrative needs (as noted by Dean F). Similarly, Knowledge Transfer Networks (KTNs) and networking activities, while engaging businesses, demand BSch efforts to be organised. In the interviews, deans largely agreed that complexity and resource demands are not inherent to a specific form but linked to their scale and nature. Formal agreements or focused structures are rare and were seldom mentioned by deans. Consequently, applying to BSchs this classification based on formality and

involvement level lacks empirical support. This influence in Ankrah and AL-Tabbaa's classification of forms commonly associated with technical schools is also seen in other classifications. For instance, Santoro and Gopalakrishnan [2000] proposed a four-group collaboration classification encompassing research support, funded, cooperative research, knowledge transfer, and technology transfer.

Hence, upon reviewing the collaboration forms outlined by the deans, an initial classification based on two straightforward criteria emerged: the party that provides the main service or activity, and the content of that primary, fundamental service or activity.

In most cases, collaboration involves mutual services rather than a solitary provider-receiver dynamic, so a key question is to delimit what the fundamental main service or activity in the BSIC relationship is. Even in instances of apparently one-sided contributions, like advisory board membership or institutional endowment, the provider also gains prestige, reputation, information access, or personal recognition. However, these can be deemed unspecific gains exchanged for the service specifically linked to BSIC. Often, these aspects are vague (e.g., reputation's impact is difficult to measure, whereas advisory board time commitment is clearer) or are customary in sponsorship relationships (like co-displaying school and company logos on a website). The classification revolves around identifying the party presenting the primary, specific BSIC contribution or driving the initiation of benefit exchange. As an example, three parties (BSchs, industry, and students) participate in the generation and execution of internships or employment and benefit from it, but internships and employment also occur in other contexts outside BSIC and through different channels (e.g. job search website services). However, in the realm of BSIC, BSchs play a distinctive role. They set up extensive internal career and employability departments, proactively reaching out to businesses to facilitate industry-student engagement and generate these opportunities. Therefore, in the ambit of

BSIC, this proactive facilitation would be the main provision, and BSchs would be the party providing it.

According to the first criterion (which party provides the main service), four groups can be identified in the list of collaboration forms. In the order of the number of times mentioned:

1. BSchs provide services to industry. Typical cases are consultancy or customised executive education. In the words of Dean A: '*(…) Executive Education, where custom programmes are the main part. In tailored programmes, collaboration and partnership are essential. (…) We co-design, co-produce, and even co-market with our partners."*

2. Industry and students/graduates engage in a relationship, proactively promoted by BSchs. It can typically involve internships, projects or full employment. As an example, Dean G discusses the role of their BSch in creating these opportunities for companies and students thanks to the strength of their career department: *'When I was thinking about it [IC], there is an employability angle. (…). We have had our own employability team, specifically for the BSch for quite a lot of years, but recently, it's been centralised. (…) I think the driver is that employability team.'* From a different perspective, stressing the industrial initiative, Dean E explains how their BSch '*was started as a Technical College by local manufacturers who wanted to address the shortage of skilled employees. This brought a practical focus on applied research and engagement with the business community that has continued throughout the university's history*.'

3. Industry contributes to BSchs. Typical cases are fundraising and business leaders' membership in BSch advisory boards. As Dean B mentioned: *'The variety of advisory boards for the governance of*

the school also have industry people. Other sorts of different advisory boards are there for centres, so there are companies involved in that'.

4. Industry contributes to students, typically by providing real-world experiences, and BSchs facilitate the opportunities. An illustrative case is when an industry leader participates in a guest speaker event with students or facilitates a students' visit to their companies, even when it happens virtually. In Dean G's view, *'We are doing more virtual field trips rather than actual physical field trips. And I can imagine that innovations like the metaverse and virtual reality are also going to contribute to that going forward.'*

The second criterion is the content of the main service provision. Seven groups were identified. Again, in the order of the number of times mentioned:

A. Providing students access to real practice through observation or direct involvement. This includes different provisions, from guest speakers or company visits to internships and entry-level jobs. Dean G mentioned some of these: '*We offer short and long placements, work experience and live projects with industry partners'*.

B. An educational action or programme, often codesigned (as an example, the custom executive education programmes mentioned above). This comes up repeatedly as a central theme in BSCI. In the words of Dean A, *'I think we develop different types of partnerships (…) mostly around learning.'* therefore prioritising the delivery of programmes to industry above other collaboration forms.

C. Knowledge and information-related activities, including the generation of new knowledge (research), dissemination and transfer. This collaboration is rather spread across all BSchs, and even the ones which declare themselves as not very intensive in

terms of BSIC, recognise that research is still one of their strengths. From Dean C: '*In other areas, though, there is a reasonable amount of success. In research, particularly applied research, there are quite a lot of pockets of research that are done with organisations, from very theoretical research to more practical research*.'

D. Counsel or advice, including paid (typically consultancy) or unpaid (for example, members of an advisory board, as quoted above)

E. Funding students, faculty, or institutional activities. Dean B links these contributions to a previous relationship with the business, which seems reasonable: '*As an example, we might have a company who works with us that we do some executive education for. They are also a member of a research club*.'

F. Acting as a platform for others to interact, typically students or faculty with businesses or businesses with businesses. These activities are often conceptualised as networking. An example is provided by Dean F: '(…) *is basically a forum where we have networking gatherings in the evenings, where our academics are able to present something to SMEs local business community. (…) And there can also be someone from a small business who's able to also talk about that topic, so the two of them come together in an evening networking event. It has been ongoing for 20 years at least.*'

G. Use of facilities and physical elements (Dean G specifically mentioned this service, as '*people can rent space there almost like a WeWork-type space for meetings or individual work'*.

A two-variable matrix illustrating the different collaboration forms according to both criteria is shown below:

		Content of the main service						
		Real-world experience	Education courses	Knowledge generation and dissemination	Professional counsel and advice	Funding	Platform for networking and exchange	Facilities
Party providing the main service		A	B	C	D	E	F	G
BSch provides services to industry	**1**		Apprenticeships	Research dissemination (impact)	Consultancy	Funding entrepreneurial projects	Networking	Use of facilities (businesses and incubators)
			Custom executive education	Industry publications	Entrepreneurship support (mentoring/advice)		Knowledge Transfer Network (KTN)	
			Help to Grow		Talent development (coaching)		Collegial interchange	
Industry and students/graduates engage in a relationship, and BSch promotes	**2**	Student recruitment						
		Knowledge Transfer Partnership (KTP)						
		Student projects, placements, and internships						
Industry contributes to BSchs	**3**			Research	Advisory boards	Institutional fundraising		
Industry contributes to students, and BSch promotes	**4**	Guest speakers			Mentors	Scholarships, bursaries		
		Visits and field trips				Prizes, awards		
		Participate in clubs and societies				Fund students' activities		

Table 12. Matrix of the collaboration forms between BSchs and industry. Source: the author, based on the interviews with the Deans

This matrix illustrates one of the key original contributions of this research: a synthesised presentation of the collaboration typology. It also enables a dual analysis of collaboration forms, examining service provision content (vertical, column-wise) and the service provider (horizontal, row-wise); this helps assess the spectrum of collaboration forms accessible to BSchs and industry in each category and how reciprocation occurs.

To guide the discussion, it is worth considering the frequency of each ambit of collaboration's appearance in interviews or on websites. By integrating frequency into each cell of the classification matrix (named hereinafter 'ambit of collaboration', each one of which contains one or several collaboration forms) and applying a colour code (the more frequently mentioned, the darker the colour), a frequency heatmap was generated:

		Content of the main service							
		Real-world experience	Education	Knowledge	Counsel	Funding	Platform	Facilities	
Party providing the main service		A	B	C	D	E	F	C	
BSch provides services to industry	**1**		23	8	15	1	8	2	57
Industry and students/graduates engage in a relationship, and BSch promotes	**2**	22							22
Industry contributes to BSchs	**3**			13	2	4			19
Industry contributes to students, and BSch promotes	**4**	4			2	6			8
		26	23	21	19	11	8	2	106

Figure 8. Heatmap of the frequency of the classified collaboration forms. Source: the author.

Note: Eleven collaboration forms appear as a result of including supporting entrepreneurship in two cells when schools declare to offer funding and facilities in addition to mentoring and education (3 occurrences) and splitting research into two different rows to show its dual nature (8 occurrences).

Most frequently mentioned ambits of BSIC

The cells' colour intensity shows how often the different ambits of collaboration were mentioned in the interviews and websites. To focus on the most frequently mentioned, those collaboration forms exceeding 10 appearances are discussed below, to analyse what collaboration forms they include and how the parties are involved.

Cell B1: BSchs provide education to industry. This is the most frequently mentioned ambit of collaboration (23 times in interviews or websites).

The deans enthusiastically discussed programmes that require close interaction with industry and are often co-designed. They mentioned two main types. One is customised executive education, which is privately delivered for the company without any content restriction. The other is customised apprenticeships, which must meet the government standard content in exchange for being subsidised for companies through the UK Apprenticeships Levy. The most remarkable example of this form of collaboration was provided by Dean A: '*There is an apprenticeship level 7 standard for professional banking specialists. (…) We produced a course, as long as we had to match that standard, and we offered an MSc at the end of it. We designed that programme in partnership with a major bank, which then brought in another partner into that conversation. The apprenticeship standard created the opportunity to have dialogue with someone we already knew, and created a much stronger partnership with them, so we went from an informal relationship to a formal partnership and it was the apprenticeship standard that helped us tear that*.' That potential for extension to other clients or to other collaboration forms drives the interest of BSch towards offering custom programmes, and the reason why they are the collaboration form most frequently mentioned on websites and interviews. The financial returns do not seem to be as substantial as could be expected, though, with Dean E declaring that there can be some profit with executive education, but not in every single project.

Dean E claimed that '*we strive to innovate and try new things, such as degree apprenticeships, which we started doing even before the government created the programme.*' Dean E also presented an unusual initiative: "*For example, we have a visiting professor programme which is not about academics. They are entirely Chief Executives of big companies. We run events for them, and we discuss big topics. Our academics present ideas on*

these topics and these people debate them. Each one has an academic partner, who is the main relationship manager between us and the Chief Executive. What we are trying to have is a two-way flow here, so that the ethos of the whole institution is infused by the commercial reality."

Cell A2: Industry and students engage in an external relationship facilitated by BSchs. In second place, with 22 mentions, this ambit features the involvement of industry members in providing students with opportunities to undertake activities like projects, internships, placements and, ultimately, jobs. BSchs actively facilitate this by establishing career or employability departments that engage with industry to secure opportunities for students to gain hands-on experience. This creates a true tripartite collaboration: students acquire real-world experience; businesses train, identify, and recruit graduates (Myoken, 2013) and meet their corporate social responsibility goals; and BSchs fulfil their mission and enhance progression and student destination ratios. As an example, Dean G mentions: '*So for instance, we work with 'visit [their local area]' on tourism briefs. We also work with people like [the local football club] to put together briefs on different kinds of scenarios. We work with people like [a financial services firm]. So you know, quite a wide range of different types of industry to enhance (…) student employability whilst they are studying with us and beyond*.' Dean D stresses the importance of industry allowing students to undertake projects: *'But the main way in which IC works is informally through loads of student projects. And that's actually the bulk of it, sort of MBA projects and similar.'* Dean D also highlighted the relevance of these collaboration forms: '*Probably the biggest areas of activity would be around student connection, placements, internships, and student projects.*'

Cell D1: BSchs provide advisory or counselling services to industry. In the third place, with 15 mentions, this ambit typically includes consultancy as the main collaboration form, although the fact is that the most frequently cited is the support to entrepreneurs through mentorship. 7 out of 8 websites mention this service, although the fact is that just 3 deans mentioned it during

the interviews, which opens doubts regarding the success of these schemes in reality. As a remarkable example, Dean E mentioned: *'We have also fostered start-ups. We have a programme (...) that has been running for 10 years. It includes boot camps for students who want to start businesses. (...). They actually take place not in the university, but in a collection of incubators on the outside of the university so that people who go into them are surrounded by actual entrepreneurs running actual start-ups.*' Dean G gave another example: *'We have an incubation and innovation hub, which runs an enterprise challenge competition where individuals or teams of students or alumni compete (…). Once they apply and pass the first stage, we assign them a mentor to work with them through the rest of the competition.'*

Offering consulting services would be consistent with the fact that the subject of BSchs' research is companies, so BSchs have the opportunity to accrue a substantial body of practical knowledge about businesses. However, some BSchs either do not offer consulting due to policy or provide it with limited market traction. Dean B was particularly explicit about it: *'So if you said to me, are we doing significant amounts of consulting, I would say no.'* Just Dean D mentioned a substantial activity in this sense, and it is also announced on the web page of BSch A. Consequently, a significant portion of professional advice comes privately from academics, which deans do not consider a form of BSIC, as widely explained above. For these reasons, as discussed, the collaboration forms in this cell raise doubts regarding their effectiveness in reality, even when they are widely mentioned on websites and by deans.

Cell C3 (and the correspondent C1): knowledge-based contributions. These cells in the heatmap, heavily mentioned on websites and by deans, pivot around the creation (C3) and dissemination (C1) of new knowledge. Research was mentioned by every dean, making it a central theme in BSIC.

Industry's role in research is reflected in cell C3, as it typically involves facilitating researchers' access to markets and the organisations under study, making it part of the 'industry provides services to BSchs' category in the

matrix. Many deans confirmed this peculiar aspect of BSch research. In the words of Dean C, '*It is more working using the organisation as a case study, or for data collection, that it would be any research or 'action research', which I call it where you are actually doing something with the organisation.*' Collaborative research (the BSch and the company's teams working together), therefore, is very uncommon. This is consistent with the concerns raised by Kieser and Leiner (2009) regarding the difficulties for teams of BSch academics and practitioners when working together; this challenges Hodgkinson and Rousseau (2009), though, who claimed that collaborative research in business '*Is Already Happening!*' (Hodgkinson & Rousseau, 2009, p. 534). The deans suggest that, if it does, it is at a very small scale.

However, the deans also emphasised the need for impactful research dissemination, which is often achieved by presenting results in a practical format for businesses (reflected by the 8 occurrences in the heatmap's cell C1). This is also acknowledged on the industry side, with literature stating that '*the impact of university research on the innovative activities of firms has become the focus of increased attention from academics and policymakers'* (Bishop et al., 2011, p. 30). According to Dean B, *'In most other schools, they apply the knowledge they create to industry, and the difference is that BSchs learn from industry and then apply it back to industry'*.

Cell F1: BSch organises and promotes platforms for networking: This ambit includes all collaboration forms where BSchs serve as a platform for individual industry members to engage with faculty or for businesses to connect with each other. These collaborations, often named 'networking' on websites and in the deans' references, encompass diverse actions like sector meetings, evening talks, and chancellor events. Networking seems central to IC. For example, Dean F mentioned *'Some of the long-standing activities have been linked to the Knowledge Transfer Network KTN, which is a forum where they have networking gatherings in the evenings, where their academics are able to present something to SMEs, the local business community*'. Dean G provided another example: *"What we are trying to do is to be a hub for*

businesses. So for instance, three weeks ago, we had a big Vice Chancellor's dinner where we invited all our key partners, and we used that not just for us to develop and maximise the relationships with our partners, but also for them to network between themselves. And that does happen naturally when you organise those kinds of events, which is really quite impressive." Sometimes, platforms are described more broadly as 'collegial interchange'.

Cell E4: Industry provides funding to student activities and initiatives, which BSch promotes. This ambit of collaboration comprises various forms of financial contributions for supporting students. BSch A actively publicises options to fund student events, clubs, and societies. Deans A and B mentioned industry contributions to students via scholarships—a practice common in other schools as well. Additionally, BSch A's website outlines alternatives for acknowledging students through prizes and awards. These contributions are usually granted by companies based on previous relationships with the BSch. In this sense, Dean A mentioned that *'As an example, we might have a company who works with us that we do some executive education for. They are also a member of a research club. (…) They may fund PhD students and so on.*'

These six ambits of collaboration are the most frequently mentioned on websites and interviews. B1 (BSchs provide education to industry), in any of their formats (executive education and apprenticeships), is a keen aspiration for BSchs, and therefore the reason why it is so widely mentioned. Ambits C3 and the correspondent C1 (knowledge-based contributions) showcase a highly desirable, reciprocal relationship between BSchs and industry, with businesses giving access to facts and data and researchers providing industry in return with impactful practical research. Similarly, A2 (Industry and students engage in an external relationship facilitated by BSchs) unfolds a true tri-partite relationship (students get an internship or job, companies have access to graduate workforce, and BSchs fulfil their mission and become more attractive to future students). Ambit F1 (BSch organises and promotes platforms for networking) also shows clear successes, albeit in some cases of

lack of clarity of what 'networking' involves, as discussed in section 4.1.3. Less frequently mentioned, suggesting it is not so widespread, ambit E4 (Industry provides funding to student activities and initiatives, which BSch promotes) also shows a solid scheme of reciprocation and tri-partite mutual interest.

The actual relevance in practice of certain frequently-mentioned ambits seems unclear, though. In particular, the two main collaboration forms included in D1 (BSchs provide advisory or counselling services to industry). On one side, consultancy services seem more an aspiration for some BSchs than a real service they widely provide to industry, while for other BSchs it is mostly delivered privately by their academics. On the other side, supporting entrepreneurship through mentoring-based initiatives is frequently mentioned on the websites, but not so much by the deans, which poses a shade of doubt.

Mutual provision between BSchs and industry based on the heatmap (columns and rows perspective)

The heatmap also helps identify when the collaboration is mutual, or if the contributions of a party are more significant than the other.

The analysis of the heatmaps by column (based on the contents of the provision) shows that the only ambits in which there is a mutual contribution between BSchs and industry are those based on knowledge (research). In this case, businesses allow BSchs access to the information they need, and on their side, BSchs generate knowledge that can be of practical interest to companies. This collaboration typically happens, therefore, at two different stages: the origin (businesses allow BSchs access to data about organisations and markets) and the dissemination (BSch provide businesses with impactful research results), but not as ongoing collaborative research in which teams from BSchs and companies work together.

The other collaboration forms columns are dominated by one party or the other in terms of ambits of collaboration. In the heatmap, it can be seen that BSchs mostly contribute to industry through education, counsel and networking platforms, while industry contributes through the provision of opportunities for students to gain real-world experience (guest speakers, visits), engagement opportunities (projects, internships, employment) and funding (scholarships, endowment).

The analysis of the heatmap by row provides an idea of how varied each party's contribution is. BSchs provide industry with a wide array of services in all columns except one (real-world experience). On the other side, the variety of industry contributions to BSchs and students is much more limited (just 3 columns out of 7 in each case). The opportunities to engage students in a relationship has obviously only one option, although it is worth remembering that the direct engagement of industry and students through projects, internships and jobs facilitated by BSchs was defined as a truly tri-partite collaboration form where all of them gain: students get a placement or job opportunity, BSch gain recognition and more interested students, and companies have access to a qualified graduate workforce.

4.1.5. Two clusters of global and community-linked BSchs

The data gathered through the documentary analysis and the semi-structured interviews regarding the collaboration forms led to the identification of two groups of BSchs. Both groups seem to target a different type of audience with different collaboration forms. Generally, the first group offer more exclusive collaboration forms (like for example, tailored executive education) while the second one tends to rely more on government-subsidised forms and services to SMEs (e.g. apprenticeships, Help to Grow). In close inspection, the first group relates to BSchs that could be identified as 'global'. These schools appear in the most executive-oriented ranking (*Financial Times*, which prioritises aspects linked to salary and career and only includes

master's and executive education programmes). They hold leading positions in other rankings, either international (QS, *Times Higher Education*) or national (*The Guardian*, *The Complete University Guide*). They are triple-accredited by the Association of MBAs (AMBA), the Association to Advance Collegiate BSchs (AACSB), and the European Foundation for Management Development (EFMD-EQUIS), which is commonly known in the sector as the 'triple crown'.

