The State of University-Business Cooperation in Portugal

Part of the DG Education and Culture Study on the Cooperation Between Higher Education Institutions and Public and Private Organisations in Europe

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Science Marketing_ Science-to-Business Marketing Research Centre

UIIN University Industry Innovation Network

Abbreviations

EC	European Commission
HEI	Higher Education Institution
LLL	Lifelong Learning
R&D	Research and development
SME	Small- and medium-sized company
S2BMRC	Science-to-Business Marketing Research Centre
TTO	Technology Transfer Office
UB	University-Business
UBC	University-Business Cooperation

UBC Country Reports: logic and characteristics

The UBC country reports compare the continental results of the major *State of European UBC* study (Davey et al., 2011), with the results obtained in a specific country. The reports are designed to be complementary to the major study and highlight the diversity amongst European countries. Additionally, by offering more concrete results at national level, it is believed, the country specific report provides more appropriate decision-making material for most stakeholders, whose jurisdiction is restricted to the regional or country level.

The reports present mostly descriptive data and are not intended to be a comprehensive or detailed study of each of the countries or a ranking among European countries. Instead, the reports are provided to all stakeholders simultaneously (academics, HEI managers, policy makers at different levels, business, etc.) and unlike the European report, are expected to provide some opportunity for individual stakeholder interpretation and resulting actions, according to their local understanding and different roles within the UBC ecosystem.

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Executive summary

The university-business cooperation of Portugal is driven by people with strong focus on their students.

Portugal has a focus of university-business cooperation (UBC) in *Mobility of students and Lifelong Learning* (LLL); however, has much less development relatively of *Collaboration in Research and Development* (R&D) and *Commercialisation of R&D* compared to colleagues in Europe. The Portuguese assess the *Barriers* to UBC in their country to be some of the highest in Europe, with the greatest *Barriers* being '*funding barriers*' and bureaucracy. With UBC *Drivers* perceived to be above the European average, it seems that reducing the perceived *Barriers* of UBC, particularly funding and bureaucracy, could result in a notable increase in UBC. Furthermore, the development of mechanisms that support UBC, particularly '*implementation strategies*' and 'providing incentives to academics for UBC' could further develop Portuguese UBC as well.

In Portugal, there is considerable percentage of the academics that are still not aware of the possibilities of the different types of UBC or not actively involved. Most academics involved in UBC do it in an informal or personal approach, which is prevalent in most Portuguese HEIs over the formal UBC.

About the study

The results presented in this report were from a study commissioned by the European Commission (EC). Surveys were sent out to all registered European HEIs in 33 countries in 2011. In total, 6,280 responses were received from European academics and HEI representatives (HEI managers and HEI professionals working with industry) whilst from Portugal, 619 responses from academics (519) and HEI representatives (100) were received. The study measured the perceptions of these two groups in respect to their own cooperation efforts and those of their university respectively.

Mobility of students and *Lifelong learning* are the most developed forms of UBC

The most developed types on UBC in Portugal are: (1) *Mobility of students*, (2) *LLL*, and (3) *Entrepreneurship* with the least developed type being *Mobility of academics*. This reflect again the Portuguese academics concern for the future of their students, almost in a paternalist way and valuing their primary mission (education) above research. In respect to the European average, Portugal a slightly higher development is perceived. However, Portuguese academics rate themselves as low-medium and low in terms of *Collaboration in R&D* and *Commercialisation of R&D results*, far below the European average and the bottom three amongst all European countries. This already highlights two areas for improvement. The Portuguese government has launched a series of public incentives to foster innovation and R&D collaborations since 2005 (what is known as QREN, and before PRIME and POCTI, for example). These initiatives might change the Portuguese UBC in the near future; actually, some HEIs are already managing several millions annually coming from industry.

Financing UBC and bureaucracy are major *Barriers* to UBC

The primary *Barriers* to UBC in Portugal are: (1) 'lack of external funding for UBC', (2) 'lack of university funding for UBC' and (3) 'lack of financial resources of the business', which shows that financing UBC is indeed an important obstacle to UBC in Portugal. In respect to the third barrier, most of the businesses are only investing in collaborative R&D with HEIs if it is be supported by public funds. Businesses are often poorly managed, risk-adverse, and short-term focused, which might explain their reluctance in investing in science and in early-stage technologies.

Compared to the European average, all types of *Barriers* including '*relational barriers*', '*business barriers*' and '*funding barriers*' (the highest rated *Barriers* in Portugal) are perceived by Portuguese HEI representatives and academics to be higher than their European counterparts. Whilst HEI mangers rate UBC *Barriers* in Portugal as being one of the highest in Europe, Portuguese academics rate Portuguese UBC *Barriers* as the highest in Europe. Compared to the European results, academics primarily perceive the UBC *Barriers* similarly to the HEI representatives except for bureaucracy. HEI representatives perceive that there is a lower amount of 'bureaucracy within or external to the university' (7.2) that academics (7.6), even though HEI managers still rate them as high *Barriers*, the third highest in Europe.

Relationships drive cooperation in Portugal

Portuguese HEI representatives and academics alike name '*relationship drivers*' as the main *Drivers* of UBC. As in Europe generally, '*relationships drivers*' such as (1) 'existence of mutual trust', (2) 'existence of mutual commitment' and (3) 'understanding of common interest' were nominated as the biggest UBC *Drivers*. This suggests that greater effort to bring academics together with business could be a focus for further

improvement of cooperation. Furthermore, both Portuguese academics and HEI representatives also perceive a similar level of *Drivers* generally for UBC, and at a slightly greater level than their European counterparts. This is especially applicable if informal UBC is considered. The situation might change if for formal UBC, where business drivers prevail.

Considering the *Barriers* and *Drivers* together, the high perceived *Barriers* in Portugal, are slightly offset by the slightly above average perception of *Drivers*, and as such, contributes to an environment that is slightly negative for UBC.