Four schools from the sample meet these criteria (A, B, D, H) and identify their ambit in ample terms, being at least UK-wide but often with an international or global scope. They often relate to large companies and organisations in industry and have the potential to play a leading role within their local ecosystem.

The second group consists of the other four schools (C, E, F, G), which could be labelled as 'community-linked' BSchs as a result of their bond with regional industry and civil society. Two of these schools (E and F) were founded as a result of industry's initiative to provide them with a qualified workforce. They appear in national rankings, in a variety of positions, and are sometimes accredited by one or more bodies, but rarely reach the 'triple crown' (one of these schools is triple-accredited, but the character of the school meets the rest of the criteria for this group). Even when these schools have established lasting relationships with large companies and firms, most have much more intense work in collaboration with small and medium enterprises (SMEs). Dean E explains '*We see ourselves as a leading player in the UK in the SME space*'. They have an international dimension, which may include international study trips. Dean G said, '*We do quite a lot with that locally, but if we also take students on an international trip somewhere, we will usually connect them with local industry.*' However, in terms of overall collaboration with industry, they seem more regionally oriented than national or international. In this sense, Dean F said *'It is important to be authentic to the place where we are located. Instead of competing with institutions like Cambridge, Oxford, or Silicon Valley, the goal is to serve the small business*

community in [the BSch's location] and offer beneficial resources for entrepreneurs in the global community. The hope is that the whole community can learn from the initiatives being offered in the BSch.' Dean F continued: '*For example, if I was to say I am going to work with a lot of consultancy companies, here it really doesn't make sense. There's no financial services or banking too. If the local economy is made up of small businesses or start-ups, the focus should be on training graduates with the skills needed to support those businesses.'*

These two groups of BSchs present internal similarities and external differences between them regarding the collaboration forms. A summary table with the frequencies (number of times the forms were mentioned by deans or appeared on BScs websites) can be seen below.

FORM OF COLLABORATION	GLOBAL BSCHS	COMMUNITY-LINKED BSCHS	Difference
Advisory boards	1	1	0
Apprenticeships	4	3	1
Consultancy	3	2	1
Custom Executive Education	7	5*	2*
Entrepreneurship support	3	7	4
Fund students' activities	2		2
Guest speakers		2	2
Help to Grow		4	4
Institutional fundraising	4		4
Knowledge Transfer Network (KTN)		2	2
Knowledge Transfer Partnership (KTP)		4	4
Mentors		2	2
Networking	1	3	2
Research	8	5	3
Scholarships	3		3
Student projects, placements and internships	2	6	4
Student recruitment	4	6	2
Use of BSch facilities		2	2
Visits and field trips		1	1

Table 13. Collaboration forms: different frequencies between clusters. Source: the author

** Note: Two of the community-linked BSchs, amounting to 3 mentions (2 interviews, 1 website), recognised they offer custom executive education but have difficulties in finding a market, so they are not fully developed.*

The frequencies help to identify the potential differences between clusters, but this information must first be connected with the deans' responses. A clear example is the approach to **continuing professional development (CPD),** which is essentially the provision of professional education to industry organisations (the ambit of collaboration classified within cell C4). There are mainly two types of CPD: (1) open to any student who wishes to join an established programme or (2) tailored to the needs of companies (what is commonly known as 'custom'). As Dean G stated regarding apprenticeships in particular, *'We have already been in lots of discussions with potential business partners in that sense. We will be offering sort of off-the-shelf apprenticeships for people to almost come along as individuals, but we will also be offering bespoke apprenticeships for larger companies who want to put large groups of their staff through apprenticeship study. So, there are two different angles here.'* Open programmes mostly target individuals in search of professional development, while custom programmes are linked to individual organisations.

Both clusters take different approaches to CPD. The 'global BSchs' cluster is stronger in **custom executive education**, with BSch designing (and often co-designing) a programme to meet the needs of the company, sometimes including previous investigation of the company's needs, which could be considered close to a consulting project. Participants receive private recognition from the BSch. These are considered exclusive and expensive products whose market includes larger corporations. Based on the interviews (Deans A, B, D, and H), 'global' BSchs have more connections with large companies, so they are closer to the target market. Schools labelled as 'community-linked' do offer executive education to some extent, but they mention it as an aspiration (Dean C), a fading activity that is being replaced by others (Dean E), or a project still in its early stages (Dean G). Dean E's remarks were unusual in this sense because they mentioned executive education programmes that work for them in certain niche subjects where they consider themselves world-leading; because of this, they can liaise with bigger companies requiring more complex or tailored solutions, suggesting that

community-linked schools can show features of global schools for certain fields of strong specialism.

In contrast, **apprenticeships** have a similar aim to executive education but are strongly subsidised by the government through the Apprentice levy in the UK; as a result, they are more attractive for SMEs, which are typically closer to the 'community-linked' BSchs. Large companies with more resources may prefer executive education as it can be better tailored to their needs without the design and format limitations of the apprenticeship scheme. From the conversations with the deans, except for three BSchs offering both, BSchs in relationships with large companies tend to use executive education, while those that declare themselves closer to SMEs tend to have subsidised apprenticeship schemes. The same can be said about the open, government-subsidised Help to Grow scheme, which was mentioned by the deans of 'community linked' BSchs G and F but presents the following difficulties: *'We don't know what the reasons could be. It may be that businesses around our region are not really that interested or that there is heavy competition from other institutions. If [a nearby BSch] is running a similar help-to-grow programme, they [businesses] might be going there (...) but equally, I think we are also cannibalising the efforts there'.*

The table helps identify other collaboration forms that significantly differ between the clusters of 'global' and 'community-linked' BSchs. A clear case is **institutional endowments**, which are more decisively encouraged by highly ranked, globally focused BSchs. This tendency could stem from the calibre of companies and alumni, which facilitate these institutional general donations compared to BSchs mainly associated with SMEs.

Support entrepreneurship is the most variable collaboration form among schools and, even though it is present on nearly all the websites, it was mentioned only by the deans of 'community-linked' BSchs, often linked to their local development agenda. Dean E mentioned that *'We have a programme (...) that has been running for 10 years. It includes boot camps for students*

who want to start businesses. (…) They actually take place not in the university but in a collection of incubators on the outside of the university so that people who go into them are surrounded by actual entrepreneurs running actual start-ups.' Dean F explained how they work on initiatives that address community problems: *'Is there something that really is affecting the city? (…) We have community fellows, where problems or initiatives are really driven by the bottom and it's championed by the communities where they are doing their own day-to-day jobs. Or they might be a small business owner, or a lawyer, for example.'* BSch F also recently launched their 'New Dawn' initiative in which the school works with refugees and asylum seekers who have established in the region. Dean G described their school's incubation and innovation hub that delivers an enterprise challenge competition resembling '*Dragon's Den*' (a popular UK television programme where entrepreneurs pitch their business ideas to expert investors with the hope of getting funds), with a mentor allocated to projects after the first stage and the prize of partially funding the winner's project. They also organise hackathons where industry partners become involved with students and alumni in different activities. Overall, community-linked deans devoted more attention to explaining initiatives linked to entrepreneurship. Arguably, students in elite global BSchs can find more opportunities for their projects without the top BSchs having to try as hard due to the school's reputation. It was also noted that, in general, entrepreneurial projects supported by BSchs are more locally focused than national or transnational, which is the natural ambit of the community-linked BSchs. A peculiar example was given by 'global' Dean B, who regarded 'supporting entrepreneurship' as an exception to their worldwide ambit*: 'Our students, as far as entrepreneurship is concerned, do work with some of the local entrepreneurial ventures, but as a school, we try to go for the best companies globally.*'

Something similar happens with initiatives around **employment**, **internships,** and **projects**. Community-linked deans cited these more often and provided more details about initiatives aimed at fostering these opportunities for their students. For global schools, it seemed as if it were

taken for granted that there would be opportunities for their students; this is particularly evident in the case of **Knowledge Transfer Partnerships (KTPs)**. This government-subsidised scheme joins a university, a business, and typically a graduate student (the 'associate') to facilitate the application of the knowledge generated by the school to the real world of business. A good practice is shared by Dean E: '*We are the third biggest Knowledge Transfer Partnerships (KTP) runner in the United Kingdom and the number one on a per-faculty member basis, despite being a smaller institution. We have 15 KTPs running at the moment, with a focus on sustainability and reducing energy usage by SMEs. We have also started working with SMEs in other countries, such as France.*' However, none of the deans in the global BSchs mentioned this scheme, while three of the four community-linked schools did, suggesting that the global BSchs have alternatives for knowledge transfer through other types of partnerships with industry.

Regarding **consulting**, as mentioned, not all BSchs offer it as an institutional service. BSchs A and D include it, while C announces it on their website but has not fully developed it according to the dean. This means that half of the 'global' BSchs offer consulting. Consulting was also mentioned by the majority of the top-ranked schools on their websites. However, none of the community-linked schools refer to it, so the clustering is also significant regarding this collaboration form. There is an interesting exception concerning BSch E, which deploys an intermediate solution between offering and not offering institutional consultancy. This BSch has standardised many of the services they offer to industry, and in the words of Dean E, '*We have a [consulting] template at the university level, so any academic or group of academics who want to set up a consulting company can use our template.'* The school has also launched a consulting company outside of the university which implements the intellectual work created within the university around one of the subjects of expertise on which they believe they are world-leading, supporting again the idea that community-linked schools can show characteristics of global schools for certain fields of specialism.

For the collaboration forms presented above, the clustering proposed between global and community-linked BSchs presents significant internal similarities and external disparities in aspects like executive education and custom apprenticeships, institutional endowment, supporting entrepreneurship, employment, internships or projects, KTPs and consultancy, so it can be argued that it is significant in terms of differentiating BSchs (with the natural limitations posed by qualitative research). The rest of the collaboration forms seem largely homogeneous across the spectrum of BSchs analysed.

4.1.6. Recent and innovative forms of BSIC

The deans generally believe that no new forms of collaboration have emerged in recent years, except for the level 7 apprenticeship scheme, as mentioned by Deans A and G. In general, CPD (either apprenticeships or executive education) is the main area where the interviewees identified changes. Dean C mentioned an evolution of the nature of **executive education**, which now includes more diverse formats like online learning, short courses (microcredentials), and credit-based delivery. Dean G also commented on a similar move towards **new formats** that move away from the traditional evening classes for adult learners: *'What we are putting in place with executive education is about connecting with industry and trying to develop a portfolio of short courses that will be of interest to industry to do in a bite-sized way.*' For some schools, though, while they still deliver traditional executive education programmes, interest in these is decreasing (BSchs C and E), and they are being replaced by other forms of CPD.

Most deans referred to the fundamental change towards **impact in research**. Two deans (C and D) were more specific about the causes. The most formal driver is the relevance given by the REF, but the sensitivity of BSchs to helping industry and society has also increased, which is consistent with the triple helix model.

Dean D identifies an increasing interest in **sustainability**, following the lead of American BSchs. They mention three reasons. First, donors tend to fund projects that have a sustainability component or achieve other socially beneficial outcomes. Second, students increasingly expect that their programmes and BSchs will have a higher purpose beyond simply making money. Third, BSchs aspire to develop a reputation that they can achieve more significant, impactful outcomes for the wider society and the planet.

Regarding the **intensity of BSIC**, there are mixed opinions. Dean A felt it has augmented in recent years, mainly due to the increasing complexity of companies, which need more help and training from BSchs as a result: '*The businesses' competitive landscape is increasing. There is more industry transformation and digital transformation, there's more need for sustainability. And companies need help in terms of talent, in terms of knowledge, in terms of learning from each other. (…) they all know they have to learn faster, otherwise, they will not survive.'* However, Dean D flagged that, after the COVID-19 pandemic, activity has decreased, particularly companies' support for student projects and career-related activities. They also felt their school's capacity to connect with industry has decreased: *'We have less administrative capacity for corporate research and other similar tasks, [we are] unable to undertake the many contracting requirements of these projects. We do not have the same level of closeness with the staff as we had in the past, which has weakened our relationships somewhat.'* Dean F shared concerns about the lack of engagement with businesses in their area (mainly SMEs) for the Help to Grow initiative.

Dean F also referred to a change in companies' desire to attend **events online** rather than face-to-face. They mentioned that KTN physical events were struggling to attract engagement; by moving them online, attendance has improved. Dean G noted a similar situation regarding a guest speaker series for students and industry members. Additionally, Dean F noticed that students are more resistant to accepting **placements** when they involve the

commitment to a four-year undergraduate programme. While the other cases did not include similar comments, the fact that Dean D also mentioned fewer options offered by industry may indicate a decline in this collaboration form.

4.1.7. Comparison between industry collaboration forms in BSchs and OSUSs

When asked to identify the differences between BSchs and schools from other academic disciplines regarding IC forms, the deans typically used engineering and medical schools as benchmarks, followed by humanities and law schools. Some referred to 'technical' schools that seemed to comprise various STEM disciplines.

The deans consistently agreed that more than deploying other collaboration forms, the difference between BSchs and other schools was mainly about the **scale and nature** of the collaboration, which has consequences at several levels. These will be presented in detail in the subsequent sections.

Research was highlighted by all deans, explicitly or implicitly, when they discussed the transfer of knowledge and technology. Dean A mentioned that BSchs normally engage with industry in research around leadership, management, markets and organisations, therefore knowledge, while technical schools (mainly engineering) collaborate with industry to develop better technology, for which expensive physical equipment is usually needed. As a result, the scale of projects and the financial implications are much greater. According to interviewee A, *'I think the notion of the difference is that the other schools have a lot of much deeper research relationships, have a lot more at stake, and involve a lot more financial investment.'*

Dean B reinforced that research is based on knowledge and added that *'Sciences departments or engineering departments often create the knowledge and then apply it to industry. In BSchs, we actually observe*

industry. We try to find similarities and commonalities, put them in a framework, create knowledge, and then disseminate it widely. So, you often learn from industry—maybe not from everyone, but from a small subset of leaders—and then you conceptualise it and you share it widely.' In any case, collaborative research seems to be something BSchs do not do, whereas it is common for technical schools.

Similarly, Dean B explained how most other schools apply the knowledge they create (alone or 'with' industry) to industry, while BSchs learn 'from' industry and then apply that knowledge back to industry: *'I think the core issue is that the knowledge creation process in a BSch is linked to industry much more than in other sciences or some other area. If you're creating a vaccine, or you create the vaccine in your team, and then you apply it and sell the patent, that's why traditionally it is much more about technology transfer (…) the name is, in fact, technology transfer. So you transfer the technology to industry.'* Dean C agreed with this view and added another element about the origin and timing of funding that differentiates BSchs and other disciplines: '*What you see with the kind of engineering work is that the impact comes out of the funded research, whereas we will tend to fight that we do our unfunded research and then we try and generate impact from it by funding the impact activity. And I'll say it doesn't happen in engineering, where it's always more of a natural, forethought thing.'*

Dean C also mentioned that in exceptional cases the kind of business and technical research can become very similar, around what the dean called a *'boundary* object', such as when they are asked to collaborate on designing a particular equation for finance. Dean C confirmed that it is still possible for BSchs to create knowledge that can be commercialised and cites the example of *'a safety survey that people were adopting. You can take that knowledge and turn it into a product that people buy off the shelf and use over and over again. That moves us closer to the engineering, medical type model.*' The challenge resides in finding ways to commercialise the knowledge the school produces. In any case, the deans mentioned these cases as exceptions.

In general, research projects in collaboration with industry are more relational for BSchs, in the sense that human interaction is a more critical, complex and multi-faceted element, which makes IC more difficult to capture since it occurs through projects that require soft knowledge rather than technical knowledge. This may sometimes make it more difficult to identify the impact and recognise its value. Dean F provided a positive perspective, though, by mentioning that '*There are clear indicators and direct or indirect KPIs that make measuring the impact of our work more transparent. In the past, compared to other subject areas such as medical disciplines or engineering, management was seen as a softer subject area where measuring the impact was difficult. However, the measures of start-ups, entrepreneurs being created, CEOs being developed from the institution, and research working in partnership and innovation patents have helped amplify the role of BSchs.*'

Dean D raised a final concern about the extent to which '*Central university research offices often have a vision of IC that is skewed towards the biomedical or engineering model, and they may overlook the more distributed and relational nature of BSch collaborations*'. This concern is confirmed by Dean G, who mentioned that *'In fact, the biggest part of the university's research centre is related to engineering and conducts collaborative research with industry on a variety of subjects like food, growth, and other topics.*'

Beyond research, Dean F also maintained that the sciences stand out for collaboration forms like **KTP**. BSch F also works with small businesses and organisations to develop new products and solutions, but not to the scale seen in the sciences. For Dean G, where they stand out is in everything related to **employability and careers**, which was confirmed by other deans as well. Finally, Dean F referred to **a good practice** they adopted from law schools: law clinics and moot courts for the creation of business clinics to successfully engage with industry.

As it can be seen, in the dean's opinion, the differences between BSch and OSUS in terms of their collaboration forms with industry are substantial. This happens because, as the literature has already found (Perkmann et al., 2013; Rybnicek & Königsgruber, 2018; Vick & Robertson, 2018) the academic and scientific discipline affect the academic IC. This section identifies what those differences are in the case of BSchs.

4.1.8. Comparison with the collaboration forms described in the UIC literature

As explained in the literature review, the most comprehensive compilation of collaboration forms in UIC is provided by Ankrah and AL-Tabbaa (2015) as can be seen in Appendix 1. Comparing their list with the outcomes of this study is challenging, mainly due to the diversity and intricacy of the research types they identify. It is also difficult to compare the two lists because of the lack of detailed information Ankrah and AL-Tabbaa (2015) give on the meanings of different collaboration forms. The absence of clear distinctions among many forms makes it possible that any interpretations given here of the terms might differ from their intended meanings. Despite these challenges, the following table compares the collaboration forms between universities and industry outlined by Ankrah and AL-Tabbaa (2015) with the list derived from this research for BSchs.