Academics still perceive lower personal benefit from UBC

Portuguese academics perceive the primary winners from UBC to be: (i) students, (ii) business (higher than the European average), (iii), *Benefits* to the HEI business (though higher than the European average) and lastly (iv) personal *Benefits*. A very low amount of academics state that UBC increases their chances of promotion, however still rate this factor above the European average. These results imply that academics need to receive greater personal *Benefits* from their HEI in terms of chances of promotion in order to increase UBC activity. For example, in Portugal there is still a lot of room for improvement in respect of the integration of UBC in academics careers. HEI representatives state that (i) students (slightly higher than the European average) and (ii) HEIs (substantially higher than the European average) are the biggest winners from UBC whilst (iii) business and (iv) society get a lower, but still high, amount of benefits (though equal or higher than the European average).

Portugal needs greater development of UBC supporting mechanisms

UBC *Strategies* are moderately developed in Portugal especially '*documented strategies*' such as 'top-level management committed to UBC'. Being slightly lower than the European average, there is still some room for improvement in respect to '*implementation strategies*' especially in the 'dedication of resources to support UBC' and 'providing incentives to academics for UBC'.

'*Role-based approaches*' to UBC are more developed than '*internal/external agencies dedicated to UBC*' in Portugal, but are less developed in Portuguese HEIs than in Europe. The development of the agencies might increase in the future due to the fact since 2006 a series of technology transfer offices (TTOs) were created in Portugal mainly as a result of the public initiatives OTIC (ADI – Portuguese Innovation Agency) and GAPI (INPI – National Institute for Intellectual Property). 'Alumni networks' and the 'presence of business people on the university board' are *Structures and Approaches* that are the highest developed in Portugal as well as being slightly above the European average. The remainder of the structures are less developed than the European average.

Portugal has a moderate level of development of UBC *Activities*, slightly less than the European average. *Activities* specifically focussed on academics are some of the lowest developed *Activities* in Portugal, particularly entrepreneurship education and 'Collaboration activities facilitating academics interaction with business', with both far below the European average. Portugal is more focused in UBC activities towards students.

Introduction

Background

With the creation of the Europe 2020 programme, the European Union's (EU) growth strategy for this decade, and the higher education modernisation agenda, Europe is embracing the need to create a more connected and functioning relationship between government, business and HEI in order to increase employment, productivity and social cohesion[1]. If fostering UBC is understood as 'interactions' between HEIs and businesses for mutual benefit, then fostering UBC and extracting its value can help society face a number of issues. UBC helps universities to face the problem of decreasing public funds[2], helps businesses to gain and maintain their competitive advantage in today's dynamic international markets, contributes to the economic development on regional and national level[3] as well as meet the demands of the labour market to provide more relevant knowledge and skills and greater job prospects of students[4]. Additionally, there are substantial indirect outcomes of UBC including support in the creation of a knowledge economy[5], support for local business[6], creation of jobs[7], stimulation of economic growth and increased living standards whilst reducing hindrances to good living[8]. In this context, UBC creates mutual benefit for all parties involved, and wider, to society.

Over the last few decades there has been a dramatic shift in the focus of HEIs and policy makers towards the HEI's so-called 'third mission'. Through this, HEIs have had their roles focussed to a greater extent on the need to contribute to society in a more meaningful way through knowledge and technology creation, transfer and exchange[9]. In recent years, the focus has been extended to recognise all the ways in which HEIs can contribute to society including *LLL*, *Entrepreneurship* or exchanges of workers with businesses as means to reach the third mission. Owing to this, the holistic extraction of value via UBC has become more important for the viability and relevance of HEIs as the *Benefits* of closer and better cooperation between HEIs and businesses and the *Benefits* for the students have been increasingly recognised.

[1] European Commission 2011
[2] Carayol, 2003
[3] OECD, 2002
[4] Bozeman and Boardman 2013
[5] Etzkowitz & Leydesdorff 2000
[6] Davey et al. 2011
[7] *ibid*
[8] Etzkowitz & Leydesdorff, 2000
[9] *ibid*

Objective

The objective of this report is to evaluate the current status of UBC in Poland and benchmark these outcomes against European HEIs. As a result of this analysis, the reader will have a clearer understanding of the extent of cooperation with business. Furthermore, the report aims to highlight the *Barriers* and *Drivers* preventing or motivating cooperation as well as the extent of development of mechanisms supporting UBC, in comparison with the European average.

Methodology

The survey

The survey was created during a project completed with the EC in a fifteen and a half month study on the cooperation between HEIs and public and private organisations in Europe. The main components of the project were in-depth qualitative interviews with 10 recognised industry experts as well as a major quantitative survey. The survey was translated into 22 languages and sent to all registered European HEIs (numbering over 3,000) in 33 countries during March 2011. Through this, a final sample of 6,280 academics and HEI representatives was achieved making the study the largest study into cooperation between HEIs and business yet completed in Europe.

Questions were posed to two groups within HEIs. These groups were asked about their perception of UBC:

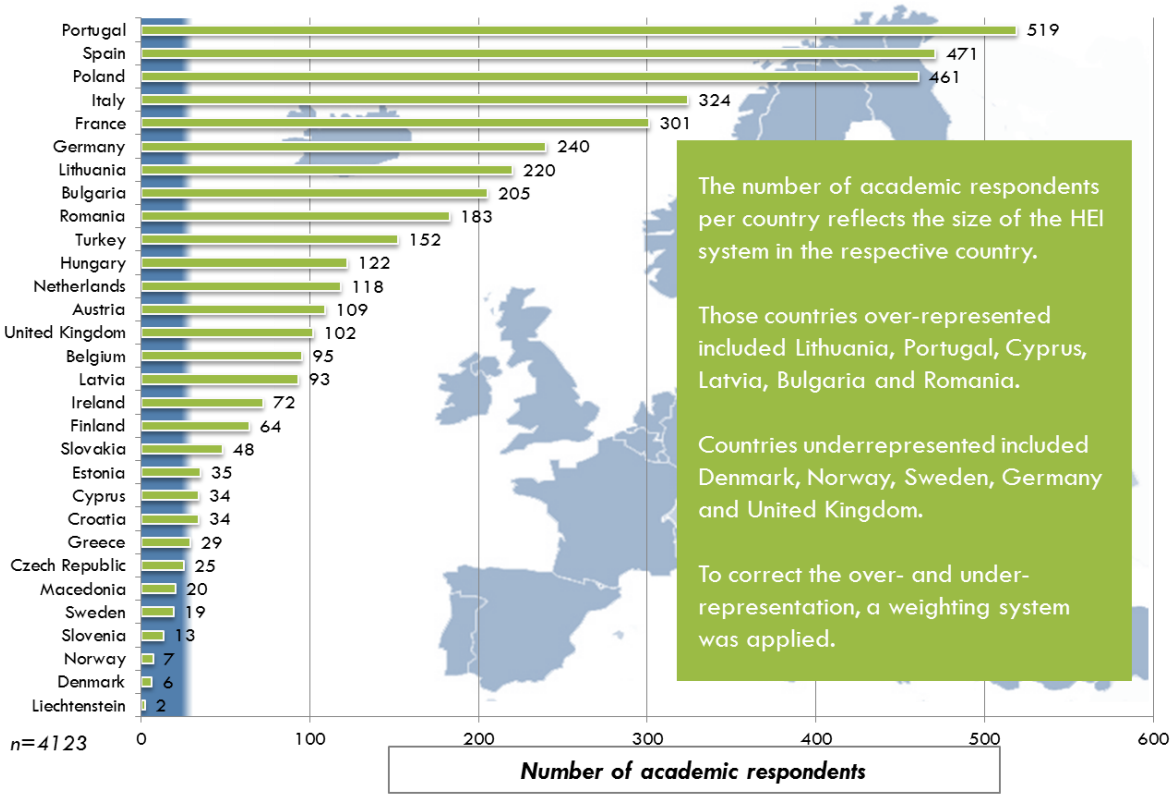
1. Individual academics were asked to respond on behalf of themselves.
2. HEI representatives (HEI managers and university professionals working with industry) were asked to respond on behalf of their HEI.

	Focus	Responded on behalf of	Colour code for results
1	Academics	Indv. academics	
2	HEIs	HEI management and university professionals working with industry	

Colour codes have been used throughout the report to identify those results received from the academic (green) and those results received from the HEI (orange).

Respondents (academic)

Country



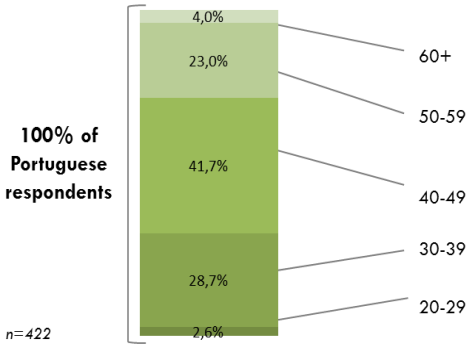
The number of academic respondents per country reflects the size of the HEI system in the respective country.

Those countries over-represented included Lithuania, Portugal, Cyprus, Latvia, Bulgaria and Romania.

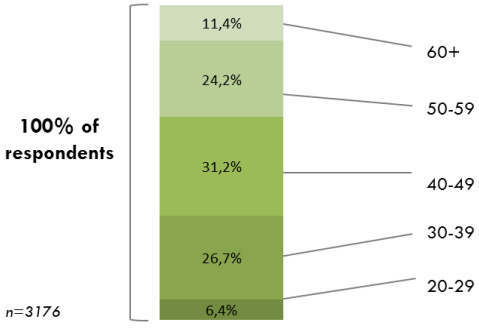
Countries underrepresented included Denmark, Norway, Sweden, Germany and United Kingdom.

To correct the over- and under-representation, a weighting system was applied.