	UIC FORMS MENTIONED IN ANKRAH AND AL-TABBAA (2015)		
FORMS OF BSIC FOUND IN THIS THESIS	**ALSO MENTIONED BY DEANS OR WEBSITES**	**A SIMILAR FORM IS MENTIONED BY DEANS OR WEBSITES**	**NOT MENTIONED BY DEANS OR WEBSITES**
Advisory boards			Academic spin-offs
Apprenticeships	Joint curriculum development		Association contracts
Collegial interchange	*Personal contact with university academic staff or industrial staff*		Broad agreements for U-I collaborations
Consultancy	– Individual consultancy (paid for or free) – Institutional consultancy (university companies including Faculty Consulting)		*Co-locational arrangement*
Custom Executive Education	– Training Programmes for employees – Joint or individual lectures		*Employment of relevant scientists by industry*
Entrepreneurship support	Innovation/incubation centres		*Equity holding in companies by universities or faculty members*
Fund students' activities			Exchange programmes (e.g. secondment)
Guest speakers	*Joint or individual lectures*		*General Assistance Units (including technology transfer organizations)*
Help to Grow			Industrial associations (functioning as brokers)
Institutional fundraising		– Research grant, gifts, endowment, trusts donations (financial or equipment), general or directed to specific departments or academics – *Endowed Chairs and Advisory Boards* – Funding of university posts – Industrially sponsored R&D in university departments	*Joint supervision of PhDs and Masters theses*
Knowledge Transfer Network (KTN)	Government Agencies (including regional technology transfer networks)		Liaison offices (in universities or industry)
Knowledge Transfer Partnership (KTP)			Mergers
Mentors			*Patenting and Licensing Agreements (licensing of intellectual property rights)*
Networking		Information exchange forums	Sabbaticals periods for professors
Participate in clubs and societies			Subsidiary ownerships
Research	– Contract research (included technical services contract)		*Technological Brokerage Companies*
Research dissemination (impact)		Collegial interchange, conference, and publications	University–Industry Consortia
Scholarships and bursaries	– Scholarships, Studentships, Fellowships and postgraduate linkages		Exchange of research material
Student projects, placements and internships	– Student internships / sandwich courses – Students' involvement in industrial projects		Cooperative research projects
Student recruitment	*Hiring of graduate students*		University–Industry research cooperative research centers
Talent development (education & coaching)			Joint research programmes (including Joint venture research project with a university as a research partner or Joint venture research project with a university as a subcontractor)
Use of BSch facilities	*Use of university or industrial facility* (e.g., *lab* , *database* , etc.)		
Visits and field trips			

Table 14. Comparison between the collaboration forms between BSchs and industry identified in this research and the forms of UIC found by Ankrah and AL-Tabbaa (2015) Green: Collaboration forms that are mentioned in both lists; Yellow: Forms in this research for which a similar collaboration form is mentioned by Ankrah and AL-Tabbaa (2015); Orange: Forms in this research that are not mentioned by Ankrah and AL-Tabbaa (2015); Grey (last column): Collaboration forms mentioned by Ankrah and AL-Tabbaa (2015) but not identified in this report

There are significant discrepancies between the lists. In general, Ankrah and AL-Tabbaa (2015) do not mention strategic (e.g. membership in an Advisory Board) or relational aspects (e.g. networking or collaboration with student clubs and societies) typical of BSIC engagements. Most of the forms refer to operational and technical-level collaborations. The absence of this strategic and relational perspective might suggest a prevailing focus on technical schools as the deans agreed that BSchs liaise with industry at a more strategic, managerial, and relational level, whereas technical schools collaboratively engage in the development of technology, most of the time around an external object.

Many of the collaboration forms found in Ankrah and AL-Tabbaa's (2015) study that have not been identified in this research (in grey) are described by the deans as typical of 'technical schools' (in their words, schools like engineering, biomedical and STEM-related), which suggests that more attention was given to technical schools by the literature summarised in the systematic review. Even when research has been marked in yellow (i.e., mentioned in both lists), there is a radical difference between how the deans present it for BSchs (based on knowledge, unfunded, low scale, non-collaborative, aimed to understand and model the world of business) versus Ankrah and AL-Tabbaa's (2015) description (exchange of research material, cooperative research projects, cooperative research centres, and joint research programmes seem more typical of technical schools).

Finally, industry contributions to students actively promoted by BSchs (e.g. mentorships, visits, field trips, funding for activities, and involvement in clubs and societies) are absent from Ankrah and AL-Tabbaa's (2015) work. Ankrah and AL-Tabbaa's study is particularly rich in the array of research collaboration forms, but the BSch deans outlined a much wider spectrum of student support, career, and employability forms in the context of BSchs; this confirms Dean G's opinion that BSchs are at the forefront of employability, whereas in terms of research, it is probably engineering that takes the lead.

Consequently, the outcomes of this study imply that Ankrah and AL-Tabbaa's (2015) systematic literature analysis could lean heavily towards collaboration forms more commonly associated with technical schools. Combining this observation with certain statements by the deans, it is likely that some universities might hold a vision of IC that is influenced by the biomedical or engineering models, potentially overlooking the strategic and relational dimensions of BSIC.

4.2. Motivation for BSchs to collaborate with industry (RQ 1.b)

Following the analysis of the collaboration forms between BSchs and industry, the second aspect of the general framework of BSIC is to understand *why* they collaborate, or their motivation for engaging with industry.

The documentary analysis only covered the collaboration forms, as websites do not provide information about the other aspects of BSIC, including the reasons BSchs collaborate with industry. Therefore, from this point, the analysis is based only on the information gathered during the interviews.

4.2.1. Reasons for BSchs' engagement with industry

The deans were asked about the reasons why their schools engage with industry, although many of them had already explained this spontaneously during the discussion of the collaboration forms. The motivations can be grouped into three categories.

The first and strongest motivation for engaging with industry is linked to BSchs' **mission to contribute to society's development**, particularly in terms of economic progress and widening participation (Dean G), in line with

the third mission of the triple helix model. All the deans mentioned this reason in one way or another. As examples of the different ways of describing this purpose, Dean A shared that '*Our mission is very simple: to transform the practice of management, and that's what we hope to do when we collaborate, and partner, and work with other organisations. We hope to have that impact.'* Dean B remarked throughout the interview that the world of business has become increasingly complex, so their mission is to help industry prepare and operate in this volatile environment. They mentioned that '*for BSchs, industry is everywhere*'. For Dean C., the ultimate reason for BSchs to exist is to make an impact in the world. Dean D expressed the main motivation behind their activities as the desire to make an impact on the professions and practices of companies within the ecosystem BSch D is embedded. Dean E started the interview by listing the reasons why their school collaborates with industry, which are essentially linked to impact and social contribution. For BSch E, supporting industry and the people who run industries and make policies about industries is a central theme. Dean E also mentioned that this university started as a technical college founded by local manufacturers to address the shortage of skilled employees; this has rooted a practical focus on applied research and engagement with the business community throughout the university's history. Dean F noted that their BSch's mission is to give back to the economy and contribute to the local community. Their ultimate goal is to create future business leaders who can connect theory to practice, which can only be achieved through collaboration with industry. This motivation is particularly driven by the need to address the main challenges facing the city and to build the skill sets and capabilities needed to address those challenges: *'That's why I think the business and community come together for us. (…) I also think that it is a role that, as BSchs, we can help provide for social and economic growth.'* Dean G stated that for them, '*There is more to business engagement with universities than just ticking a box for corporate social responsibility. Businesses want to be involved with universities to understand the perspectives of younger generations and what they are looking for in terms of products, services, and work culture'.* Dean G continued: *'Some organisations are predominantly recruiting middle-class, privileged graduates,*

and they don't want to be doing that anymore. They want to employ more diverse graduates, and we have such a diverse body that is in demand, which is good because that matches up to what we want to achieve'. In general terms, deans discussed that their schools pursue and achieve a contribution to society, and some examples were provided across the interviews (e.g. Dean D's impactful research objectively measured at REF, Dean G's assertion that they connect industry with students from diverse backgrounds, and Dean's F declaration that their school was founded as an industrial initiative to develop skilled graduate workforce), to support that this is not a declaration to favour the BSchs' public image.

The second set of motivations by importance can be labelled as **student-related** reasons, with various approaches that go from meeting students' expectations, enhancing students' experience, ensuring career progress, providing skilled staff to industry, and promoting widening participation. Dean A mentioned they recruit staff with professional experience in industry because they can deliver what more mature students require in their executive education programmes. Dean D commented that they aim to provide their students with a unique experience that reflects the culture and atmosphere of the surrounding businesses*: 'One of the reasons why our students come to our BSch is because they want to have that exposure to the real world of business and the companies connected with them.'* Deans E and F referred to their origins based on an initiative from industry and how their mission was the provision of a skilled workforce. For Dean G, their BSch engages with industry for the benefit of their students to ensure that the education they receive is current, relevant, and appropriate to the skills they will need in the future. In Dean G's words, *'Interacting with industry can also provide students with additional social capital, which can be very beneficial for their future careers.'* They added a different angle based on widening participation when they mentioned that *'we have a lot of students from widening participation, students with very diverse backgrounds who come from less well-off or deprived backgrounds. We want to try and make a difference in the entire area, in the students' lives, so that just by coming to*

university, opens different doors and avenues and possibilities for their future. And a lot of our students do not come with the social capital to do that. So in some ways, our business connections hopefully make up for some of that.'

The third set of reasons is **finance-related**. Dean D highlighted that the main reason is not about money as the costs outweigh the revenues in many projects, but they reckoned that, after the mission and the students' experience have been enhanced, '*then, besides this, sometimes it [a collaboration project] can yield nice additional resources, which will enable us to achieve our core missions (…) the research and impact mission and the student experience mission. But ultimately, that goal of earning money is a secondary one.'* However, Dean D acknowledged the financial benefits from IC may come indirectly through tuition fees: '*Here the real money comes from student fees, and students decide to come to their BSch because they want to have exposure to businesses*.' Deans B ('*Of course, all schools have to seek money and partnerships'*), C *('By turning such knowledge into a marketable product, it becomes easier to generate funding for the school's activities'*), and F also referred to the financial impact of partnerships, but always as a secondary aim.

In summary, the reasons identified by deans for their schools to collaborate with industry are related to contribution to society, the benefit of students, and financial returns. The three of them do not seem to conflict and are presented as a win-win situation for all parties. This was also the order in which they were prioritised by the deans, which may trigger opinions regarding the possibility that this a question of public image, but the fact is that no reason was found to believe the deans were not honest in their answers and there was a high degree of agreement among the deans that this was the order of motivations for their BSchs to collaborate with industry. This is also consistent with the not-for-profit character of public universities.

4.2.2. Comparison among participating schools

No substantial differences were found among the participating schools. They seemed closely aligned on the three reasons for establishing links with industry, and in that order: impact and contribution, student-related reasons, and financial-related reasons. However, it is worth noting that some deans found it difficult to identify their motivation to collaborate with industry, as for them it is taken for granted, which may have stopped some of them from elaborating further and maybe finding differences between the clusters. As an example, Dean B simply said that '*for BSchs, industry is everywhere*.'

4.2.3. Trends identified and recent developments

The deans believed that the reasons for collaborating with industry have not changed, but they did identify a trend in the intensification of the demands of students and society, and their increasing financial pressures, have become more intense, so they need to identify and adapt to the new circumstances. The deans agreed that there is increased external pressure on them to demonstrate contribution, impact, and practical education, which has led to a greater awareness of the importance of real-world relevance in BSch research and teaching.

Dean F remarked on the importance of adapting collaboration to the changing needs of society: *'I have been looking at the previous strategy documents, and business and community has always been one of the core independent streams, so it had that importance. Now we evolve and build on it in a very different way for the time and age.'* The key for them is to understand the community challenges and ensure that students and research have a positive impact on the business and the community.

Regarding student-related motivations, deans also agree that students are now more interested in connecting their education to the real world of

business, developing skills and experience connected to it, and preparing themselves for their future careers. As Dean A said, in the past, '*there seemed to be a divorce between doing a degree and the outside world. Nowadays, students are far more demanding and desiring. What does this mean in reality? How does this connect to the world? How are you going to help me be ready for a job? Also because of the fee structure. As a debt, it's a good way of focusing their mind on what they are getting*.'

Dean D also underscored financial aspects. For them, that interest has always existed, and BSchs have always found a way of generating income through IC. The problem is that nowadays, projects tend to give little surplus or directly generate losses. For them, the real money comes from student fees, and students decide to come to their BSch because they want to have exposure to businesses, so through student fees this is how they can get a financial return from IC.

4.2.4. Comparison with OSUSs

The deans unanimously agreed that BSchs have different reasons to collaborate with industry compared to other schools, particularly regarding research. Dean A observed that normally schools produce their research and then apply the knowledge they create to industry, while BSchs learn from industry and then apply it back to industry. This double contact of the origin and the destination of the research means that the motivation is also double.

Dean C explained that schools like engineering or medicine share some similarities but are different from BSchs in the sense that the former typically produce a tangible output, an innovation, while BSchs work with knowledge, which is more difficult to see and therefore can generate a lower motivation to engage: *'I always put it like this. If I am an engineer, I create a (…) product, and then I can think about how I sell it to the world, if you want to use it. If I am a doctor, I can create a cure or a diagnostic test. Our problem*

is that, in BSchs, we generally work with knowledge. We create new knowledge but don't generally create things, which makes the connection to industry much more difficult to see.' However, Dean F provided a positive perspective as there are more impact measures in place now than in the past, and this has also increased motivation. He argued that there are clear metrics and direct or indirect key performance indicators (KPIs) that make measuring impact more transparent. In the past, compared to other disciplines such as medicine or engineering, management was seen as a softer subject where measuring the impact was difficult. However, new metrics like the number of start-ups being created, CEOs being developed from the institution, research working in partnership, and possibly innovation patents, have helped to raise awareness of the role of BSchs.

In general, the deans believed that research is more important for engineering and medical schools than for BSchs to generate new knowledge. Collaboration is necessary for these schools due to the need for financial resources and technical expertise. In contrast, collaboration in social sciences and law is driven by aspects like individual aggrandisement, social change, policy-making, and grant funding. This is consistent with Perkmann et al. (2013).

4.2.5. Comparison with the literature on UIC

Ankrah and AL-Tabbaa (2015) classify UIC motivations into five groups. Three of these groups align with the deans' opinions of BSIC, though some technical aspects are different for BSchs. Shared motivations include the ones these authors label as 'Necessity' (linked to government requirements and their strategic institutional policy), 'Stability' (linked with the growth in new knowledge, obtaining better insights into curricula development and exposing students and faculty to practical problems/applied technologies, which are motivations shared by all schools), and 'Legitimacy' (linked to aspect like meeting societal expectations, service to the industrial

community/society, promoting innovation, and contributing to the regional or national economy).

However, two of the motivations mentioned by Ankrah and AL-Tabbaa (2015) differ from those identified in this research. First, they identify 'Reciprocity', described as '*access to complementary expertise and state-of-the-art equipment and facilities*' as well as *'employment opportunities for university graduates*'. The deans agreed that the first factor is nearly exclusive to technical schools, while the second is shared by all schools, but businesses usually deploy a much richer variety of actions for employability and career purposes, indicating a stronger motivation for BSchs to work closely with industry in this regard (Dean G).

Second, 'Efficiency' includes aspects related to the financial repercussions of collaboration, especially '*access to funding for research (Government grant for research & Industrial funding for research assistance, lab equipment, etc.)'*; '*business opportunity (e.g. exploitation of research, capabilities and results or deployment of IPR to obtain patents)*'; and *'personal financial gain for academics'*. The first two points are more crucial for technical schools than for BSchs given their resource-intensive research. The individual gains for academics can also be true for BSch, but the conversation with the Deans shows it is not a motivating factor for the institution.

The second relevant study for this section is Perkmann et al. (2013), who, unlike most UIC researchers, approach engagement from the academics' point of view, signalling a possible tension between individual and institutional approaches. This is consistent with Skute et al. (2017), who identified a multi-layered nature in UIC research based on three interconnected levels: individual, organisational, and institutional (above individual organisations). The present research reflects and confirms this multiplicity of interests and the fact that they can lead to tensions. Institutions face difficulty in persuading academics to facilitate their contacts so that they can be managed institutionally, with the deans declaring that this issue is

stronger for BSchs than for technical schools (as individual academics do need the school's contribution in larger scale projects) and that institutions are trying to create central units for leading partnerships and collaboration projects (with potential frictions between the school level and the university level). One collaboration form particularly affected by this competition between individual and institutional motivations is consulting. Just two of the BSchs successfully offer this service institutionally, although it is unclear if they preclude individual academics from undertaking private engagements (which can create negative tension) or not (thus competing with the institutional service). The other BSchs do not offer institutional consultancy but often acknowledge and even facilitate individual academics' engagement.

4.3. Who initiates the collaboration projects (RQ 1.c)?

4.3.1 How are collaborations initiated?

The deans specified six ways in which IC can be initiated. They are presented below in order of appearance, but not necessarily in terms of frequency or importance, as that could not be established.

The first source of collaboration is the **institution**. For Dean B, most collaborations are proactively instigated by the institution, including executive education, career services, and fundraising. Dean A described their team of Key Account Managers (KAMs) as being constantly in contact with industry to identify and promote opportunities to engage. Dean E referred to a team dedicated to promoting opportunities for collaboration, particularly KTPs.

The second trigger of collaboration arises out of individual relationships with **academics**. Dean D estimated that in most cases, it is an individual who initiates a collaboration based on existing personal relationships. However, '*the irony is that most universities want to have a top-down model of*

relationship with a big, external firm, and then they broker that. But it doesn't work like that; most of the time, these relationships are very much held at the individual level.' Many deans stressed the difficulty of having faculty members relinquish their contacts to the university for centralised institutional relationship management. Dean B mentioned that '*faculty might have the individual contact, every faculty member has some of their own, but usually those contacts are not always brought for the benefit of the institution'.* Deans E and F referred to similar situations, with Dean D explicitly stating, '*The people who hold those relationships are really not willing to give them away. They might be willing to share them with people they trust, but there's no way they'll give them away to the institution.'*

There is a third, **mixed approach** in which the institution generates a culture fostering individual academic initiative. Dean C mentioned they find it challenging to artificially generate interest from academics to get companies to contact their BSch, but due to the nature of the relationships, there is no other way: *'I can put an idea out there, and sometimes people will pick it up. Often, the most successful way seems to be individual academics creating their own contacts and working with them.'* Dean F aimed to create a culture of intrapreneurship, which requires appointing the right people within the organisation to leadership positions. Dean F explained, '*We have a clear role and a team, including a Director of Business and Community Engagement, but it shouldn't stop at that. I think culture and leadership come together; it needs to be instilled from the top down*.' It also needs to be everyone's responsibility. Dean D highlighted the importance of training academics to relate with industry and acknowledged that they often do not adequately teach or train people in this skill set: '*In the BSch world, you half pick it up along the way, if you're lucky, but we don't systematically support people in some way. As a result, it's very much a cottage industry rather than something we actually train people for*.' Dean F confirmed this view, stressing the need to '*train our academics to be able to know how to engage with businesses, be it for teaching or research*'.

A fourth way of initiating BSIC projects is through **alumni**, as specifically noted by Deans A and B, who, due to the particular characteristics of their BSchs, can count on a large base of graduates occupying preeminent positions in industry. As an example, Dean A cited a big flagship project that '*started with a conversation between an academic and a contact of theirs at a bank'*.

The fifth source of collaboration is by attracting companies based on the BSch's **reputation**. Dean A asserted they have been attracting people and companies for years because of the school's reputation, based on their accreditations and privileged position in rankings. In Dean A's words, their BSch '*has been very good at bringing the world to it, but what it needs to do is to do more of going out to the world (...) and building those collaborations as a brand'.* Most of the deans in global BSchs made similar comments. However, Dean D, representing another school with an outstanding reputation, stated that the proportion of projects that arrive this way is small compared to other sources.

The last source is **cross-selling**. Dean A explained that when they deliver executive education programmes, apprenticeship programmes, or part-time courses to a company, opportunities arise to cross-sell, allowing them to build a more complex relationship: '*Someone who might be just an initial customer from an open programme might develop it into a customised programme, which might turn into a more strategic partnership where they've got involvement in other places.*' Dean A likewise described the importance of KAMs and how custom programmes are particularly effective in fostering further IC: *'As an example, we might have a company who works with us that we do some executive education for. They are also a member of a research club. They also send people on to our executive programmes and we also might do some research with them as well. They may fund PhD students and so on.'* Both the custom apprenticeship and executive education formats show the potential for expanding IC and can even attract additional companies to enrol staff in a co-designed programme. Dean A presented an example of this:

'There is an apprenticeship level 7 standard for professional banking specialists. We produced a course as long as we had to match that standard, and we offered an MSc at the end of it. […] We designed that program in partnership with a major bank (X), and X brought another partner, (Y), into that conversation, and we're now in our fifth cohort of a closed program for those two banks.' In a rare recognition of good practices in other BSchs, Dean D referred to this example of A as an example for generating closer relationships with industry. Dean G described a similar potential for generating cross-selling through employability teams, due to the necessity of providing placements for students, which often led to expanding the relationships with other collaboration forms.