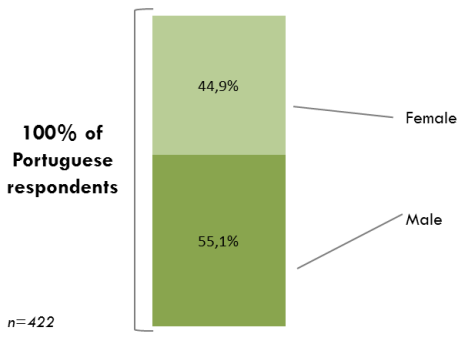
Age of respondents in Portugal



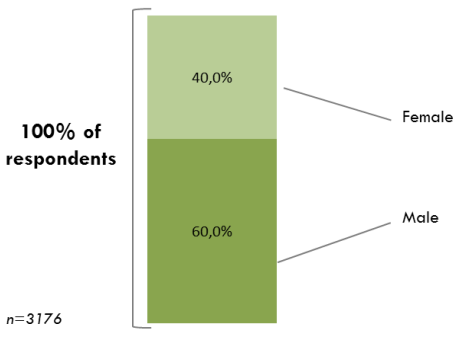
Age of respondents in Europe



Gender of respondents in Portugal

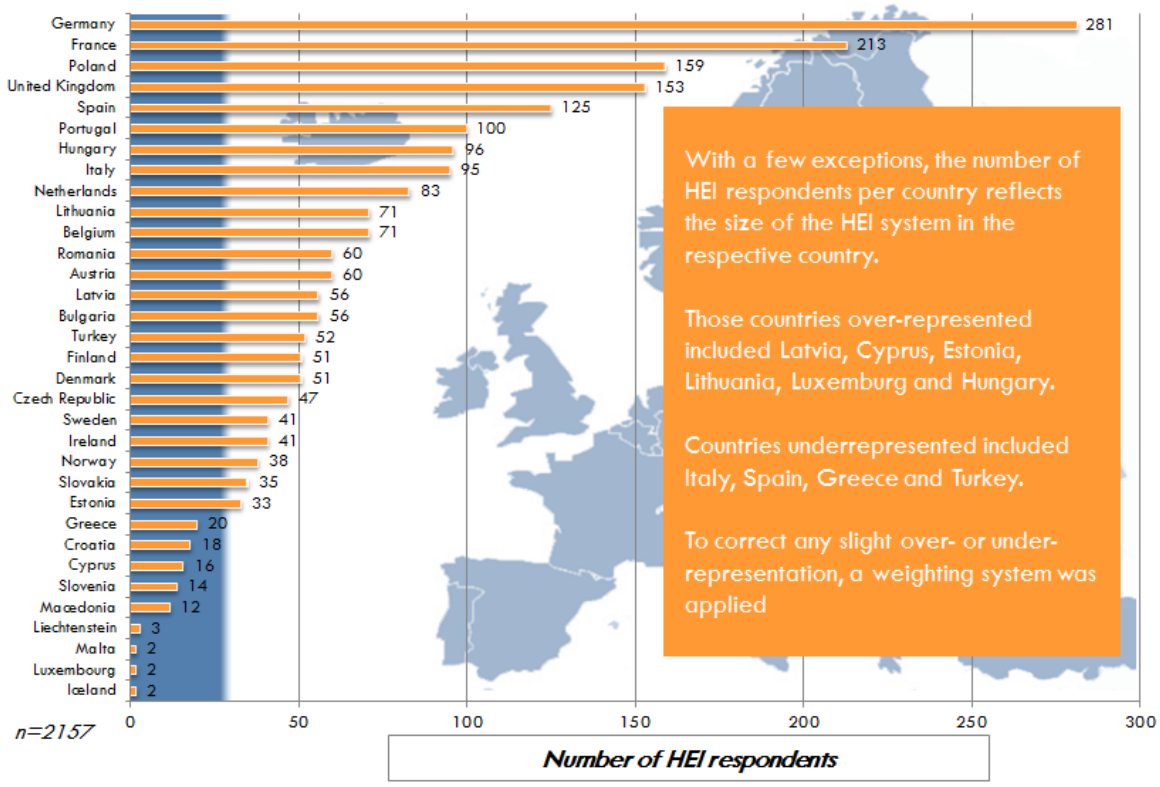


Gender of respondents in Europe

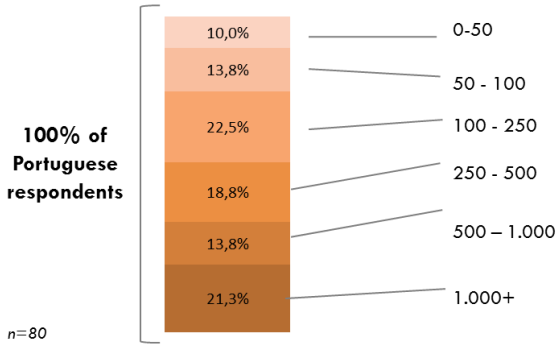


Respondents (HEIs)