Not all BSchs deploy all sources of BSIC, and some are particularly strong at some of them (e.g. Deans A and G for proactive institutionally-driven actions, and Deans B and D for enhancing the school's reputation to attract businesses). In principle, they are all compatible, although some tension can exist between the institutional and the individual academics' initiatives.

4.3.2. Trends and recent developments

The deans tended to agree that academics are an increasing source of collaborative projects. Even Dean G, who highlighted the role of their employability team in initiating relationships, believed that the origin is now more diverse than before and that academics initiate more connections themselves. The most innovative trend is the efforts of BSchs to centralise aspects related to the initiation and management of relationships to institutionalise the relationship and foster systematic cross-selling. The key account managers structure of BSch A and the dedicated KTP teams of BSch E are approaches to these centralised teams. Some institutions have also created 'partnership departments'. The opinions about the value of these central units diverge. As Dean C said, to create more connections, schools have implemented various structures, but they are not sure how effective they

are: *'Ultimately, I'd say that the true incentive structure still remains very strongly research-based, primarily publication-based in BSchs. So it's very difficult to motivate academic staff to engage with projects by just saying (…) that there's an opportunity to get involved unless I can directly say that we can get a good paper out of this.'* The efforts to engage faculty involve very different approaches, from the persuasion mentioned by Dean C through to the collaboration culture fostered by BSch F, the use of professional staff like the KAMs at BSch A or the employability department of BSch G, and more organic decisions like institutional centralisation at the school (BSch B) or university (BSch D) levels.

4.3.3. Comparison among BSchs

As highlighted by Dean D, some of the initiatives presented above have proved more successful than others for different institutions.

The most relevant differentiation is between schools with some central organisation, either KAMs or central partnerships departments, and those that lack that structure. KAM teams seem successful, as confirmed by Dean A (and praised by Dean D) and Dean E regarding KTPs. The benefits of central partnership units (implemented in BSchs B, D and G), though, generate mixed opinions, although there seems to be agreement that they generate more cross-selling initiatives than schools without those structures. Global BSchs (BSchs A, B, D, and H) tend to refer more to initiatives around centralisation, though BSchs E and G also have examples of such initiatives.

Finally, as expected, the global BSch deans cite their reputation as a source of projects, while the community-linked BSchs report their relationships at the local level as a relevant factor in generating projects. However, the deans differentiated between macro- and micro-reputation, with the community-linked Dean E mentioning that their BSch's expertise in a certain academic area where they have a strong reputation made them an attractive

partner for large companies in the way global schools do: '*We also have specialisations in certain areas that cater to very large businesses, particularly in the area of [an academic subject]. For instance, they have an advanced centre that supports a dozen companies, including six big American companies and another six big European companies. These companies fund research and activities in the [mentioned subject] sector (…). The centre also runs a [mentioned subject] conference, which is attended by people from companies who want to learn how to improve their practices.'* Dean D confirmed this opinion: '*BSchs can also have some micro-reputation in particular areas or institutions. If they have real expertise and a long-running ability in particular industries, then that reputation can come at a premium.'*

4.3.4. Comparison of BSchs with OSUS according to the deans

Dean D believed that in BSchs, academics are more protective of their relationships, and they often take commercial relationships outside of the university context to do private individual consulting. In contrast, other schools such as engineering or biomedical schools need the university to lead on large-scale, resource-intensive projects, generating '*a different culture of how you do these things'.*

Dean D felt it was possible to scale up the relationships and achieve cross-selling if the infrastructure is in place to support it; this requires having an office and ways of bringing people onto projects and expanding operations, as is often done in engineering schools: *'For example, [our BSch] has worked with an asset manager on some technical aspects and earned their trust. Now that the asset manager needs leadership training, they trust us to provide it through executive education. That's how this often works, rather than becoming a strategic supplier, which is more common in engineering relationships. In contrast, [our BSch] has a track record of building relationships based on trust with individuals.'*

Dean F contended that cross-selling works similarly in other schools, and depends on how the business and community engagement strategy is built (especially depending on if they have a dedicated team and how it is structured).

4.3.5. Comparison with the literature on UIC

Significant disparities emerge concerning project initiation when comparing the deans' viewpoints with existing UIC literature. Ankrah and AL-Tabbaa (2015), following Mitsuhashi's (2002) model, outline a highly structured process encompassing partnership identification, contact establishment with potential partners, formal assessment, and selection of partners. This process, though aligned with the approach prevalent in technical schools, does not mirror what the deans conveyed. What the deans typically described for BSchs was a generic interest in collaborating with industry in the forms described, with some structures and small departmental organisations created to make it possible,but certainly not such a staged process. Checks are carried out for larger collaboration forms, but in most cases, there is no limitation to the number of collaborating partners for most collaboration forms, so there is not a ‘selection’. This discrepancy suggests a dissimilarity between Ankrah and AL-Tabbaa’s (2015) UIC model, reflecting the practices at technical schools, and the more flexible, open-ended approach commonly taken by BSchs.

The results support Perkmann et al.’s (2013) focus on academics’ engagement with industry and suggest a growing trend toward individual initiative and the resulting tension between personal and institutional interests. These findings align with Skute et al.'s (2017) identification of distinct interacting layers in UIC, including the individual and institutional levels.

4.4. The collaboration process (RQ 1.d)

4.4.1. What factors affect the collaboration process?

The deans largely agreed that the complexity of the collaboration process depends on the collaboration form. Dean G mentioned that a guest speaker is relatively quick and easy to set up and that a company visit with students just requires a risk assessment. However, a bespoke apprenticeship contract can take much longer to establish given the need for legal arrangements and each party's requirements. The most complex procedures occur when checks are essential to consider whether potential partners share an institution's values, as mentioned by Dean G.

Dean B reported that, for them, the process is typically lengthy and intricate, largely due to heightened expectations from companies. Dean B also introduced an element that other deans corroborated: the different expectations about the pace of work. Businesses demand swifter results, especially in research, while BSchs tend to operate at a slower pace. This disparity is often inadequately managed by BSchs and universities. Another issue arises because collaborations display significant heterogeneity and are distributed widely throughout the organisation, which complicates the information. In Dean B's words, *'I have created a special role of Dean of External Relations. Part of the job is to manage the relationship with organisations and companies. But even answering a simple question like "What are the top 50 companies we have the strongest relationship with?"—it's not easy to answer. (…) each relationship might be with a different group. This way, for career services, you relate with some department; for executive education, you go with some other group in the company; for research, some other group.* Relationships sometimes involve the CEOs, the board of the company, and advisory boards, as well as engaging with technical people and learning and development departments for executive education. For both parties, collaborations are usually a relationship with multiple touchpoints, which is difficult to coordinate.

Dean D mentioned that projects sometimes go very quickly, particularly if senior leadership is involved, but others demand an extensive amount of effort due to the deficiency of relational skills among the involved individuals: *'There is a mismatch between academic skill sets and interests and what is required to make it happen because, basically, what is required to make it happen is a lot of relationship management, from my experience. And often it seems rather pointless from an academic perspective because you spend most of your time managing the relationship rather than actually getting the work done (…), and then it's almost like the work is a kind of an afterthought.*'

On the opposite side, Dean E explained they have tried to standardise the project approval process as much as they can. For KTPs, the approval process was reduced to a few simple rules. Likewise, for consulting, they have prepared a template so that any academic willing to launch a consulting firm can use it. Dean F stressed they value streamlined processes in collaboration. Though processes and policies are sometimes required to ensure consistency and structure in the relationship, they caution against excessive bureaucracy, underlining that *'There are some things that really do need that nature of being a bit more bureaucratic, but personally, I prefer to keep things simple. There is a way of structuring and doing things that gets people excited to work.'* The deans agreed that bureaucracy mostly belongs to academic matters such as programmes and promotions so, if their schools address industry-related matters, processes tend to be less complicated.

Dean C concurred that undertaking unofficial collaboration is straightforward. However, when it comes to financial matters, things can get complicated with issues surrounding intellectual property, copyright, and non-disclosure agreements: *'I've been in situations where the company is waiting to give us the money, but we've got arguments going on around intellectual property with someone we're not worried about, but some central department is treating it like a three-year research project that's going to start in nine months' time. (…) And I've also been in situations where I've delivered*

something and then we've sorted out the IP afterwards. However, the ability to respond to businesses in a commercial way is something that I don't think I often experience at a university.'

4.4.2. Recent changes and trends identified

All deans reported complexity has increased in recent times. Dean B identified the cause as the widening scope of collaboration, especially because there are new players in industry. They explained, *'let's say in finance, working with traditional banks is not enough. Now, you have to work with fintechs. You have to approach new sectors, as new kinds of companies emerge (...). Food, for example. You have new kinds of plant-based food companies that are appearing, so going to traditional food companies is not enough right now. You have to keep looking for how industries evolve, and then keep trying to work with the new sectors.'*

Dean F argued that the level of bureaucracy largely depends on the setting of the BSch and whether it operates autonomously or within a larger structure. Having more autonomy can be helpful for decision-making regarding collaboration initiatives. Most BSchs are free to manage their own affairs in this sense, but there has been a recent trend to centralise the management of partnerships at the university level. BSchs normally avoid being too bureaucratic, but there are exceptions. Some processes, such as GDPR and non-disclosure agreements, need to remain in place when dealing with companies. Furthermore, SMEs typically do not want to be involved in administration for certain projects such as KTPs, so the partner BSch tries to help them with the application, which can be time-consuming and bureaucratic.

4.4.3. Comparison among participating BSchs

The clustering differentiation between global and community-linked BSchs does not seem to have any impact regarding the features of the process of establishing and developing the relationship with industry.

4.4.4. Differences between BSchs and OSUSs according to the deans

The deans agreed that collaboration projects in technical schools frequently include funding and occasionally equipment sharing, so the complexity of establishing and developing relationships is much higher for technical schools than for BSchs. Dean A described the following scenario: *'You might get an opportunity in the EPSRC [Engineering and Physical Sciences Research Council], for example, where they fund doctoral training partnership, so you have to have industrial partners to get the funding. And I think in the technical schools, that is the starting point for many collaborations, and it's less so in social sciences and management.*' Dean G confirmed that this is why technical schools do more joint research, increasing complexity.

Dean B offered a differing argument, proposing that BSchs face a more complex situation because they are closer to business. In most schools, companies do not play a central role as they are just on the output side of the process. In a BSch, however, companies are much more integrated with the school, which makes the interaction more complex and sensitive.

Dean C flagged that sometimes universities tend to use the same bureaucratic process for different levels of complexity at different schools. They linked this discussion with the aforementioned issue of the different speeds between BSchs and companies. They explained, *'If I'm working with [a large company] and we're setting up a three-year engineering project with them within a major project, then the timescale can be quite slow. The issue is when I get a local company at the BSch that says, "Can you come in next*

week to spend two days with us and help us with this?", and we're applying the same process, I can't respond quickly enough.'

4.4.5. Differences with the literature on UIC

The closest point of comparison in the literature is Ankrah and AL-Tabbaa (2015). All the factors the deans identified (companies' heightened expectations, different pace of work, different points of contact, senior leadership involvement, deficiencies in relational skills) are also mentioned by Ankrah and AL-Tabbaa, which confirms that these factors have already been covered by the literature. Thus, no particular difference is noticed in this section between BSIC and UIC.

4.5. The influence of business ecosystems in BSIC (RQ 1.e)

The question this section addresses is to what extent a BSch's affiliation with a BES impacts its collaboration with industry. Some deans declared that their BSchs are embedded in a BES. However, it is unclear if they conceptualised 'BES' in the same way. Two global BSchs (B and D) mentioned belonging to a BES. Dean D said that '*based on our identity and history, we have always had a strong connection with [an important BES]. We have been training their people and studying their companies for over 50 years. Additionally, the emerging [an entrepreneurial pole] side, consisting of technology companies, is an area we have some connections with'.'*. Dean B mentioned that they interact with the local ecosystem for entrepreneurship and students' new venture creation while interacting with a much more global ecosystem for most IC forms: *'Let's say we have a centre on marketing. Then, we try to get the leading companies in marketing around the world, not necessarily locally. Our students, as far as entrepreneurship is concerned, do*

work with some of the local entrepreneurial ventures, but as a school, we try to go for the best companies globally.'

At the same time, two of the community-linked schools (BSchs E and F) declared themselves to be embedded in a BES, but they referred to the network of surrounding regional industries, not a widely recognised ecosystem. These two schools were originally created as part of an industry initiative. In the words of Dean E, *'We are embedded in this community in a true sense, and these people are represented on our advisory boards. We work with them on the programmes, which we discuss with them. (…) We are not in an ivory tower, sitting there doing intellectual stuff. We are trying to be as integrated as we can with the business community and with policymakers around the business community.'* Dean G acknowledged, though, that their surrounding industry could not be considered a formal BES. The interviewee thinks '*our goal is to serve the small business community in [the BSch's location] and offer beneficial resources for entrepreneurs in the global community.'*

With a few minor exceptions, the deans did not mention their membership to industry platforms or organisations typically present within BESs. While it is reasonable to assume that such memberships exist, the lack of spontaneous mentions raises doubts about a prominent role or the integration of BSchs within the formal or informal structures of the BESs they claim to be part of.

Regarding the comparison between BSchs that declared themselves as embedded into a BES (BSchs B, D, E, F) and those that did not, the table below shows the frequency in which each collaboration form is mentioned by deans of BSchs that declare themselves as affiliated to a BES and those that do not.

FORM OF COLLABORATION	Ecosystem	No ecosystem	Difference
Advisory boards	1	1	0
Apprenticeships	2	5	3
Consultancy	2	3	1
Custom Executive Education	5	7	2
Entrepreneurship support	6	4	2
Fund students' activities	2		2
Guest speakers	1	1	0
Help to Grow	2	2	0
Institutional fundraising	2	2	0
Knowledge Transfer Network (KTN)	2		2
Knowledge Transfer Partnership (KTP)	2	2	0
Mentors		2	2
Networking	2	2	0
Research	6	7	1
Scholarships	2	1	1
Student projects, placements and internships	4	4	0
Student recruitment	7	3	4
Use of business school facilities		2	2
Visits and field trips		1	1
	48	**49**	**23**

Table 15. Different collaboration forms with industry depending on whether the BSchs declared themselves as integrated into a BES or not. Source: the author

A first conclusion can be extracted: the discriminating effect of the classification is weaker than the clustering between global and community-linked BSchs (Table 10), with more collaboration forms matching the two columns and just 23 differences in total (the clusters had 45). The frequency heatmaps below (the more frequently mentioned, the darker the colour) also help to identify where the differences are.

BSchs in BES		Content of the main service						
		Counsel	Education	Facilities	Funding	Knowledge	Platform	Real-world experience
Party providing the main service		A	B	C	D	E	F	G
Industry contributes to business schools	1	1			2	6		
Industry contributes to students, business school promotes	2				4			1
Industry and students/graduates engage in a relationship, business school promotes	3							13
Business school provides services to industry	4	8	9				4	

BSchs not in BES		Content of the main service						
		Counsel	Education	Facilities	Funding	Knowledge	Platform	Real-world experience
Party providing the main service		A	B	C	D	E	F	G
Industry contributes to business schools	1	1			2	7		
Industry contributes to students, business school promotes	2	2			1			2
Industry and students/graduates engage in a relationship, business school promotes	3							9
Business school provides services to industry	4	7	14	2	1	1	2	

Figure 9. Frequency heatmaps showing the forms of IC for BSchs integrated into a BES and those that are not. Source: the author

As seen, the collaboration form that appears more frequently in ecosystem-based schools is student recruitment, followed by entrepreneurship support, which are some of the more 'individual' and less 'institutional' collaboration forms. For non-ecosystem schools, CPD seems stronger (combining apprenticeships and custom executive education), which seems counterintuitive as a stronger flow of interactions in this activity might be expected between BSchs and industry in a BES. The frequency heatmaps confirm these results.

In summary, BSchs that considered themselves embedded in a BES declared an additional motivation for contributing to their surrounding industry as they identified their ecosystem as a success factor facilitating their engagement with industry. Given the various collaboration forms, being part of a BES could enhance industry involvement in student-related activities, including funding, and offer increased opportunities for supporting

entrepreneurs. This confirms the importance of the literature approaching UIC from an ecosystem perspective (Skute et al., 2017) for BSchs as well. Nonetheless, the analysis suggests that BES might not necessarily promote CPD activities; in fact, it might have the opposite effect. This outcome appears counterintuitive and could open the way to further research. In particular, if the reason is that executive education works differently and seamlessly by integrating BSchs in educational institutions led by companies or the ecosystem, like 'corporate universities', defined as *'an educational entity that is a strategic tool designed to assist its parent organization in achieving its mission by conducting activities that cultivate individual and organizational learning, knowledge, and wisdom'* (Allen, 2002, p. 3). This would be consistent with the general theory of ecosystems, which expects some degree of vertical integration within them (Jacobides et al., 2018). The contribution would fill a gap, as scholarly research studying corporate universities is very limited: *'publications about Corporate Universities have focused predominantly on learning in organizations so far. How exactly organizational learning drives strategy remains largely unexplored or unclear. This seems to be a blind spot in the literature'* Rademakers (2014, p. 129),

Dean D highlighted their affiliation with a BES is a success factor contributing to their IC, which also aligned with the views of BSchs E and F. In addition, the deans frequently cited their membership in a BES as an additional motivation for industry engagement. However, no distinctions arose between BSchs in ecosystems and the rest concerning the initiation, complexity and risks of BSIC.

4.6. How does BSchs' relationship with industry compare with other university schools and faculties? (RQ 1.f)?

Apart from examining the core aspects of the broader BSIC framework (what, why, how), two overarching questions need to be addressed to compare UIC and BSIC: (1) is IC more intense for BSchs than for OSUSs? And (2) do they serve as the primary interface or gateway for businesses in their broader interactions with the university and other schools, as proposed by Pettigrew and Starkey (2016, p. 658)

4.6.1. Is collaboration between BSchs and industry more intense compared to OSUSs?

The deans were specifically asked whether collaboration between BSchs and industry is more intense (essentially, frequent and relevant for the school) compared to OSUSs, and their comments seem surprisingly divergent. Two deans in global BSchs enthusiastically agreed (Dean A: '*Yes, it is much stronger. Definitely more engaged';* Dean B: *'Yes, no doubt about it.*'). Dean D placed BSchs in an intermediate position regarding IC: weaker than medical and health care schools and engineering schools but stronger than social science, humanities, and art schools (*'I think BSchs are probably a bit in the middle, and that's ironic because you would expect that they should have very strong business relationships.').* Finally, Dean H declared that their level of intensity is consistent with OSUSs. Although there may be slight differences in how they execute collaboration, the faculties at BSch D are closely aligned, resulting in a similar level of intensity.

For community-linked schools, the opinions were similar. Two Deans (E and F) declared that they had the strongest relationship with industry at their university. Dean E even mentioned, '*We have the other schools trying to copy some of the things that we have done there*.' Dean G felt that this

depends on the collaboration forms. BSchs are stronger in enterprise and employability, while the engineering faculty is much stronger in joint research. Finally, Dean C reported the opposite: '*We are probably less engaged, and it's quite shocking to people when they come into a BSch and find how limited the connection is.*'

This divergent viewpoint seems to depend on the distinct strategies of each school and university and their respective emphases on industry engagement. Classification as 'global' or 'community-linked' does not explain the results. Similarly, factors like geographical location, size relative to the central university, and historical origins do not provide a meaningful basis for classification. Therefore, it cannot be concluded from this study that BSchs have more intense collaborations with industry than other non-BSchs.

4.6.2. Do BSchs often act as the entry door or main interface between universities and industry?

The deans were also asked whether BSchs are typically the primary link for companies to engage with universities and therefore with other schools, as suggested by Pettigrew and Starkey (2016, p. 658). They unanimously agreed that BSchs do not maintain a privileged role as the primary gateway or central connection between companies and the broader university.

However, there are contrasting viewpoints regarding the presence of collaborative exchanges between schools. Some deans believe such cross-flow exists, but BSchs are not the primary entry point. Dean A said, *'Sometimes those relationships are driven from the technical schools, and then we will pick up a relationship. Sometimes it's the other way and a relationship and a partnership develops in the School of Management and then they have a company that can utilise technical expertise.*' However, for Dean A, while it cannot be stated that BSchs are the primary entry point, a

significant portion of their university's relationships are facilitated by their alumni, especially MBA graduates. Dean A continued, *'The number of people that we get doing business with the engineering school because they had an MBA from us, it's really quite phenomenal. And so that notion of the relationship actually started when they were students as well*.' Often the points of contact are different, so it is the same company but different departments for very diverse needs. Dean A continued: *'There are parts of [company X] that need engineering expertise, and those people who will seek that out may well be different people from the ones who were seeking out leadership and management expertise. So, whilst we might be in engineering and management both dealing with the same company, engineering might be dealing with the head engineer and we might be dealing with the learning and organisational development or HR director.'*

Dean C noted, *'Other schools often engage first, and BSchs might get involved at some point. Companies that come directly to us tend to stay with us, and we don't talk very well to other schools',* while Dean F declared, *'I would like to think we are [the entry point], but I know it's not the case.'* Dean F believed that universities are making progress towards interdisciplinary collaborations, but there is still a long way ahead. *'Let's say they start a project in science or engineering, and they come to us and say, "Actually, can we get some business modelling done?" So we are seeing a bit more two-way engagement purely because in the current funding landscapes in research everything pushes for interdisciplinarity and the benefits of it. I think we could probably do a lot more as BSchs towards the work of an interdisciplinary nature with other subject areas.*' Dean H maintained that every faculty function is a gateway for engagement. In this view, companies already engaged with a specific faculty, including the BSch, can extend their collaboration to other faculties as well.

Among the deans who believed there are opportunities for expanding IC across schools, two emphasised the growing importance of central units established by universities to facilitate this flow. Dean G explained they

established a Partnership Hub designed to serve as a central point for partners to engage with them. Given the complex organisation of universities, partners might find it challenging to navigate various departments on their own. The purpose of the Partnership Hub is to streamline the partnering process, ensuring easy accessibility and simplifying engagement. Moreover, it provides the opportunity to explore additional potential collaborations across schools. Similarly, Dean B described schools such as engineering and medicine schools as equally good entry points, or even better because they are the main schools operating in those central units: *'Most universities have a tech transfer group, and tech transfer takes the technology from multiple departments: from engineering, from medical sciences, from physics, from chemistry... Therefore, that tech transfer group actually touches many units. In a BSch, we don't touch many units, so when companies work with the BSch, they only touch the BSch. When they work with the tech transfer group, they actually work with multiple units naturally. A similar case is innovation. When companies work with the innovation units of the university, they are working in multiple units. So I will say a BSch is not a natural entry point for the whole university.'*

Conversely, a minority of the deans (2 out of 8) declared that BSchs are not an entry gate simply because there is no significant flow of companies among schools. Dean D asserted that there is no connection: *'I have definitely used that language before of the BSchs like the front door, but most of the time, it's very difficult to scale relationships from one school to another. I think that's the reality, so it's hard to move from one individual to another and probably almost impossible to move from one school to another.'* Dean F agreed that in their case, this is an issue with the university as it still does not have a unified front door or entry point for industry members to collaborate with other schools. There are three big colleges, and each has its own door. Dean F argued that it would be very useful to have one access point for the university as a whole, but at the moment that is not the case, so the schools are not connected: *'For example, the Life and Health Sciences School obviously does a lot of work with the NHS, and the BSch is also doing a lot of*

work with the NHS, not on medicine, obviously, but on management. But we don't even always know what the other one is doing.'

This research suggests, however, that BSchs do not usually act as the entry door or main interface between universities and industry. Discrepancies exist regarding the reason for this. Most Deans felt that other schools were equally good entry points. Two out of the eight deans believed that cross-school flow does not exist as schools tend to work in silos. The trend of centralising contacts and IC projects within university-dedicated units was widely mentioned; while this approach has been deemed effective for fostering cross-school projects, it also carries the risk of introducing excessive bureaucracy.

This section also prompts reflection on whether centralisation might promote cross-school engagement with industry. Most of the deans supported the view that there is a flow of companies collaborating among schools when they have a central unit at the university level to unify contacts with companies. Dean B called this their Technology Transfer Department, while Dean G referred to their Partnerships Hub. Dean A also mentioned the existence of a central CRM. Even in the case of the deans who declared that the flow of cross-school ICs is not significant in their university, Dean F blamed the lack of a centralised department to manage partnerships in their university. Therefore, although the deans pointed out that centralised units increase bureaucracy and raised doubts regarding their effectiveness, it seems clear that they were nonetheless positively valued by the deans who have them and missed by the ones who do not.

CHAPTER 5: SUCCESS FACTORS OF BSCI (RQ 2)

This chapter addresses RQ 2 by exploring the factors contributing to successful outcomes in BSIC. The literature uses diverse ways to define these factors. On the one hand, Ankrah and AL-Tabbaa (2015) discuss 'factors that facilitate or impede UICs', considering facilitation or impediment to project outcomes and success. On the other hand, Rybnicek and Königsgruber's (2018) analysis on 'What Makes Industry-University Collaboration Succeed?' focuses solely on success factors. Interviewees struggled to distinguish between the two perspectives, often viewing them as closely linked dimensions of the same factor. As a result, the term 'success factors' is used in this study to better align with the interviewees' language and the most frequent literature terminology. Success refers here to achieving positive outcomes in collaboration projects.

5.1. Success factors identified

The deans were prolific in mentioning success factors, which can be divided into five groups. Table 16 summarises the factors identified, descriptively labelling the groups.

SUCCESS FACTORS IN BSIC		
Group	**Factor**	**Aspects**
Relational academics	Recruitment	Multi-focus ('triathlete')
	Training	Relational skills
	Motivation	Rewards and progression
	Retention	Satisfaction and alignment
Institutional position	Culture	Outward-focused
	Leadership	Supportive and nurturing
	Willingness to collaborate	Consistent in time
Operations and implementation	Resources	Sufficient and high-quality
	Priority	Not secondary
	Project management and timescales	Effective
	Timescales	Realistic
Agreement and connection	Expectations and aims	Clear and aligned
	Communication	Effective
	Relationship	Smooth
Contextual	Reputation and micro-reputation	Recognised
	Business Ecosystem	Active member

Table 16. Success factors identified by the deans. Source: the author

The first group is related to **people**, particularly what deans called **relational academics**. With this expression, deans meant academics with the training, skills and desire to establish working relationships with businesses. From the meeting with the deans, it transpired that these were skills that could be developed by individuals through training and motivation. Because these profiles are scarce and, at the same time critical, this was the first and most frequently mentioned success factor mentioned, evidencing its importance, which is also a main original contribution of this research. Dean A explicitly mentioned that the most important factor is having the right individuals. Given their school's close involvement with custom executive education, they prioritise a team capable of engaging with business executives, conducting meaningful conversations with board members or CEOs of companies, and identifying organisational challenges. Dean D proposed a key self-evaluation question: *'Do you actually have mechanisms in place and people in place are actually able to support these relationships?'* Dean F also noted that the success of highly effective and productive relationships with industry usually

depends on the interpersonal dynamics between individuals from both organisations.

The deans agreed on the importance of recruiting academics willing to make IC an important part of their roles. For Dean A, such academics are difficult to find; they describe them as '*the triathlete. You need someone who can do research, teach their subject to full-time students, and also stand in front of a board of directors and lead some executive education. And that's quite a rare breed*.' Dean F expressed a similar point, stating, *'We have it as part of our job descriptions. The three dimensions that we are measured for performance are research and innovation, learning and teaching, and we have something called business and community, (…). So that is what a [BSch F] academic is.'* Dean D described a similar approach: *'Academics should do four things. One of them is to do their research. The second thing is to do good teaching. The third thing is impacting corporate engagement. The fourth is to be a good citizen of your institution. And, ideally, those things all feed and support each other.'*

Dean F considered academics' training, commenting, '*We always throw people out there in the deep end, but I think there's a need to train people on how you work better with businesses. For some, it comes naturally, but specifically for early career researchers, I think there's a need for training for business and community.'* For Dean E, a central factor is academics' self-confidence when engaging with businesses*: 'Academics love to go to academic conferences and argue about academic papers and tell you that your statistics are no good. But put them in front of someone in business and they get very nervous because this somehow seems alien.'* For Dean D, people should be trained in the KAM skillset.

Given the scarcity of academics with these profiles, BSchs prioritise staff retention and job satisfaction. Dean F posited that this has frequently led to experienced, long-serving faculties, and Dean C highlighted the importance of rewards: *'That's usually recognised through workload, financial*

inducements, recognition and promotion.' Dean D stated that collaboration needs to align with an academic's research agenda.

The second group of factors is connected to the institutional **culture, leadership, and willingness to collaborate**. For Dean B, BSchs should be more outwardly focused, although this depends on the school's culture and therefore is difficult to change. They use an example to illustrate: *'If you want to help with the executive development of leaders, you actually have to go and work with companies, understand their needs. That means you have to spend time with companies (…). For me, the biggest issue is the cultural mindset inside the school. The university does not have a natural mindset to look outside. (…) But for a BSch, you don't have a choice, you have to do it.'* For this dean, the development of an outward-looking culture depends mainly on the school's leadership and independence. As examples of other BSchs that have achieved this culture, they mention *'in Spain, you have IESE or IE. They are much more commercially savvy. INSEAD is also independent, and for them, the survival instinct is much harder, so they have to be outward-focused. In a university setting (...), survival is not a problem. They will not go bankrupt. So there's a much more inward-looking environment.'* Dean F agreed that leadership is crucial for establishing a culture promoting industry engagement. Similarly, Dean D highlighted the necessity of leadership support and a stable interest from both collaborators*: 'There has to be support at a relatively high level and interest from the corporate partner side. (…) but I have also had senior sponsorship, and then the organisation lost interest, and things fell apart because of it. And agendas move on.'* Deans D and E further stressed willingness as a crucial factor.

A third group of success factors is linked to operational and implementation aspects and **resources** (teams, processes, systems, and facilities). Dean G suggested that some BSchs might view industry projects as secondary to their mainstream programmes in terms of resource allocation. Moreover, university systems and processes are rigid and inflexible, making it challenging to cope with non-standard requests. For Dean D, *'So often, BSchs*

are part of larger universities, which have all sorts of formal processes and hurdles to jump through, and it just becomes really difficult to do that. And, you know, the individual academic or the corporate department just loses interest.' Dean G added another perspective, claiming that while BSchs should aim to deliver top-notch service to business partners, universities typically operate on the margins, making it tough. The deans also emphasised **effective project management and timescales**. Dean C stressed the importance of well-defined projects with aligned expectations and outcomes. Dean G highlighted the potential misalignment due to universities' slower processes conflicting with businesses' need for rapid action.

Another factor, mentioned under a variety of names, is the **clarity and alignment of expectations**; this involves setting clear principles and aims that are shared and agreed upon by all parties. Deans used terms like shared goals, cohesion, understanding perspectives, respecting points of view, trust, sharing values, and speaking their language. Dean C clarified that, for example, *'There can be misalignment if we're seeing it as a piece of research, and they're seeing it as a piece of consultancy, and motivations are very different between the two.'* For Dean G, if there is a genuine sense of cohesion between the BSch and the corporate organisation as well as a shared sense of purpose, then a multi-faceted relationship can develop. It is also crucial that both parties feel that they are receiving significant benefits from the partnership. **Effective communication** is critical for this purpose, establishing a seamless relationship and ensuring alignment and success. Dean H emphasised the importance of grasping partners' perspectives to engage them effectively. Many universities mistakenly assume that academic knowledge alone suffices to attract companies. However, what truly entices companies to engage is the perception that the university can economically bring them tangible value. Establishing reputable expertise is important, but the key to successful collaborations hinges on speaking the clients' language. By communicating effectively on partners' terms, strong and meaningful relationships can flourish. In this regard, Dean B highlighted the need to establish frequent communication channels: '*You have to respect each other's*

points of view. You have to have more multiple interactions, and the more you spend time together, the more you respect the point of view.'

Finally, from a contextual perspective, given the surrounding environment and the market, **integration into a BES** represents another influential factor, as highlighted by Dean D, whose school is located within a BES and proactively tries to engage with industry to provide their services. Moreover, favourable positioning within the profession can confer advantages, especially if strong relationships with professional bodies are established. Dean D also pondered the importance of having a strong **reputation**, noting that many companies approach certain schools to be associated with them, creating a positive halo effect. BSchs can even foster micro-reputations within specific areas. If they possess genuine expertise and a sustained track record in certain industries, their reputation can yield premium value.

In summary, most factors are relational, which is consistent with the message repeatedly received from deans regarding the relevance of this relational dimension in BSIC.

5.2. Trends identified and recent developments

In terms of new trends, the deans did not note any beyond the growing significance of IC for BSchs due to the necessity of generating impact and diversifying income sources following reduced traditional research funding. It appears that the success and facilitating factors have remained consistent over time.

5.3. Comparison among participating schools

No particular correlation was found between the success factors and the types or features of BSchs, except for the factors linked to the 'resources'

group. Only community-linked BSchs classified mentioned this factor, while global BSchs do not seem to face difficulties in this respect. The most likely reason for this is that top BSchs do not find the limitations in resources that others may have to deal with. Regarding the other factors, they do not seem to differ for global and community-linked BSchs.

5.4. Comparison with OSUSs

Most deans identified differences between BSchs and OSUSs. Dean A emphasised the importance of people in collaboration and the need for schools to define their mission clearly. Schools focused on research-driven evaluations like REF require a different approach to recruitment than those emphasising practical, industry-relevant research. They need different people. This contrast is even more accentuated in technical schools, where collaborative research income is essential for survival. Dean A described the difference this way: *'I think we develop different types of partnerships for income, mostly around learning. They develop partnerships for research.*'

Dean B elaborated on the cultural aspect. For their BSch, there is no choice but to change the culture to an outward-looking approach one way or another. However, their university is very successful, classical, academic, and inward-looking; this underlines that creating an outward-looking corporate focus in other schools is even more difficult than in BSchs.

For Dean D, IC in engineering and biomedical sciences (and the STEM subjects in general) is more contractual and formal, while in social sciences it is more relational and informal, which affects the mix of success factors: '*Basically, they sign a contract to deliver something. There is probably relationship management, but it's a bit less relational and a bit more contractual. If they go to the other end of the spectrum, arts and humanities, those are really relational, and that's a far more nuanced relationship.'*

In contrast, Dean H disagreed and maintained that in their university, the success factors are roughly the same across schools as they align with the overall strategy.

5.5. Comparison with the UIC literature

Two systematic analyses examine UIC success and facilitating factors: Ankrah and AL-Tabbaa (2015) and Rybnicek and Königsgruber (2018). All the factors extracted from the interviews in this research are mentioned in Ankrah and AL-Tabbaa (2015). However, they include factors that the deans omitted. The table in Appendix 7 reveals that factors related to capacity and resources, managerial and organisational issues, and social issues are present in both studies. However, the deans did not mention contractual, technological, and political factors. Interestingly, none of the factors grouped under ‘others’ were mentioned by the deans (low level of awareness of university research capabilities, the use of intermediary third parties, research risks, cross-sector differences/similarities, and geographic proximity). Conversely, while Ankrah and AL-Tabbaa (2015) touch on human and relational aspects, they give these factors less attention compared to the deans, who elaborate deeper on factors such as recruitment, skills, motivation, training, and staff retention. The deans also emphasised aspects such as clear goals and expectations, which Ankrah and AL-Tabbaa (2015) address only briefly. This disparity might stem from the fact that achieving goal clarity is simpler when dealing with technical specifications compared to the complexities of human and organisational relationships. Again, Ankrah and AL-Tabbaa's (2015) review primarily focuses on collaborations between technical schools and industry. However, relational aspects crucial to other schools, including BSchs, receive comparatively less attention.

Rybnicek and Königsgruber’s (2018) systematic literature analysis grouped the factors into four categories. As per the table below, the factors for BSchs can be accommodated by their four categories.

BUSINESS SCHOOLS	UNIVERSITY-INDUSTRY COLLABORATION, Rybnicek and Königsgruber (2018)	
BSIC Factor	**UIC Factor**	**Explanation**
Relational academics	Relationship factors	Impact of communication, commitment, trust, and culture. The authors advise focusing on *honesty* in the relationship between the partners
Institutional position	Institutional factors	Impact of resources, structure and the participant's willingness to change. The recommendation here is to pay attention to *flexibility* in the sense of being open-minded (Barnes et al. 2002; Ryan 2007) and acknowledge that the partners may have other priorities different to the school's (Poston and Richardson 2011)
Agreement and connection	Output factors	Objectives, and aspects of knowledge and technology transfer. The recommendation here is for *clarity*, particularly of aims and expectations
Operations and implementation	Framework factors	Impact of the environment, the contract and intellectual property rights, and geographical distance. The authors recommend that partners *raise awareness of current economic, legal, political or social developments* (Rybnicek and Königsgruber, 2018, p. 235)
Contextual		

Table 17. Success factors in UIC and comparison with this research. Source: Rybnicek and Königsgruber (2018) and the author

Even when differences can be identified, particularly regarding the 'relational academics', Rybnicek and Königsgruber's model provides a better match with this thesis's results regarding BSIC success factors than Ankrah and AL-Tabbaa (2015), although it is also true that Rybnicek and Königsgruber (2018) are much more generic and high level, so the likelihood of a match is also higher.

As explained in the literature review chapter, apart from the success factors, Rybnicek and Königsgruber also identified what they called *moderators* that influence and modulate the success factors mentioned above (Rybnicek & Königsgruber, 2018, pp. 236-239). They include as moderators (1) the phase of the collaboration and (2) the scale and size of the partners, for which no evidence was found in this research. Signs have been found, though, regarding the effect of (3) the organisational level, when the deans explained that individuals can be motivated by projects that align with a given research agenda (Dean D). Interestingly, significant differences were identified between BSchs and OSUSs, supporting that the school's (4)

academic and scientific discipline can be a significant moderator (Rybnicek & Königsgruber, 2018) and reinforcing the hypothesis that there are distinct differences between UIC and BSIC.

CHAPTER 6: RISKS, CHALLENGES, AND ETHICAL ISSUES ASSOCIATED TO BSCI (RQ 3)

This chapter answers RQ 3 by identifying and analysing the risks and ethical issues associated with BSIC and determining if any collaboration form is substantially riskier than others. Special attention will be given to the risk of BSchs losing autonomy and even compromising their academic identity due to the influence of businesses (see also Khurana, 2007).

6.1. Risks, challenges, and ethical issues identified in the interviews

The deans generally agreed that the risks involved in the collaboration between BSchs and industry are **small**. According to Dean B, *'I think there's no risk per se. In general, the more we work with industry, the better it is for us. I think the benefits far outweigh the risks.'* Dean H echoed this view, asserting that their school's ICs carry no risks as partnerships align with their identity and purpose, drawing companies with shared values and goals.