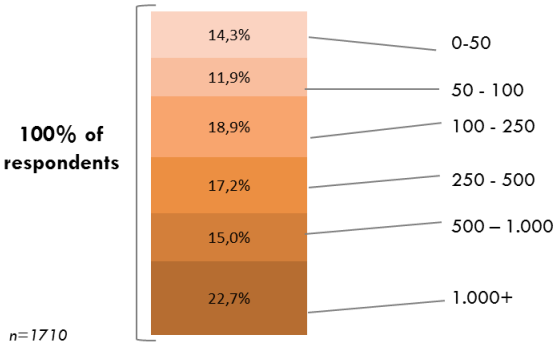
Country



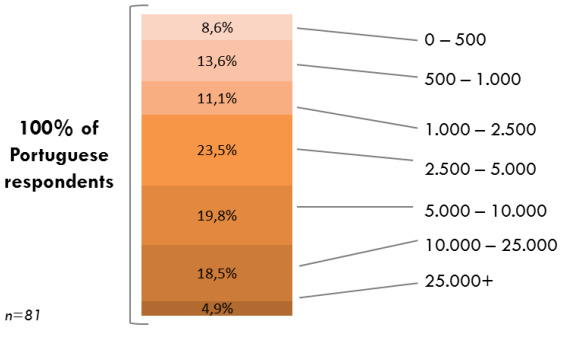
Number of academics per HEI in Portugal



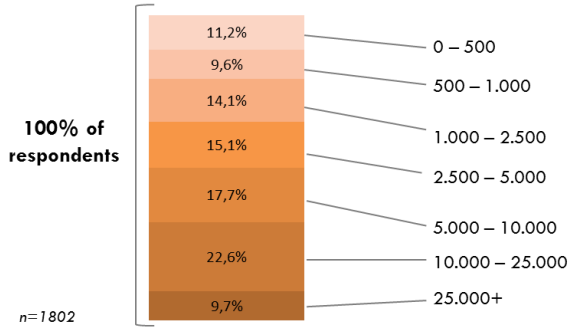
Number of academics per HEI in Europe



Number of students per HEI in Portugal



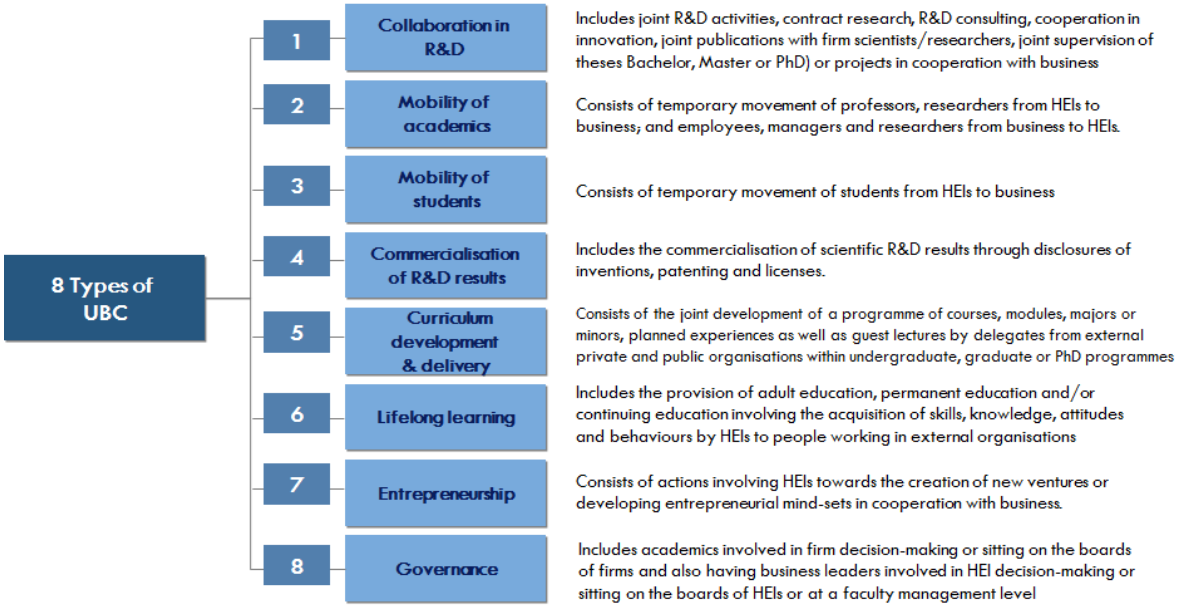
Number of students per HEI in Europe



Results

Extent of UBC

There have been eight types of cooperation recognised between university and business as found in the *State of European UBC Report* with the following descriptions:



3 clusters of HEI cooperation

In respect to cooperation with business it was found that HEIs could also be categorised into 3 clusters:

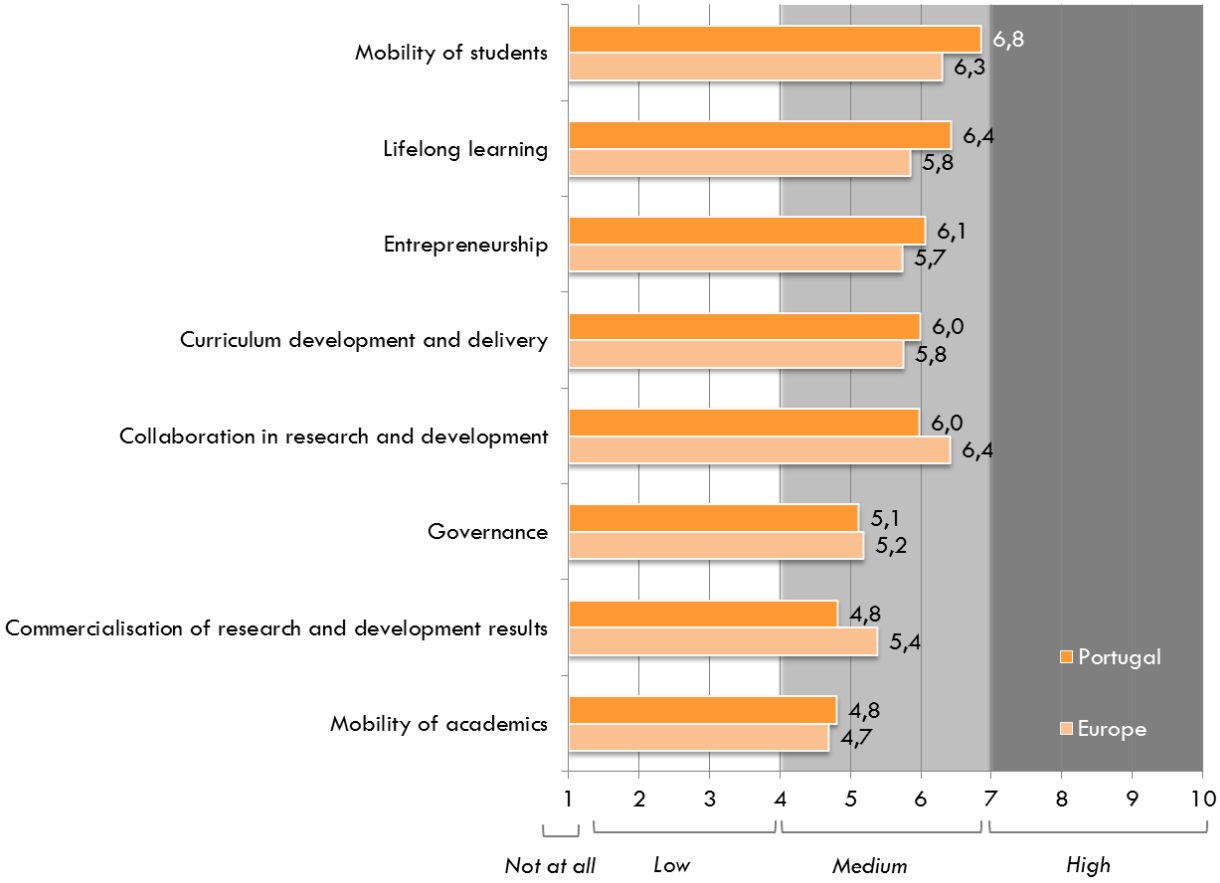
1. the 'innovators' undertaking a higher level for all types of UBC,
2. the 'majority' undertaking a medium level for all types of UBC,
3. the 'laggards' executing generally a low level (or not at all) for all types of UBC.

Relationship among cooperation types

The study identified that HEIs tend to cooperate at a similar level in all UBC types e.g. if they cooperate to a high extent with business in *Collaboration in R&D*, they cooperated to a similar extent for all the types of UBC.

Extent of University-Business Cooperation in Portugal

As answered by HEI representatives



Extent of cooperation in Portugal

All the types of UBC in Portugal have a medium degree of development, with *Mobility of Students* (6.8), *LLL* (6.4) and *Entrepreneurship* (6.1) as the most developed types, even when the latest one could be considered recent and somehow incipient. These are followed by *Curriculum Development and Delivery*. This shows that UBC types that are related to students and education are the most developed ones, over those related to research or management.

Benchmarking Portugal

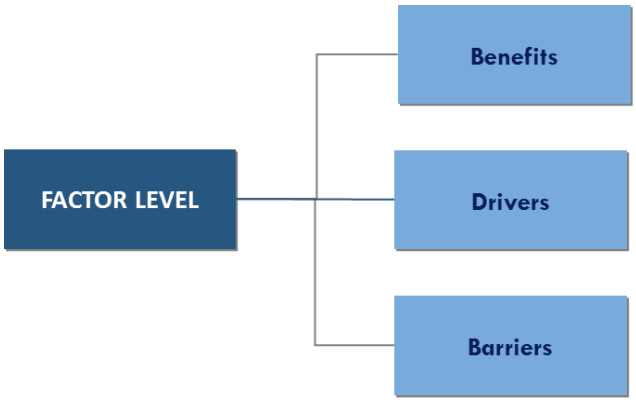
According to the results, Portugal HEI representatives report the extent of UBC being approximately on the same level as the European average, all of them a medium range. However, Portugal excels the European average in five of the eight types of cooperation; particularly in *Entrepreneurship*, *LLL* and *Mobility of students*.

In comparison with the European average, the extent of development of UBC types is as follows:

	Portugal	Europe
Highly developed	-	-
Moderately developed	1. Mobility of Students 2. Lifelong Learning 3. Entrepreneurship 4. Curriculum development and delivery 5. Collaboration in R&D 6. Governance 7. Commercialisation of R&D results 8. Mobility of Academics	1. Collaboration in R&D 2. Mobility of Students 3. Lifelong Learning 4. Curriculum development and delivery 5. Entrepreneurship 6. Commercialisation of R&D results 7. Governance 8. Mobility of Academics

Factors influencing the extent of UBC

The coming section will outline the extent to which a number of factors affect cooperation within business in Portugal. These factors have been found to significantly influence cooperation within the European context.



Benefits for students, the HEI, business, society and academics.

Drivers relating to:
- Commercial, practical and logistical drivers,
- Relationship drivers.

Barriers relating to:
- Usability of results,
- Organisational and relational barriers,
- Funding barriers.

Relationship between barriers and drivers

A barrier provides a hindrance or obstacle to do something, while a driver provides the motivation to do that thing. More specifically, removing a barrier does not create UBC, rather it makes UBC possible. Instead it is the driver that means that an academic cooperate with business. As an example, even when the lack of funds is nominated as the highest barrier (obstacle), owing to the impossibility of cooperating without funds, the presence of funds may not be enough to cooperate if the '*relationship drivers*' or perceived *Benefits* (motivators) are not developed.

Benefits explained

Benefits are the perceived positive outcome (financial and non-financial) from undertaking UBC for the different stakeholders groups that can potentially participate in UBC. This perception can be a reason to increase or decrease their participation or the involvement of other groups. For example, if academics perceive their own *Benefits* to be low, that might cause a low participation in UBC and if they perceive that *Benefits* for students are high, they might undertake actions that contribute to students' involvement in UBC.

Barriers hindering UBC in Portugal

Barriers are those obstacles that restrict or inhibit the ability of academics or HEIs to engage in UBC.

The following table explains the extent of relevance of *Barriers* to UBC by academics (green) and HEIs (orange) in Portugal compared to the European average. The *Barriers* have been factored into 'meta-groups' to provide a more strategic understanding.

Three groups of UBC barriers

Resulting from an analysis of the results, *Barriers* can be categorised in the following groups:

1. *usability of results,*
2. *funding barriers* and
3. *relational barriers.*

Barriers (grouped) to cooperation – Portugal vs Europe

As answered by academics and HEI representatives

Usability of results	Extent of relevance (1-10)		Extent of relevance (1-10)	
• The focus on producing practical results by business, • The need for business to have confidentiality of research results, • Business fear that their knowledge will be disclosed.	Portugal		Europe	
	ACAD	6.3	ACAD	6.1
	HEI	6.1	HEI	6.0

Funding barriers	Extent of relevance (1-10)		Extent of relevance (1-10)	
• Lack of external funding for University-Business cooperation, • Lack of financial resources of the business, • Lack of HEI funding for UBC, • The current financial crises.	Portugal		Europe	
	ACAD	7.4	ACAD	6.5
	HEI	7.7	HEI	6.8

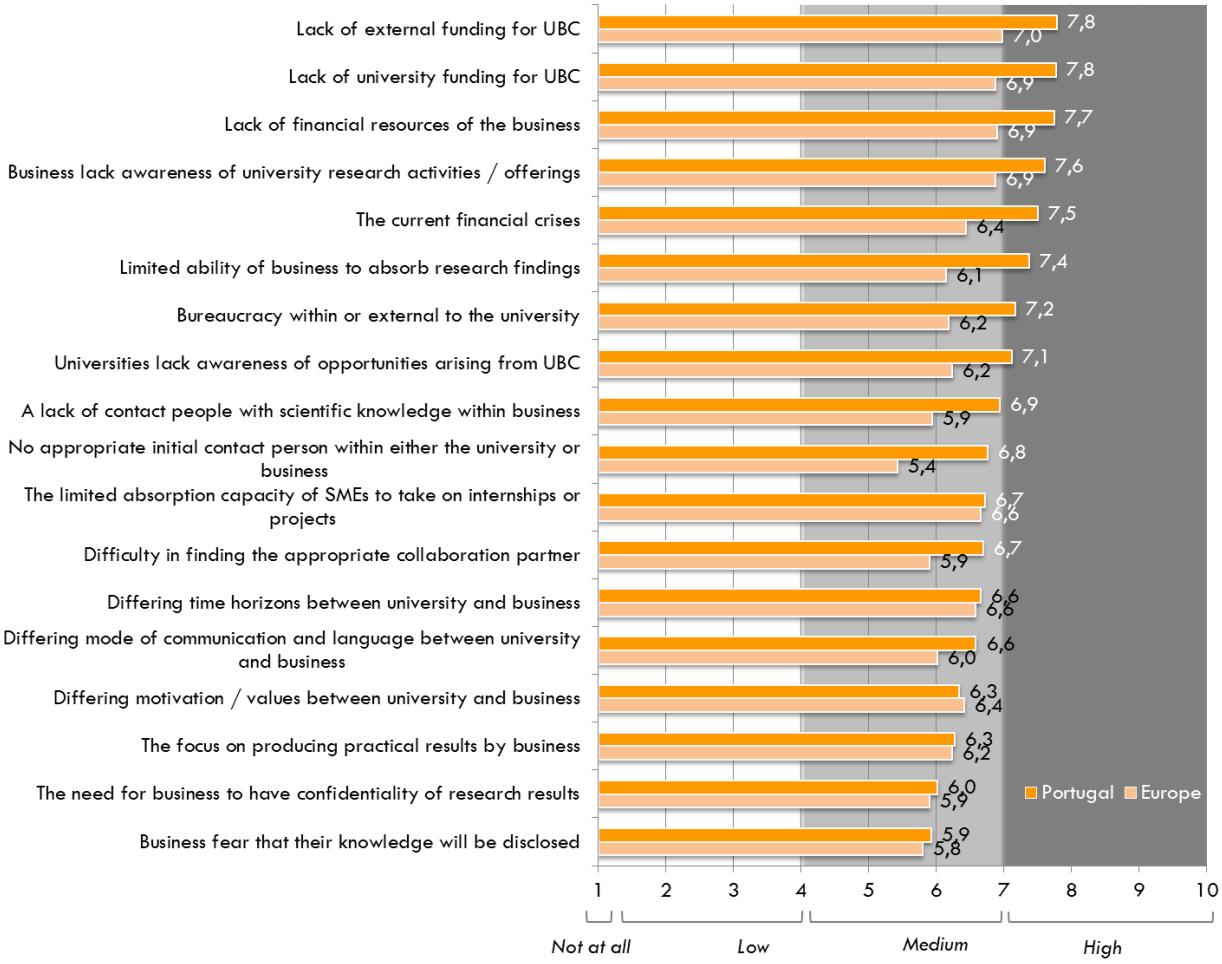
Relational barriers	Extent of relevance (1-10)		Extent of relevance (1-10)	
• Business lack awareness of HEI research activities / offerings, • The limited absorption capacity of SMEs to take on internships or projects, • Differing time horizons between HEI and business, • Differing motivation / values between HEI and business, • Universities lack awareness of opportunities arising from UB-cooperation, • Bureaucracy within or external to the HEI , • Limited ability of business to absorb research findings, • Differing mode of communication and language between HEI and business, • A lack of contact people with scientific knowledge within business, • Difficulty in finding the appropriate collaboration partner, • No appropriate initial contact person within either the HEI or business.	Portugal		Europe	
	ACAD	7.0	ACAD	6.4
	HEI	6.9	HEI	6.2