For those deans who did acknowledge a risk, **reputational risk** was the main concern. This risk is not tied to a specific collaboration format but rather to partners. Dean A believed their approach and the extent of their collaboration lessen their risk exposure, but they emphasised the importance of due diligence and ensuring alignment with their values and aspirations: *'I have recent experience of losing control in a project and losing autonomy and respect. (…) I think you have got to be very careful about global partnerships*

in regions you do not know enough about, and due diligence is really important there. I think the risks are around who you are collaborating with, not necessarily how.' Dean D seconded this opinion, warning that '*If you collaborate with the wrong people at the wrong time or in the wrong project, that could blow up in time*.' Dean G warned that collaborating with companies in certain sensitive industries can pose reputational risks to BSchs.

The deans also mentioned practical risks. Dean C highlighted the possibility of **investing considerable time** without achieving desired outcomes. Academics highly value their time, using it to reach crucial objectives like publications. However, corporate relationships can be uncertain, demanding substantial attention and time even as failures are possible. Despite months of investment, desired outcomes may not materialise, presenting a significant risk.

Two deans identified **differing timelines** as a risk that may lead to project failure and resource loss. Dean B highlighted that the industry's rapid pace of change demands swift responses, contrasting with the slower nature of academic design. Therefore, the timeframes differ significantly. Dean C confirmed this view, highlighting the challenge of aligning with commercial timescales that often require rapid results, which can be a significant obstacle and instigate additional risks of mistakes or failure.

Dean G mentioned the **commercial risks** of non-payment, and the negative impact of needing to terminate a relationship. Dean G also mentioned risks related to **students**, especially when BSchs send them to work at organisations. There is still a duty of care while they are away, and there is the potential for students to behave inappropriately or unreliably, potentially damaging the partner relationship. Dean F mentioned the challenge of selecting suitable students for specific projects without overburdening them.

According to Dean G, **confidentiality** poses another risk. The interviewee referred to an example of how, in a previous institution, there was discomfort around how much information was shared with the advisory board.

Most of the deans agreed that ethical issues may exist but are uncommon and can be resolved with due diligence. Dean D felt that ethical issues are not inherent to IC, commenting, '*Yes, there are dangers, but that depends on what we do and what we study*.' Dean F used caution with the businesses their school collaborates with. Even when there are no conflicts of interest, they always ask themselves, '*Are these entities we want to work with?*' Similarly, Dean H notes that ethical concerns are minimal in their engagements. Guided by a clear purpose, mission, and vision, they selectively collaborate with organisations aligned with their values and objectives, avoiding partnerships that challenge their ethical standards.

Dean C slightly differed from the rest and felt that ethics was a valid concern: '*As soon as you align (...), whether it can be for teaching a programme, working with them, and maybe receiving gifts, there is a risk that the organisation can follow unethical practices, and that can have a huge reputational impact on the BSch.*' It is thus important to set limits for partners and establish clear ethical procedures to mitigate such risks.

6.2. Loss of autonomy and academic identity

As explained in the literature review, some authors have suggested that BSchs are at risk of losing their academic identity as a result of the multiple external influences of politics, the corporate world, rankings, or the continuous pressure from students and employers. Among them are Wilson and Howard (2012); Thomas and Cornuel (2012); Currie et al. (2010), Thomas and Wilson (2009); Starley and Tempest (2008); and Khurana (2007). This risk has not been described for BSchs alone; in the wider context of UIC, Ankrah and AL-Tabbaa (2015) specify the risk of *'deviation from mission or objective'* because

of *'threats to research autonomy or integrity for commercial advantage that may have a negative impact on the culture of open science and affect the university mission'*.

When asked about this risk, most Deans denied it exists. Dean E remarked, *'No, certainly that is not an issue that has ever concerned us. Literally never. As I say, this is a research-intensive place. It brings in lots of research funding. (…) It is what we choose as the topics. (…) we are not in that sense doing things at the behest of companies in that traditional sense. (…) I mean, do we lose our identity? Just the opposite, we gained our identity from doing stuff like that. That's what we're known for.'* In a similar sense, Dean G mentioned that they have never had that issue in their BSch because that would require them to be in a strong relationship with one particular partner.

However, although many Deans deny the risk of losing autonomy, they often mention risks that are indirectly connected to this notion. For example, Dean C highlighted the importance of avoiding academics becoming solely consultants. BSchs' unique identity lies in being research-driven institutions, which is evident in their teaching programmes and contributions to organisations. This identity safeguards School C against the potential risk of diverting from their core research-oriented focus*: 'The danger would come if our business model became one of what we do is we work for industry to try and help them solve their problems, and that [were] how we made our money'.* In the interviewee's opinion, BSchs must ensure that they do not detract from their core research but preserve it: *'It's about finding the resource that can deliver into organisations, while leaving the core research untouched, effectively allowing that to continue as it always has.'* The goal should be to find a way to deliver value to organisations while maintaining the BSch's research focus. Dean D confirmed this opinion. The risk can appear when institutes, research groups, or departments base their entire identity around corporate collaborations and impact work, potentially becoming 'cheap consultants'. Dean D noted that corporate influences can impact projects to

some extent, yet companies collaborate with universities precisely because they view them as impartial entities and are thus willing to grant them a level of autonomy. Hence, while a slight autonomy risk may exist, they view other risks tied to corporate collaborations as more significant.

Dean F contemplated BSch's broader loss of autonomy and identity as something that is not solely linked to IC. BSchs face numerous competing demands: managing student experiences, research, and impact amid institutional pressures. Amidst these pressures, risks may emerge such as losing their traditional academic identity and reputation for expertise. Concerns emerged for Dean F regarding *'how the funding landscape has changed for HEIs, (…) I think it doesn't help our academics to be focused (…) So that's the biggest struggle that we get, actually: your identity is going to help the school in some way, but the school is also going to help you build your own identity.'* This way, BSchs can harmonise the institution's and the academics' aims while preserving their scholarly identity amidst the market-driven sector model.

6.3. Trends and recent developments

The deans did not identify any particular trends. They said it had always been the same.

6.4. Comparison among participating schools

The different opinions the deans offered were not linked to any particular type of BSch.

6.5. Comparison with OSUSs

The prevailing consensus among the deans was that, overall, IC carries less risk in BSchs than in technical schools. Collaborations within the BSchs are, according to the interviews, comparatively simpler and less risky than those in technical schools, and this simplicity extends across other university schools as well. The length of collaborations also reflects a similar trend. Dean A explained: *'With us, we might have a collaboration that only lasts two or three years because of a particular programme that we run with them [the business partner], whereas in [a technical school] now you are looking at experimentation over 30 years that you need to maintain the partnership with, so I think the length of time and the complexity is greater in other schools.'* Dean C agreed, as risks happen '*probably less often in BSchs because we do less engagement-type activity*.' Dean D argued that ethical challenges are more manageable in BSchs due to a shared understanding with companies: '*People don't have this idea at the top of mind (...) that industry is, by its nature, unethical, or evil.'* Dean G reckoned that schools with bigger and more complex research, like technical schools, are more exposed to risks.

Dean B stated that the risk of losing autonomy is stronger for BSchs because most of their research insights come from interaction with business, so they are more fundamentally integrated into the research process. They explained, *'Let's say you do your research mainly from some [other countries'] companies. You might get one set of insights, which are biased by the geographical context, and that will not apply to other global companies as much. So I think there's a danger because your ideas for the research are coming from industry itself; they are not coming independently.*' However, Dean B also referred to cases of influences on research that have happened on medical research projects, noting that *'There are lots of cases of medical pharmaceutical companies influencing the reach of the medical study.'*

6.6. Comparison with the academic literature on UIC

As mentioned in the literature review, Ankrah and AL-Tabbaa (2015) offer a list of the 'drawbacks' of a collaboration, which essentially describe its risks and challenges. They identify four groups: deviation from mission or core objective, quality issues, conflicts, and risks. The risks tied to the loss of autonomy are included in this list, offering detailed insights into various potential effects and compromised identity aspects. Interestingly, the risk of becoming 'cheap consultants' is mentioned by Ankrah and AL-Tabbaa (2015) in a variety of ways, from the fact that collaborations '*could affect types of research questions addressed and reduce the quantity and quality of basic research'* to the *'concern that the result of collaboration could be short–term contracts in which industry would require "quick and dirty" solutions to problems, with university departments acting as extensions to the research activities of firms'* (Ankrah & AL-Tabbaa, 2015, pp. 398-399)

However, it is surprising that the main risks the deans identified, namely reputational risk, risks associated with students, operational risks associated with different timescales, or the risk of wasting academics' time, are not listed. Additionally, some risks in Ankrah and AL-Tabbaa (2015) do not appear to apply to BSchs ('*dilemma of either publishing results for short–term revenue and academic recognition or withholding until they are patented, with the risk of the technology becoming obsolete', [*Ankrah & AL-Tabbaa, 2015, pp. 398-399]).

Two conclusions can be drawn from these reflections. First, this is another confirmation that Ankrah and AL-Tabbaa's (2015) systematic literature review is mainly focused on technical schools, which may imply that universities focus more on these schools than others for IC. Second, autonomy and identity risks at the institutional and individual academic levels are stronger for technical schools, as the deans also suggested.

CHAPTER 7: CONCLUSIONS

7.1 Summary

This concluding chapter presents and discusses the answers to the RQs that emerged from the analysis in the previous three chapters. A high-level summary table is also presented at the end of this section. The second section elaborates on the main contributions of this thesis. In the final section, the limitations of this study are discussed and proposals for further research are suggested.

RQ 1. What are the perceptions of senior BSch leaders of their institutional collaboration with industry?

RQ 1.a) What are the collaboration forms?

This research identified a list of **22 collaboration forms** (Tables 8 and 9 (pages 86 and 89) with diverse importance and specific characteristics. Research, consultancy and support of entrepreneurship were three themes identified and focused on by the deans. Regarding research, the object of investigation is typically businesses and organisations, and the type of engagement is described as 'relational'. The research is normally knowledge-based and does not usually include external funding. Impact is crucial, meaning the effect on businesses and society, not just academic impact. All this has consequences regarding BSchs motivation for engaging with industry (as the source of knowledge and research subject), the complexity of the relationship (more relationally complex but less formally complex, so requiring different skills but less bureaucracy), and the risks associated (smaller,

unfunded, knowledge-oriented projects involve fewer risks). Collaborative research (conducted by teams of both organisations) is very unusual, which is consistent with the concerns raised by Kieser and Leiner (2009) regarding teams of BSch academics and practitioners working together while contradicting Hodgkinson and Rousseau (2009).

BSch stances differ about institutional consultancy and allowing or even facilitating their academics to engage privately instead. However, the deans did not consider these private projects a proper form of BSIC, contrary to Ankrah and AL-Tabbaa's (2015) claims. Practices were identified in some schools aimed at facilitating consulting at the institutional level (establishing external consulting services in parallel with the university) and the individual academic level (like offering templates that academics can use if they want to set up a consulting service).

The services BSchs provide to support entrepreneurship are mostly related to education, advice, and guidance. In very few cases, services include incubators or direct funding access; this collaboration form was frequently mentioned on websites but not by the deans in the interviews. The causes of this discrepancy are not completely clear, but it might suggest some weaknesses in the success of the initiatives intending to foster entrepreneurship.

The analysis of the interview data generated one of the main original contributions of this thesis: a **classification of the collaboration forms** based on two criteria: the party that provides the main service or activity and to what party, and the core content of that provision (Table 12, page 98). This matrix allows for an analysis of the ambits where collaboration is more intense and reveals what is core and secondary for BSIC. On that basis, Figure 8 (page 99) presents a heatmap that visually shows the frequency with which websites and deans mention different collaboration ambits within that matrix. The six most frequently cited are, in this order: BSchs provide education services to industry, students engage in an external relationship facilitated by

BSchs, BSchs provide advisory or counselling services to industry, knowledge-based contributions (research), BSch organises and promotes platforms for networking collaboration forms, and industry provides funding to student activities and initiatives, which BSch promotes. The analysis of the heatmap by columns shows that significant mutual contributions between BSchs and industry only occur in knowledge-based collaborations, particularly in research (as mentioned earlier, businesses allow BSchs access to the information they need, and in turn, BSchs generate knowledge that can be of practical interest to companies). The heatmap analysis by row reveals that BSchs offers a diverse range of services to industry across all categories except one. In contrast, industry's contribution to BSchs and students is limited to three types out of seven (real-world experience, counsel and funding).

Two clusters of BSchs emerged from the data: global and community-linked BSchs. Members of both groups show differences that are more significant for certain collaboration forms (Table 13, on page 109), including executive education (more frequently mentioned by global BSch deans) and custom apprenticeships (by community-linked), institutional endowment (just seen in global BSchs), supporting entrepreneurship, KTPs (all of which were just mentioned by community-linked BSch deans) employment, internships or projects (offered by all BSchs, but mentioned more frequently by community-linked deans, suggesting that the put more effort) and consultancy (just offered by global BSchs). Community-linked schools can show characteristics of global schools for certain fields of specialism where they are globally recognised.

Regarding **trends and innovations**, the level 7 apprenticeship scheme is the only new collaboration form that has recently appeared. The evolution in executive education formats, the increasing relevance of research impact, and a growing interest in sustainability were also mentioned. There was no agreement among deans if BSIC overall is increasing in recent times, which suggests that BSchs seem to have a different degree of success and therefore IC is growing for some of them and not for others.

Deans perceive significant **differences between BSchs and OSUSs**, mainly in terms of the scale and qualities of collaborations. Apart from KTP and employability and careers, research was frequently mentioned as the main difference. The analysis also reveals noticeable differences with the collaboration forms identified by Ankrah and AL-Tabbaa (2015), who focused on collaboration forms that are more typical of what the deans referred to as 'technical schools' (predominantly engineering, biomedical sciences and STEM-based). As these authors conducted a comprehensive analysis of the existing literature on what universities are doing in reality, their focus suggests that universities may favour a vision of industry collaboration that prioritises the technical schools model over the more relational model of BSch collaborations.

RQ 1.b) Motivations to collaborate

BSch motivations to engage with industry can be grouped into three categories, in order of importance: the BSchs' mission to contribute to the economy and societal development (which is consistent with the triple helix model and the HEI's third mission), student-related reasons (meeting students' expectations, enhancing students' experiences, ensuring career progress, and promoting widening participation), and financial reasons.

Regarding the academic literature on UIC, differences are found as Ankrah and AL-Tabbaa (2015) tend to focus on motivations that are typically stronger for technical schools, which suggests that universities may have been prioritising technical-school perspectives on UIC.

This thesis also confirms the relevance of individual academics' motivation (Perkmann et al., 2013) and its coexistence with other organisational and institutional motivations (Skute et al., 2017).

RQ 1.c) Who initiates the collaborations

Six possible origins of BSIC initiatives were identified: institutional initiative (often through centralised units), individual relationships with academics, a mixed approach involving some degree of institutional encouragement and the generation of a culture that fosters individual academic initiative, alumni connections, industry taking the initiative thanks to a BSch's reputation, and cross-selling by expanding the array of collaborations with a business from a first engagement (in particular, customised education, executive or apprenticeships, implied potential for expanding to other collaboration forms through cross-selling).

Global BSchs underlined their reputation as a source of projects, while community-linked schools highlight the value of their closeness with local businesses.

The increasing individual initiative of academics (consistent with the findings of Perkmann et al., 2013, and Skute et al., 2017) can lead to tensions with the central units launched by some universities aiming to centralise the relationship with partners (consistent with Broström et al., 2019). This tension seems stronger in BSchs than in technical schools, as these units can often be skewed towards the collaboration model of engineering, biomedical and other technical schools.

RQ 1.d) What factors affect the collaboration process

The complexity of BSIC's launch and development processes depends on the collaboration form (particularly tailored programmes require more effort) and the business partner (if due diligence is required).

The deans' perceptions were polarised regarding the overall complexity of collaborations. Some BSchs have standardised their BSIC processes, yet concerns include the different pace of work, dispersion and rotation of contacts, lack of relational skills, increasing demands from companies, and financial and legal issues. Ankrah and AL-Tabbaa (2015) describe most of these for UIC as well. As technical schools require larger projects involving financial aspects and equipment, the collaborations can become more complicated.

The increasing trend of universities centralising partnership services can lead to heightened bureaucracy that does not match the needs of BSchs, which is consistent with the findings of Broström et al. (2019), particularly when the same uniform procedural approach is implemented for all schools.

RQ 1.e) How does the BSchs' membership in a BES affect their relationship with industry?

BSchs integrated within BESs find additional motivation to engage with businesses. They view their ecosystem as a catalyst for success, facilitating industry engagement. In terms of collaboration, BES affiliation could augment industry participation in student-oriented and entrepreneurial-support initiatives; this underscores the significance of an ecosystem perspective in understanding BSIC, as Skute et al. (2017) highlight for UIC. However, the results also indicate that BESs might not necessarily encourage CPD activities, which is an unexpected outcome requiring further exploration.

RQ 1.f) How does BSchs' industry collaboration compare with other university schools and faculties?

The analysis does not support the idea that BSchs have inherently more intense collaborations with industry than non-BSchs (in terms of frequency and relevance for the school). In contrast, it suggests that research collaboration may be more robust in technical schools, consistent with Perkmann et al.'s (2013) findings. This happens because technical projects tend to be of a larger scale, require more resources and often direct collaboration between the academic and industrial teams, so they need each other's involvement.

The analysis supports that BSchs typically do not serve as the primary entry point or interface connecting universities and industry. Most deans believed that other schools are equally good entry points. Two felt that a cross-school flow does not really exist as schools tend to work in silos. The trend of centralising contacts and IC projects within university-dedicated units has been deemed effective for fostering cross-school projects (Broström et al., 2019), even with the risks mentioned above.

RQ 2. What do the deans identify as the factors contributing to successful collaboration between BSchs and industry? Why?

The success factors identified by the deans can be classified into five groups, as described in Table 16, page 154: relying on relational academics, institutional position towards collaboration (an outward-focused culture, leadership support, and stable willingness to collaborate), operations and implementation (effective project management, agreed timescales, and resources), agreement and connection (alignment of expectations, trust, relationships, and communication, consistent with Darabi and Clark, 2012), and contextual factors (including reputation and affiliation with a BES). The group labelled 'relational academics' received most of the attention,

highlighting its importance as a success factor, which is one of the main original contributions of this research. The deans detailed their practices for recruitment, motivation, and retention, suggesting that they paid close attention in deciding these aspects so that they could count on these 'relational academics', which underlines their importance. Concern was expressed that BSchs might often prioritise their regular academic programmes over IC projects when allocating resources.

Differences were found with OSUSs, particularly regarding the kind of academics required for research-intensive technical institutions and their difficulty in creating an outward-looking culture.

Differences were also noticeable (Appendix 7) between the success factors identified in this research and those that Ankrah and AL-Tabbaa (2015) list for UIC. Deans did not mention any of them in aspects like Legal issues and Contractual Mechanisms, Issues Relating to the Technology and Political Issues, which are more common in the type of complex collaboration projects undertaken by technical schools, as deans described them. This confirms the impression that the literature may be strongly influenced by technical schools. However, the results from this research and the systematic analysis conducted by Rybnicek and Königsgruber (2018) match more closely in all sections (Table 17 on page 161).

RQ 3. What challenges and risks do BSchs encounter when collaborating with industry? Is there any collaboration form that is particularly complex in this sense? Why?

The perceived risks of the collaboration between BSchs and industry are small and not linked to any riskier collaboration form. Reputational risk was the most commonly mentioned. Ethical issues were seen as uncommon. The risk of losing autonomy or compromising academic identity because of the influence of businesses, raised by Khurana (2007) and Ankrah and AL-

Tabbaa (2015) was not perceived as serious by participants compared to the benefits of BSIC. IC is perceived as less risky in BSchs than in technical schools due to the nature of the projects. There is a risk that this identity loss happens at the individual level, with academics becoming ‘cheap consultants’, confirming the findings of Butler et al. (2015). Ankrah and AL-Tabbaa (2015) tend to focus again on the risks associated with technical schools.

Table 18 offers a graphical, comprehensive summary of the discussion of the RQs in this thesis:

Research question	Subquestions		Main findings	Trends	Comparison among BSchs	Comparison with OSUS	Main UIC studies	Comparison with the UIC literature
1. What is the perception of senior leaders in business schools about their institutional collaboration with industry?	Forms of collaboration (What?)		- 22 forms of Business School - Industry Collaboration identified - Forms classified into a 4x7 matrix, based on 1) what party provides the service and 2) the content of the provision - The heatmap shows the 6 main areas of intensitication	- New forms appearing: level 7 apprenticeships - Evolution of the nature of executive education - More interest in online formats - Increasing interest on impact and sustainability	Differences found between 'global' and 'community-linked' BSchs in custom CPD, institutional endowment, supporting entrepreneurship, employment, internships or projects, and KTPs. Community-linked BSchs can show features of global in specialisms areas with strong micro-reputation	Significant differences in scale and nature of the collaboration. BSch research is typically lower scale, more relational, unfunded, knowledge-based, not collaborative	Perkman et al (2013) Ankrah and Al-Tabbaa (2015) Skute et al (2017)	Significant differences found with the forms of collaborations identified by Ankrah and Al-Tabbaa (2015), more focused on technical schools. Confirm Perkman et al. (2013) and Skute et al. (2017)
	Reasons to collaborate with industry (why?)		3 groups of reasons identified: mission to generate an impact, student-related and financial	No new motivations arising, but the three types growing in intensity	No significant differences found among schools	Significant differences found, mainly around collaborative research. Businesses are at the same time the object and the receiver of the research	Perkman et al (2013) Ankrah and Al-Tabbaa (2015) Skute et al (2017)	Significant differences found with Ankrah and Al-Tabbaa (2015) around the motivations of efficiency, reciprocity, stability and reciprocity. Confirm Perkman et al. (2013) and Skute et al. (2017)
	Procedural aspects (how?)	Initiator	6 ways of initiating: institutionally, through faculty, mixed, alumni, reputation and cross-selling (particularly through custom programmes)	Faculty increasing their role, although efforts are made to foster institutional initiative	Significant differences found between 'global' (reputation) and 'community-linked' (closeness to local businesses) business schools	Small differences found. Academics in technical schools are less protective of their contacts and projects	Perkman et al (2013) Ankrah and Al-Tabbaa (2015) Skute et al (2017)	Significant differences found with Ankrah and Al-Tabbaa (2015) following the structured model of Mitsuhashi (2002). Confirm Perkman et al. (2013) and Skute et al. (2017)
		Factors affecting the complexity of the process	Two main factors: the form of collaboration and the business partner. Other factors affecting the process: pace of work, dispersion of contacts, lack of relational skills, universities centralising partnership services	Complexity is increasing, particularly due to companies becoming more demanding. Scope widens, new players appear	Answers are strongly polarised, but no clear pattern	Technical schools more complicated, as require larger projects involving financial aspects and equipment	Ankrah and Al-Tabbaa (2015) Broström, Feldmann, and Kaulio (2019)	No significant differences with Ankrah and Al-Tabbaa (2015). Confirm Broström, Feldmann, and Kaulio (2019)
	How business ecosystem affect business school-industry collaboratio		Membership in a business ecosystem confers a stronger motivation and it is considered a success factor in terms of collaboration with industry. No differences found regarding form of collaboration, process and risks	No significant trends identified	Community-linked business schools define their ecosystems at a more regional level. Global business schools operate with both, global and local ecosystems		Skute et al (2017)	Confirm the importance of the ecosystem perspective and its value to facilitate industry collaboration
	Is BSch collaboration with industry more intense than for other schools?		No evidence found. Opinions seem to suggest collaboration is different but not stronger	No significant trends identified			Pettigrew & Starkey (2016) Perkman et al (2013)	No evidence found of more intense collaboration
	Are business schools the main interface and entry door to collaboration with other schools?		Evidence is found against the statement	Centralisation of the contacts and management of the relationship is a trend, and evidence shows it can be effective for cross-selling across schools				Evidence against privileged position

2. What do they identify as the factors contributing to successful collaboration between business schools and industry? Why?		5 groups of factors identified: relying on relational academics, institutional position towards collaboration, operations and implementation, agreement and connection, and contextual factors	No significant trends identified	Differences suggested between research-driven universities and the rest. Differences between 'global' and 'community-linked' business schools on the limitation of resources	Academics, culture and relational aspects have a strongest impact for business schools	Ankrah and Al-Tabbaa (2015) Rybnicek and Königsgruber (2018)	Significant differences found with Ankrah and Al-Tabbaa (2015) but similarities with Rybnicek and Königsgruber (2018). Evidence found that the school subject can be a moderator
3. What challenges and risks do business schools find when collaborating with industry? Is there any form of collaboration particularly complex in this sense? Why?	Risks	General sense that risk is low, but various identified: reputational, practical (waste), timeline, commercial, students, confidentiality. Risks depend more on the partner than the form of collaboration	Slight increase due to new regulations like GDPR	Differences found, but without any significant clustering	Risks are greater for technical schools as the projects are usually larger and involve more financial commitments	Ankrah and Al-Tabbaa (2015) Skute et al (2017)	Significant differences found with Ankrah and Al-Tabbaa (2015) regarding risks specific to BSch-type collaborations
	Ethical issues	Uncommon	No significant trends identified	Agreement found			
	Autonomy loss and identity compromise	Potentially, but benefits are greater	No significant trends identified	Moderately polarised answers, without any significant clustering		Ankrah and Al-Tabbaa (2015) Khurana (2007)	Agreement it can exist sometimes, but it is not a significant risk

Table 18: Summary of the discussion of the RQs in this thesis. Source: the author

7.2. Overall significance of this research

The findings presented in the previous chapters contribute in three distinct ways to extend the literature and provide practical references for BSch leaders.

Firstly, the thesis identifies 22 forms of BSIC, three main motivations to collaborate, six ways of initiating relationships, and five groups of success factors. It also evaluates the risks associated with BSIC as relatively low. These elements contribute to defining the **overarching framework of BSIC**, similar to how the academic literature characterised UIC. However, despite several studies acknowledging that UIC can exhibit distinct features based on academic subjects (Perkmann et al., 2013; Rybnicek & Königsgruber, 2018; Vick & Robertson, 2018), none have identified these features at such a detailed level and across various dimensions (such as forms, motivations, initiators, processes, success factors, and risks) as comprehensively as this study does for BSIC. Therefore, these findings address, for BSchs, the literature gap that Vick and Robertson identified when they stated that there is '*a relative lack of studies exploring one specific sector/discipline and its particularities*' (Vick & Robertson, 2018, p. 582). This first contribution of the thesis has a strong potential for impact on professional practice, as the exposure to examples from other BSchs can inspire deans to delve into diverse forms of IC, discern the most effective methods for initiation, foster crucial success factors, reflect on their core motivations, and carefully assess potential risks. Especially relevant original contributions are the classification matrix of the collaboration forms shown in Table 12, and the importance of having relational academics as a critical success factor.

The analysis of specific forms of collaborations yielded conclusions that can also be deemed valuable contributions. BSch research is depicted as typically focused on businesses as the object of study, highly relational, knowledge-based, rarely collaborative, and not externally funded. These

features are not previously elaborated in the literature and have practical implications concerning motivations for engaging with industry, relationship complexity, and associated risks. Notably, the findings suggest that deans should consider strategies for hiring, training, motivating, and rewarding academics that enhance their relational skills and prepare them for the kind of relationships academics need to hold with senior industry leaders. Regarding consulting as a form of BSIC, examples are provided in the thesis regarding BSchs that have found intermediate ways to overcome the tension between institutions and individual academics through the creation of external organisations and the facilitation of individual initiatives. Other deans may find it interesting to consider these ideas as possible best practices for their own BSchs.

The second contribution of the thesis is a new **classification of BSchs concerning BSIC**. The thesis reveals differences between UK BSchs with global reach and those more regionally linked (community-linked). These differences include certain collaboration forms (custom CPD, institutional endowment, supporting entrepreneurship, employment, internships or projects, and KTPs), some ways in which the collaborations are initiated (global schools trust their reputation will take businesses to contact them, while community-linked BSchs use their closeness to local businesses), their involvement in ecosystems (community-linked BSchs define their ecosystems at a more regional level, while global BSchs operate with both, global and local ecosystems, for different purposes), and one of the success factors (global BSchs do not seem affected by lack of resources). These differences suggest that the natural ambit of the BSch (global or regional) works as a moderating factor. This was not specifically mentioned by Rybnicek and Königsgruber (2018) but it was implied when they discussed the scale of the partners (the size of universities and businesses). A significant contribution lies in the discovery that certain regional BSchs can exhibit characteristics which are

typically associated with global BSchs in specialised areas with strong micro-reputation.

This research also shows that membership in a BES provides BSchs with additional motivation to engage with industry and contribute to the success of BSIC initiatives compared to those BSchs that do not identify themselves as members of a BES. Therefore, this should incite senior leaders to foster their links with established ecosystems for BSIC success. However, a counterintuitive result was found regarding executive education that requires further investigation. The most plausible hypothesis is that BSchs might contribute to corporate education through more integrated approaches, like collaborating with corporate universities and other corporate learning institutions within the ecosystem, rather than the traditional customer-provider executive education format. This would be consistent with the theory of ecosystems, which expects some degree of vertical integration among institutions inside them (Jacobides et al., 2018). This would open future opportunities and challenges to BSchs as global ecosystems emerge and the relationship with companies can potentially evolve towards more integrated forms of collaboration, which is something the deans should be aware of and prepare for.

As a third contribution, the analysis reveals significant differences between BSchs and OSUS regarding collaboration forms, motivations, how relationships are initiated, success factors, and associated risks and challenges. Hence, this serves as the overarching conclusion of the thesis, indicating that **BSIC exhibits distinct characteristics within the broader context of UIC**. This conclusion aligns with the study's aim and addresses the core hypothesis upon which the thesis is built: that BSchs collaborate with industry in a distinct manner, setting their approach apart from collaborations between industry and other academic schools.

Furthermore, the comparison of the findings from this research with the existing literature on UIC implies that the latter may have been more focused towards the type of IC undertaken by technical schools This suggests that universities may have placed greater emphasis on collaboration with technical schools as the prevailing paradigm of UIC, potentially overlooking the significance of collaborations with schools from other disciplines, particularly BSchs. Another contribution of this thesis is that the central units many universities are creating to manage partnerships can facilitate cross-school industry collaboration projects, but they can also introduce bureaucracy, staff tensions and complexity, which confirms Broström et al.'s (2019) concerns. But this thesis goes further, to suggest there is also a risk that these central units are prioritising technical schools rather than BSchs, disregarding the peculiarities of BSchs described above. Consequently, this thesis makes the case for universities to reassess the significance of BSIC and underscore the importance of accommodating their differences and peculiarities, particularly in comparison to technical schools. By emphasising the need for this reconsideration, the thesis advocates for a nuanced understanding of the distinctive features of BSIC, highlighting the necessity for tailored approaches that recognise and address the specific challenges and opportunities inherent in these collaborative initiatives.

7.3. Limitations and proposals for further research

The conclusions are subject to the limitations posed by the methodology and the scope of the research. Some were already mentioned in the methodology chapter: anonymised or deleted information to prevent potential identification of BSchs or deans; susceptibility of qualitative content analysis to researcher's influence; limitations to making generalisations.

Regarding the research scope and design, this thesis explored only the opinions of the senior staff of one of the parties in the BSIC relationship: the BSchs. The views of industry are therefore missing, which limits this research and opens an interesting field for further investigation. That new research would be an innovative contribution to literature, given that *'most of the studies pronounce the university perspective rather than the industry perspective on U–I collaborations* (Skute et al., 2017, p. 933), as Vick and Robertson (2018) also observed.

Another limitation is that the perspectives gathered are exclusively the ones of the deans. Even when it can be argued that these are the ones that count for decision-making, it is also true that other members of staff may have different views, possibly more critical of the decisions made by the institution. Therefore, the internal discrepancies and diverging points of view within the BSchs at the different departments and levels in their hierarchy have not been considered in this research and open another field for future research.

To explore the analysis in this research more deeply, future research could consider how certain collaboration forms (custom apprenticeships, executive education, careers departments) help initiate wider relationships with industry. Another proposal would be to research actual BSch initiatives for supporting entrepreneurship, as doubts were identified in this thesis about their content and success. Regarding the allocation of resources, the extent to which BSchs prioritise their regular educational programmes ahead of collaborative projects must be measured.

Another possibility would be to investigate effective ways for BSchs to measure the impact of their collaborations with industry. It is also worth further investigating the impact of BESs on the CPD activity of BSchs as this research led to a counterintuitive conclusion that requires validation. In particular, the

hypothesis is that traditional formats of executive education might be replaced by more integrated approaches through corporate universities or any other corporate learning institution.

Finally, a timely and relevant enquiry subject could be the extent to which the centralisation of relationships by central departments helps universities expand collaboration across schools or, convergently, the potential ways in which this centralisation can damage the autonomy of individual BSchs, increasing complexity and bureaucracy and creating tensions with lower-level structures and academics (Broström et al., 2019).

APPENDIX 1: Findings of the literature systematic review conducted by Ankrah and AL-Tabbaa (2015)

a) Organisational forms of UIC (source, Ankrah & AL-Tabbaa, 2015, p. 391)

Personal Informal Relationships	– Academic spin-offs
	– Individual consultancy (paid for or free)
	– Information exchange forums
	– Collegial interchange, conference, and publications
	– *Joint or individual lectures*
	– *Personal contact with university academic staff or industrial staff*
	– *Co-locational arrangement*
Personal Formal Relationships	– Student internships and sandwich courses
	– *Students' involvement in industrial projects*
	– Scholarships, Studentships, Fellowships and postgraduate linkages
	– *Joint supervision of PhDs and Masters theses*
	– Exchange programmes (e.g. secondment)
	– Sabbaticals periods for professors
	– *Hiring of graduate students*
	– *Employment of relevant scientists by industry*
	– *Use of university or industrial facility* (e.g., *lab*, *database*, etc.)
Third Party	– Institutional consultancy (university companies incl Faculty Consulting)
	– Liaison offices (in universities or industry)
	– *General Assistance Units (including technology transfer organizations)*
	– Government Agencies (including regional technology transfer networks)
	– Industrial associations (functioning as brokers)
	– *Technological Brokerage Companies*
Formal Targeted Agreements	– Contract research (including technical services contract)
	– *Patenting and Licensing Agreements (licensing of intellectual property rights)*
	– Cooperative research projects
	– *Equity holding in companies by universities or faculty members*
	– Exchange of research materials or Joint curriculum development:
	– *Joint research programmes* (*including Joint venture research project with a university as a research partner or Joint venture research project with a university as a subcontractor*)
	– Training Programmes for employees
Formal Non-Targeted Agreements	– Broad agreements for U-I collaborations
	– *Endowed Chairs and Advisory Boards*
	– *Funding of university posts*
	– *Industrially sponsored R&D in university departments*
	– Research grant, gifts, endowment, trusts donations (financial or equipment), general or directed to specific departments or academics
Focused Structures	– Association contracts
	– Innovation/incubation centers
	– Research, science and technology parks
	– University–Industry Consortia
	– University–Industry research cooperative research centers
	– *Subsidiary ownerships*
	– Mergers

b) Motivations for universities to collaborate with industry (source, Ankrah & AL-Tabbaa, 2015, p. 392)

Necessity	– Responsiveness to government policy
	– Strategic institutional policy

Reciprocity	– Access complementary expertise, state-of-the-art equipment and facilities
	– Employment opportunities for university graduates

Efficiency	– Access funding for research (Government grant for research & Industrial funding for research assistance, lab equipment, etc.)
	– Business opportunity, e.g. exploitation of research capabilities and results or deployment of IPR to obtain patents
	– Personal financial gain for academics

Stability	– Shift in knowledge based economy (growth in new knowledge)
	– Discover new knowledge/test application of theory
	– Obtain better insights into curricula development
	– Expose students and faculty to practical problems/applied technologies
	– Publication of papers

Legitimacy	– Societal pressure
	– Service to the industrial community/society
	– Promote innovation (through technology exchange)
	– Contribute to regional or national economy
	– Academics' quest for recognition or achieve eminence

c) UIC formation process (source, Ankrah & AL-Tabbaa, 2015, p. 394)

Stages	Steps
Stage 1: Partnership Identification	– Establish the purpose
	– Obtain general knowledge of the capabilities of potential partners
	– Consider pre-existent relationships
Stage 2: Make Contact	– Identify prospective partners
Stage 3: Partner Assessment and Selection	– Objectively assess the strategic interests of the potential partners
	– Analyze actual versus professed capabilities of potential partners
	– Determine and organize the appropriate mix of partners
	– Choose the partners
Stage 4: Partnership Negotiation	– Define the partnership
	– Define and agree on the partnership's documented purpose or mission/vision
	– Determine the specific common goals/objectives for the particular effort
	– Define the organizational structure of the partnership
	– Define the management and administration of the partnership with clearly defined responsibilities
	– Agree on the plan
	– Specify the milestones
	– Identify the measures/indicators for success
	– Specify the interim and/or final deliverables
Stage 5: Agreement Signing	– Preparation and signing of collaboration

d) Factors that facilitate or impede UIC (source Ankrah & AL-Tabbaa, 2015, p. 397)

Main categories	Factors
Capacity and Resources	– Adequate resources (funding, human and facilities)
	– Incentive structures for university researchers
	– Recruitment and training of technology transfer staff
	– Capacity constraints of SMEs
Legal issues, and Contractual Mechanisms	– Inflexible university policies including intellectual property rights (IPR), patents, and licenses and contractual mechanisms
	– Treatment of confidential and proprietary information
	– Moral responsibility versus legal restrictions (research on humans)
Management and Organization Issues	– Leadership/Top management commitment and support
	– Collaboration champion
	– Teamwork and flexibility to adapt
	– Communication
	– Mutual trust and commitment (and personal relationships)
	– Corporate stability
	– Project management
	– Organization culture (cultural differences between the world of academia and of industry)
	– Organization structure (university administrative structure and firm structure)
	– Firm size (size of organization)
	– Absorptive capacity
	– Skill and role of both university and industry boundary spanners
	– Human capital mobility/personnel exchange
Issues Relating to the Technology	– Nature of the technology/knowledge to be transferred (tacit or explicit; generic or specialized; academic rigor or industrial relevance)
Political Issues	– Policy/legislation/regulation to guide/support/encourage UIC (support such as tax credits, information networks and direct advisory assistance to industry)
Social Issues	– Enhancement in reputation/prestige
Other Issues	– Low level of awareness of university research capabilities
	– Use of intermediary (third party)
	– Risk of research
	– Cross-sector differences/similarities
	– Geographic proximity

e) UIC outcomes for universities (source, Ankrah & AL-Tabbaa, 2015, pp. 398-399)

Benefits	**Outcomes**
Economic-related	– Source of revenue (both public and private)
	– Patents/IPRs/licensing income
	– Additional income or financial benefit to researchers
	– Create business opportunities
	– Contribution to local/regional economic development
Institutional-related	– Exposure of students and faculty to practical problems/new ideas and/or to state–of–the–art technology, with positive effects on the curriculum
	– Provide a ‘‘test bed’’ for feedback on research ideas, results/interpretations for the refinement of academic ideas/theories
	– Stimulate technological advancement and/or research activities in certain key areas
	– Acquisition of or access to up–to–date equipment
	– Training and employment opportunities for students
	– Build credibility and trust for the academic researcher among practitioners
	– Stimulate the development of spin–offs (or spin–off
	– Provide opportunity for companies to influence and encourage the development of particular lines of university research
	– Joint publications with industry
	– Publication of papers by academics
Social-related	– Service to the community
	– Enhancement of university’s reputation

Drawbacks	**Outcomes**
Deviation from Mission or Objective (Core Ethic)	– Threats to research autonomy or integrity for commercial advantage that may have a negative impact on culture of open science and affect the university mission
	– Confidentiality agreements may block the dissemination of knowledge
	– Could result in the abandonment of long–term basic research in favor of results–oriented, short–term, applied research and technology transfer
	– Concern that the end result of collaboration could be short–term contracts in which industry would require ‘quick and dirty’ solutions to problems, with university departments acting as extensions to the research activities of firms

Quality issues	– Potential diversion of energy and commitment of individual staff who are involved in interaction with industry, away from core educational activities
	– Could affect types of research questions addressed and reduce the quantity and quality of basic research

Conflicts	– Conflicts between researchers and company over the release of adverse results/damage in professional relationships among the researchers
	– Biased reporting by researchers sponsored by companies in favor of positive experimental results relating to company products

Risk	– Dilemma of either publishing results for short–term revenue and academic recognition or withholding until they are patented, with the risk of the technology becoming obsolete
	– Risks that academic–industry relationships pose to human subjects of research and to the integrity of academic investigation

APPENDIX 2: Findings of the systematic literature review conducted by Rybnicek and Königsgruber (2018)

UIC success factors (source, Rybnicek & Königsgruber, 2018, pp. 228-239)

Type of factor	**Factor**
Institutional	– Resources
	– Structure
	– Willingness to change
Relationship	– Communication
	– Commitment
	– Trust
	– Culture
	– Objectives
Output	– Knowledge and technology transfer
Framework	– Environment
	– Contracts and intellectual property rights
	– Geographical distance
	Moderators
	– Different phases
	– Different scales
	– Different organizational levels
	– Different disciplines

APPENDIX 3: Original semi-structured interview protocol

This appendix includes the questions prepared as guidelines for the interviews. However, it is in the nature of semi-structured interviews that they can change as the interview progresses, so they were used as a checklist of matters to cover while allowing the conversation to focus on certain aspects or flow away from them when appropriate.