Comparing Portuguese HEI representatives with academic responses

Portuguese HEI representatives and academics assess *Barriers*' generally to be similar but higher than the European average. Both groups rate '*funding barriers*' as the highest, followed by '*relational barriers*' and '*usability of results*'.

Main barriers to cooperation – Portugal vs Europe

As answered by HEI representatives



<u>*Lack of external funding and lack of university funding are the biggest barriers to UBC in Portugal*</u>

The most prominent *Barriers* named by the Portugal HEI representatives are clearly those related to the '*funding barriers*' between the HEI and business. These include 'lack of external funding for UBC' (7.8), 'lack of university funding' (7.8) and 'lack of the financial resources of the business' (7.7). This is already making evident that funding is the main barrier for UBC in Portugal and suggesting an area for improvement.

<u>*UBC barriers are generally perceived higher in Portugal than in Europe*</u>

Portuguese HEI representatives assess most UBC *Barriers* as more relevant that the European average, except for 'different time horizons between university and business' (6.6 for both) and 'differing motivation / values between universities and business' (6.3 compared to 6.4), where Portuguese HEI representatives asses them almost equal than the average in Europe.

With respect to the lower UBC *Barriers* in Portugal it can be stated that those related to business, such as 'the focus on producing practical results' (6.3), 'the need for business to have confidentiality of research results' (6.0), and 'business fear that their knowledge will be disclosed' (5.9) are seen as less relevant *Barriers* in Portuguese UBC and at similar level with respect to the average in Europe. This fact suggests that Portuguese businesses could have a rather positive attitude to collaborate with HEIs.

Main barriers to UBC in Portugal
1. Lack of external funding for University-Business cooperation
2. Lack of university funding for University-Business cooperation
3. Lack of financial resources of the business
4. Business lack awareness of university research activities / offerings
5. The current financial crises
6. Limited ability of business to absorb research findings

Drivers stimulating UBC in Portugal

Drivers are those factors that encourage academics or HEIs to engage in UBC.

The following table explains the extent of relevance of *Drivers* of UBC by academics (green) and HEIs (orange) in Portugal compared to the European average. The *Drivers* have been factored into 'meta-groups' to provide a more strategic understanding of UBC *Drivers*.

Two groups of UBC drivers

Resulting from an analysis of the results, *Drivers* can be categorised in the following groups:

1. *relationship drivers* and
2. *business drivers*.

Drivers (grouped) of cooperation – Portugal vs Europe

As answered by academics and HEI representatives

Relationship drivers	Extent of facilitation (1-10)		Extent of facilitation (1-10)	
• Existence of mutual trust, • Existence of mutual commitment, • Having a shared goal, • Understanding of common interest by different stakeholders (e.g. universities; business; individuals; students), • Prior relation with the business partner, • Cooperation as effective means to address societal challenges and issues.	Portugal		Europe	
	ACAD	7.0	ACAD	6.7
	HEI	7.3	HEI	7.0