Introduction

- Thank you very much for agreeing to meet me today and participate in this research. This interview is for my thesis for the Doctorate in Education at the Institute of Education, UCL, under the title "Collaboration between Business Schools and Industry".

- The research aims to investigate the forms, motivation, outcomes, success factors, and other aspects of the collaboration between BSchs and industry, typically private companies. It will be of special interest to identify new collaboration forms, particularly those that are emerging thanks to digitalisation or around business ecosystems.

- You have been selected to participate in this research as the [role] of [BSch], and are therefore a senior leader with experience in the collaboration between BSchs and industry. During the interview, I will be asking you some questions, and I will ask you to answer them according to your opinions on the basis of the information and perceptions you have obtained from your current or previous institutions.

- I have planned this interview to last about 30 minutes. There will not be pre-established questions, but there are a number of subjects I need to cover, so my apologies if at any time I need to ask you to move on to the next point

- In order to proceed with the interview, I first need you to sign this informed consent form, which essentially states that
    - the information and opinions you provide will be kept confidential, and your participation will be anonymous
    - you have the right to stop the conversation if you feel uncomfortable or withdraw from the research at any time before the submission

- To facilitate note-taking and transcription, I would like to record our conversation. I will be the only person with access to the recordings, which will be deleted six months after the acceptance of my thesis

[signature, and a copy is provided for the interviewee to keep]

Outline questions

1. **Will you please briefly describe your role and how it relates to the collaboration with industry at your BSch?**

Now I will ask you some questions about your perceptions regarding your institution's collaboration with industry

2. *Motivation (RQ1.2)* **Why does your institution engage in collaboration with industry? What are the most usual reasons and aims? Why? Have they changed in recent years? Why?**

   Probe: can you identify new reasons appearing or intensifying in recent years? Can you provide an example?

3. *Collaboration forms (RQ1.1)* **What are the most usual collaboration forms between your BSch and industry? Have they changed in recent years? Why?**

   Probe: Are the most usual organisational collaboration forms between your BSch and industry individual or institutionally driven? Why? Are any of them increasing lately? Why?

   Probe: For bilateral institutional collaboration forms, would you say that the most usual organisational collaboration forms between your BSch and industry are formal (this is, in a contract -what kind of contract?), semi-formal (MOU) or informal (no document)? Why? Are any of them increasing lately? Why?

   Probe: Is your BSch involved with third parties and organisations that link them with industry? Would you describe any of them as an association? As a consortium? As a network? As a business ecosystem? Are any of them increasing lately? Why? Can you provide an example?

Probe: Are there any initiatives where you share some degree of integration with industry? For example, hybrid organisations or multilateral networks Can you provide an example?

Probe: Can you identify cases where the Government participates in your private relationships with industry? Can you provide an example? Were they part of the initiators or joined later? How did they contribute to the relationship with industry and the project's success?

Probe: Can you identify cases where other agents in the 'civil society' participate in your private relationships with industry? How did they contribute to the relationship with industry and the project's success? Can you provide an example?

Probe: Are the majority of the collaborations between your university and industry developed at a local or global level? Do they normally involve two countries, or can you find cases of global collaborations involving several countries? Can you provide an example?

4. *Formation process (RQ1.3)* **How are these collaborations normally originated and operationally developed? Have they changed in recent years? Why?**

   Probe: Who is usually the instigator? Would you say that the collaboration initiatives with industry are primarily driven by individual academics acting autonomously on behalf of the university, or are they usually led by the institution? Has this changed in recent years? Why?

   Probe: What are the steps in the formation process? Have they changed in recent years? Why? Can you provide an example?

5. *Operationalization (RQ1.4)* **What kinds of activities usually do your collaborations with industry include? Have they changed in recent years? Why?**

   Elicitation: In case the interviewee cannot identify what I mean by activities, I will take them across the ones found by Ankrah and AL-Tabbaa (2015) as examples of the kind of activities I mean: Do they normally include meetings & networking, communication, training, personnel mobility, and employment?

6. *Facilitating and inhibiting factors (RQ1.5)* **What are the factors that make the collaboration easier or more difficult? Have they changed in recent years? Why?**

   Elicitation: in case the interviewee cannot identify what I mean by factors, I will take them across the ones found by Ankrah and AL-Tabbaa (2015) as examples of the kind of aspects I mean: Capacity and Resources; Legal issues and Contractual Mechanisms; Management and organisation; Technology; and political and social aspects.

7. *Outcomes (RQ1.6)* **What are the usual outcomes of the collaboration? Have they changed in recent years? Why?** Can you provide an example?

8. *Success factors (RQ2)* **Looking at the collaboration projects in general, what do you identify as the factors contributing to success? Have they changed in recent years? Why?** Can you provide an example?

9. *Challenges and risks (RQ3)* **What challenges and risks have you found when collaborating with industry? Is there any collaboration form that is particularly complex in this sense? Why?**

   Probe: Does any collaboration form pose any particular concerns about loss of autonomy for the BSch? Any ethical issues? Why? Can you provide an example?

Closing

Thank you very much. I appreciate your participation in this research and thank you for the information and opinions you have shared. My details are shown in the information form, so feel free to contact me if you have any concerns or questions.

APPENDIX 4: Final semi-structured interview protocol

Introduction

- Thank you very much for agreeing to meet me today and participate in this research. This interview is for my thesis for the Doctorate in Education at the Institute of Education, UCL, under the title “Collaboration between Business Schools and Industry”.

- The research aims to investigate the forms, motivation, outcomes, success factors, and other aspects of the collaboration between business schools and industry, typically private companies. It will be of special interest to identify new collaboration forms, particularly those that are emerging thanks to digitalisation or around business ecosystems.

- You have been selected to participate in this research as the [role] of [business school], and are therefore a senior leader with experience in the collaboration between business schools and industry. During the interview, I will be asking you some questions, and I will ask you to answer them according to your opinions on the basis of the information and perceptions you have obtained from your current or previous institutions.

- I have planned this interview to last about 50 minutes. There will not be pre-established questions, but there are a number of subjects I need to cover, so my apologies if at any time I need to ask you to move on to the next point

- In order to proceed with the interview, I first need you to sign this informed consent form, which essentially states that
    - the information and opinions you provide will be kept confidential, and your participation will be anonymous
    - you have the right to stop the conversation if you feel uncomfortable or withdraw from the research at any time before the submission
    - To facilitate note-taking and transcription, I would like to record our conversation. You and I will be the only ones with

access to the recordings, which will be deleted six months after the acceptance of my thesis

[signature, and a copy is provided for the interviewee to keep]

Outline questions

Collaboration forms

Let's start by exploring what business school-industry collaboration means for your business school in particular. The website of the school mentions the following collaboration forms: (…)

1.1 Would you say this accurately portrays the collaboration forms between your business school and industry? Are there any other forms missing?

1.2. Which of them are the most frequent collaboration forms between your business school and industry?

1.3. If you had to compare this list with the one you would have proposed a few years ago, would you say they have changed in recent years? Why? Can you provide an example of an innovative collaboration form?

1.4. If you compare these collaboration forms with the ones that other schools have with industry, to what extent are they similar or different?

1.5. Would you say your business school is embedded in a business ecosystem? If so, how is the relationship with industry within

Motivation

2.1 Why does your business school engage in collaboration with industry? What are the most usual reasons and aims? Why?

2.2. Have they changed in recent years? Why? Can you provide an example?

2.3. If you compare these motivations with the ones that other schools have with industry, to what extent are they similar or different?

Formation process

3.1 How do these collaborations normally originate?

3.2. Has this changed in recent years? Why?

3.3. Do they involve a long and complicated process, or are they easy to approve? Are there certain processes or stages that are usually followed in the formation process? Do they require due diligence?

3.4. Has this changed in recent years? Why?

3.5. If you compare these instigators and formations with other schools, to what extent are they similar or different?

Complexity

4.1. Would you say the collaboration projects with industry are essentially easy or complex to develop?

4.2. Have they changed in recent years? Why?

4.3. If you compare these activities with those of other schools, to what extent are they similar or different?

Success factors

5.1. Looking at collaboration projects in general, what do you identify as the factors contributing to success?

5.2. Have they changed in recent years? Why?

5.3. If you compare these success factors with those of other schools, to what extent are they similar or different?

Challenges and risks

6.1 What challenges and risks have you found when collaborating with industry?

> [Elicitation: Some authors in the literature suggest that business schools are at risk of losing their academic identity as a result of the multiple external influences of politics, the corporate world, the rankings, or the continuous pressure from students and employers. Focusing on the collaboration with industry, can some collaboration forms pose concerns of loss of autonomy for the business school]

6.2. Is there any collaboration form that is particularly complex in this sense? Why?

6.3. Any ethical issues? Why? Can you provide an example?

6.4. Would you say that these challenges are experienced more often or acutely in business schools than in other university schools?

Final considerations

1.1. Compared with other schools, would you say that the relationship with industry is particularly strong for a business school? Different?

1.2. Would you agree that business schools are often the entry point for companies to start collaborating with other schools?

Closing

Thank you very much. I appreciate your participation in this research and thank you for the information and opinions you have shared. My details are shown in the information form, so feel free to contact me if you have any concerns or questions.

APPENDIX 5: Interview literal transcript sample (anonymised)

OK, so I think I mean wasn't then we sort of listed there all the different sort of business areas, I suppose, where we might collaborate.

I think the first thing to note is [Dean's BSch] is quite different to other business schools, so I was previously Dean at [another BSch]. And I'm, you know, very traditional, Russell Group University, lots of undergraduates and postgraduates, very little [programmes]. [Dean's BSch] has no [programmes] since it's entirely [other programmes].

And probably about so about 1/3 of our business is [some programmes] full-time study, traditional [programmes] students. Another third is [programmes], but with degrees, so like an [a number of programmes], and so on and so on. And many of those are apprenticeship programs as well.

Then another third of the business is [programmes]. I know that comparison to other most other UK schools there's there's probably a handful that do educate [programmes] on the scale that we do it. I mean, it's about 1/3 of it is about third of the business.

In executive education, you either do open programs, where you basically just put on a program and people come, you sell tickets, or you do customize. [details about their BSc's offer]. And that is all about collaboration and partnership too. We codesign, we coproduce, and we even co-market with our partners. And this is something that I think is different between what we do from other business schools, but similar to what other parts of universities do.

So in technical subjects, particularly in engineering and in science, increasingly, they do their experimental work with industry, and so they need partners to match fund and to help pay for a lot of the kit, a lot of the equipment and facilities and so on. And there's a lot of tradition of that in particularly in engineering subjects. In [Dean's BSch], the notion of partnership and developing those relationships through partnerships, through dedicated relationships over a number of years. It's also what we do in [the Dean's BSch], so we have a number of significant partners that we collaborate with on various bits and business.

As an example, we might have a company who works with us that we do some executive education for. They are also a member of a research club. They also send people on to our executive programs and we also might do some research with them as well. They may fund PhD students and so on. So, our model of collaboration is one of partnership. I think that's probably a key distinction to make, and I have to say that that's different at [Dean's

BSch] compared to many other business schools I know. We both at [the dean’s current and previous BSchs], we have [certain accreditations]. I particularly sit in [two accrediting bodies], and I go and accredit other schools, and I don't often see that model of partnership developed elsewhere. So when I came to [Dean’s Bsch], this was quite a different approach I've to say.

APPENDIX 6: Participant Information Sheet

Participant Information Sheet

UCL Research Ethics Committee Approval ID Number: xxxxxxxxxxxxx

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET

Title of Study: **Collaboration between Business Schools and Industry in the UK**

Name and Contact Details of the Researcher: **Dr Andres Perez Ruiz XXXXXXXXX**
---@ucl.ac.uk

1. **Invitation**
   You are being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

2. **What is the project's purpose?**
   The aim of this research is to contribute to the understanding of the business schools-industry relationship. Specifically, I will examine the extent to which UK business schools manifest similar features, according to the academic literature, as Universities in general when they relate with industry.

   This project is a part of the researcher's Doctorate in Education (EdD) at the University College London, Institute of Education.

3. **Why have you been chosen?**
   You have been requested to participate as a member of the leading staff of one of the business schools selected for the research.

4. **Do you have to take part?**
   It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign the consent form. You can withdraw at any time without giving a reason and without affecting any benefits that you are entitled to.

5. **What will happen to you if you take part?**

You will hold a 60' interview with the researcher, face to face in your offices. The interview will be recorded.

You will be identified under a pseudonym. Your business school and role will be mentioned in separate lists ordered alphabetically, so you will not be possibly identified and therefore will remain anonymous. The references in the thesis document will appear as aggregate or, when referred to a particular business school, not mentioning its name. The opinion of the interviewees will be included in the thesis document literally, and it can also be subject to simple data analysis, like a word count or concept mapping conducted on software tools like NVivo.

You can withdraw from the research at any time before the expected submission time (June 2023) by sending the researcher an email to the address shown at the end of this document.

6. **Will you be recorded and how will the recorded media be used?**
   The interviews will be audio-recorded with the aim of assuring the accuracy of the notes taken by the researcher and treatment with NVivo. No other use will be made of them without your written permission, and no one outside the project will be allowed access to the original recordings, which will be deleted, together with the rest of the information, six months after the research has come to an end, this is, in December 2023.

7. **What are the possible disadvantages and risks of taking part?**
   Apart from the time devoted to the semi-structured interview, no particular disadvantage or risk is expected from participating in this research.

8. **What are the possible benefits of taking part?**
   While there are no immediate benefits for those people participating in the project, it is hoped that this work will contribute to the aims of the research, and in particular to describe how business schools interact with industry.

9. **What if something goes wrong?**
   In case that you may have any complaint during the course of this research, you can contact Andres Perez Ruiz at xxx@ucl.ac.uk. Should you feel your complaint has not been handled to your satisfaction, you can contact the Chair of the UCL Research Ethics Committee – xxx@ucl.ac.uk

10. **Will your taking part in this project be kept confidential?**
    All the information that we collect from you during the course of the research will be kept strictly confidential.

11. Limits to confidentiality

Please note that assurances on confidentiality will be strictly adhered to unless evidence of wrongdoing or potential harm is uncovered. In such cases the University may be obliged to contact relevant statutory bodies/agencies.

12. What will happen to the results of the research project?

The results of the research will be shared with my supervisor in the UCL under agreement of confidentiality, and potentially published in the future. The data collected during the course of the project might be used for additional or subsequent research.

13. Data Protection Privacy Notice

The data controller for this project will be University College London (UCL). The UCL Data Protection Office provides oversight of UCL activities involving the processing of personal data, and can be contacted at xxx@ucl.ac.uk. *UCL's Data Protection Officer is Lee Shailer and he can also be contacted at* xxx@ucl.ac.uk***.***

Your personal data will be processed for the purposes outlined in this notice. The legal basis that would be used to process your personal data will be the provision of your consent. You can provide your consent for the use of your personal data in this project by completing the consent form that has been provided to you.

Your personal data will be processed so long as it is required for the research project. If we are able to anonymise or pseudonymise the personal data you provide we will undertake this, and will endeavour to minimise the processing of personal data wherever possible.

If you are concerned about how your personal data is being processed, please contact UCL in the first instance at xxx@ucl.ac.uk. If you remain unsatisfied, *you may wish to contact the Information Commissioner's Office (ICO). Contact details, and details of data subject rights, are available on the ICO website at:* https://ico.org.uk/for-organisations/data-protection-reform/overview-of-the-gdpr/individuals-rights/

14. Contact for further information

The contact point for further information will be:
Andres Perez Ruiz
XXXXXXXXX
---@ucl.ac.uk

You will be given a copy of this information sheet and a consent form for your signature.

Thank you for reading this information sheet and for considering to take part in this research study.

APPENDIX 7: Factors that facilitate university-industry collaboration: comparison of the results with Ankrah and AL-Tabbaa (2015)

MAIN CATEGORY	FACTORS
Capacity and Resources	— Adequate resources (funding, human and facilities)
	— Incentive structures for university researchers
	— Recruitment and training of technology transfer staff
	— Capacity constraints of SMEs
Legal issues, and Contractual Mechanisms	— Inflexible university policies including intellectual property rights (IPR), patents, and licenses and contractual mechanisms
	— Treatment of confidential and proprietary information
	— Moral responsibility versus legal restrictions (research on humans)
Management and Organization Issues	— Leadership/Top management commitment and support
	— Collaboration champion
	— Teamwork and flexibility to adapt
	— Communication
	— Mutual trust and commitment (and personal relationships)
	— Corporate stability
	— Project management
	— Organization culture (cultural differences between the world of academia and of industry)
	— Organization structure (university administrative structure and firm structure)
	— Firm size (size of organization)
	— Absorptive capacity
	— Skill and role of both university and industry boundary spanners
	— Human capital mobility/personnel exchange
Issues Relating to the Technology	— Nature of the technology/knowledge to be transferred (tacit or explicit; generic or specialized; academic rigor or industrial relevance)
Political Issues	— Policy/legislation/regulation to guide/support/encourage UIC (support such as tax credits, information networks and direct advisory assistance to industry)
Social Issues	— Enhancement in reputation/prestige
Other Issues	— Low level of awareness of university research capabilities
	— Use of intermediary (third party)
	— Risk of research
	— Cross-sector differences/similarities
	— Geographic proximity

Note: In dark green, factors that were mentioned in both studies Factors that were just mentioned in passing and not particularly highlighted are in light green, and those not mentioned by any Dean are in white

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