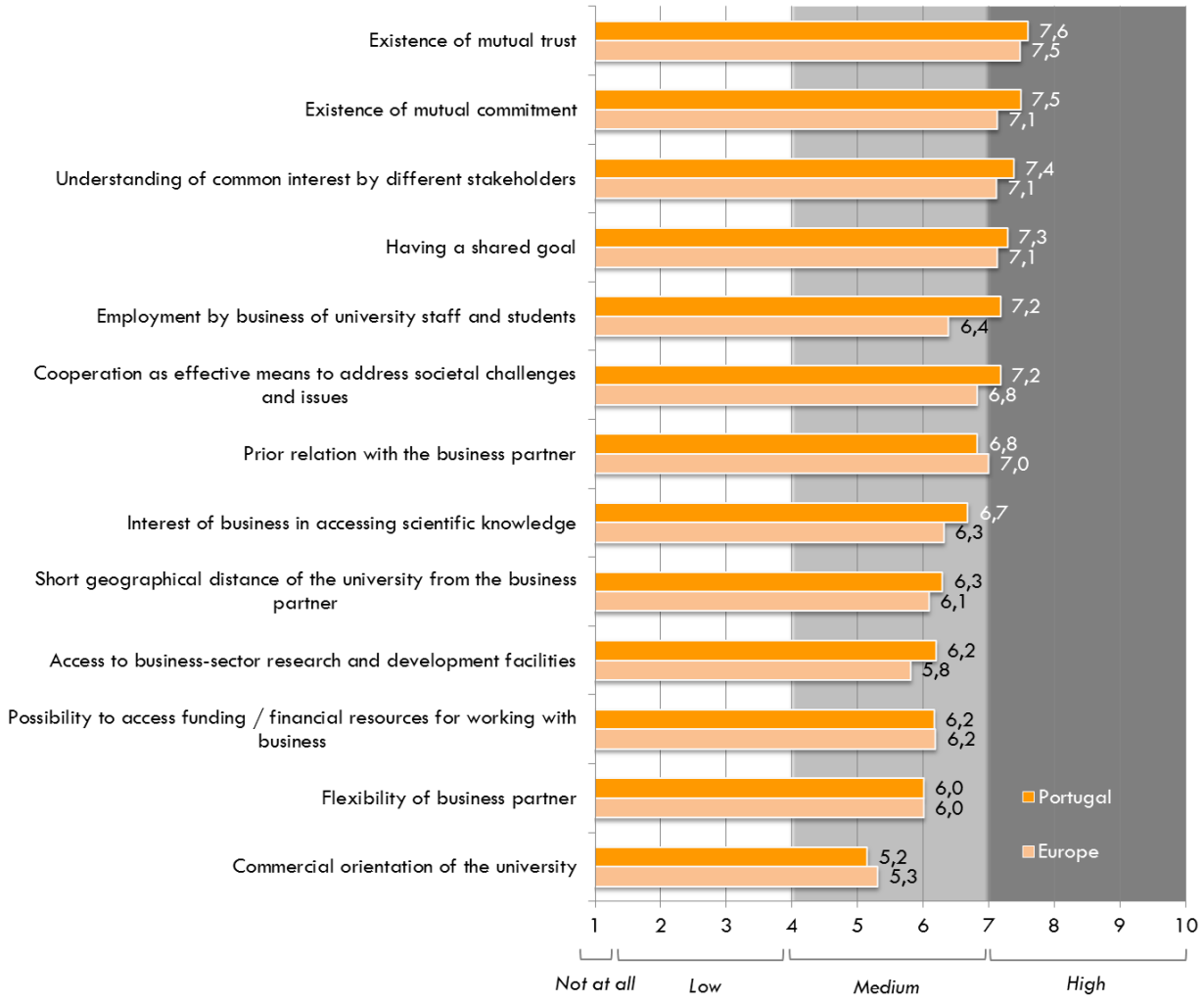
Business drivers	Extent of facilitation (1-10)		Extent of facilitation (1-10)	
• Employment by business of HEI staff and students, • Interest of business in accessing scientific knowledge, • Possibility to access funding / financial resources for working with business, • Short geographical distance of the HEI from the business partner • Flexibility of business partner, • Access to business-sector research and development facilities • Commercial orientation of the HEI.	Portugal		Europe	
	ACAD	6.0	ACAD	5.6
	HEI	6.2	HEI	6.7

Portugal respondents see the drivers of UBC similarly to European respondents

Both, Portuguese and European HEI representatives assess *Drivers* of UBC similarly. For both of them, '*relationship drivers*' are the most important ones. The highest difference identified was in respect to '*business drivers*', with Portuguese respondents assessing '*business drivers*' as a lower driver (6.2) than by their European counterparts (6.7). This shows that in Portugal, UBC is also a people's game.

Main drivers of cooperation – Portugal vs Europe

As answered by HEI representatives



<u>*Personal relationships drive UBC in Portugal according to the HEI representatives*</u>

The HEI representatives in Portugal perceive the highest *Drivers* of UBC to be '*relationship drivers*' such as 'existence of mutual trust' (7.6), 'existence of mutual commitment' (7.5), 'understanding of common interest by different stakeholders' (7.4). These perceptions of these drivers are slightly higher than for their European counterpart. This might be due to the fact that in Portugal most academics engage in UBC informally; due to personal relationships or personal networking capabilities and outreach.

Compared to the '*relationship drivers*', most '*business drivers*' are seen as considerably less important including 'commercial orientation of the university' (5.2) or 'flexibility of business partner' (6.0), reflecting the lack of business-oriented academics in Portugal. The 'possibility to access funding / financial resources for working with business' (6.2), is the higher business driver and might be creating an "artificial" interest from businesses in HEI research just to access funds, even from companies with no track record on innovation and/or reduced capability to absorb research results at the end.

The biggest difference is for the employment of university students and staff by business (7.2 in Portugal vs 6.4 in Europe), which show again the importance of students in the Portuguese UBC ecosystem.

Main drivers of UBC identified by HEI representatives in Portugal
1. Existence of mutual trust
2. Existence of mutual commitment
3. Understanding of common interest by different stakeholders
4. Having a shared goal
5. Employment by business of university staff and students

Benefits of cooperation (academic perspective)

Benefits are the positive results that stakeholders perceive that they obtain from undertaking UBC.

The following table explains the extent of relevance of *Benefits* of UBC by academics (green) in Portugal compared to the Europeanaverage. The *Benefits* have been factored into 'meta-groups' to provide a more strategic understanding of UBC *Barriers*.

Four groups of UBC benefits for academics

Resulting from an analysis of the results, *Benefits* for academics can be categorised in the following groups:

1. *benefits for students,*
2. *benefits for business,*
3. *benefits for HEIs* and
4. *personal benefits for academics.*

Benefits (grouped) from cooperation – Portugal vs Europe

As answered by academics

Benefits for students	Extent of importance (1-10)		Extent of importance (1-10)	
• UB activities improve employability of future graduates • UB activities improve the learning experience of students	Portugal		Europe	
	ACAD	8.4	ACAD	7.9

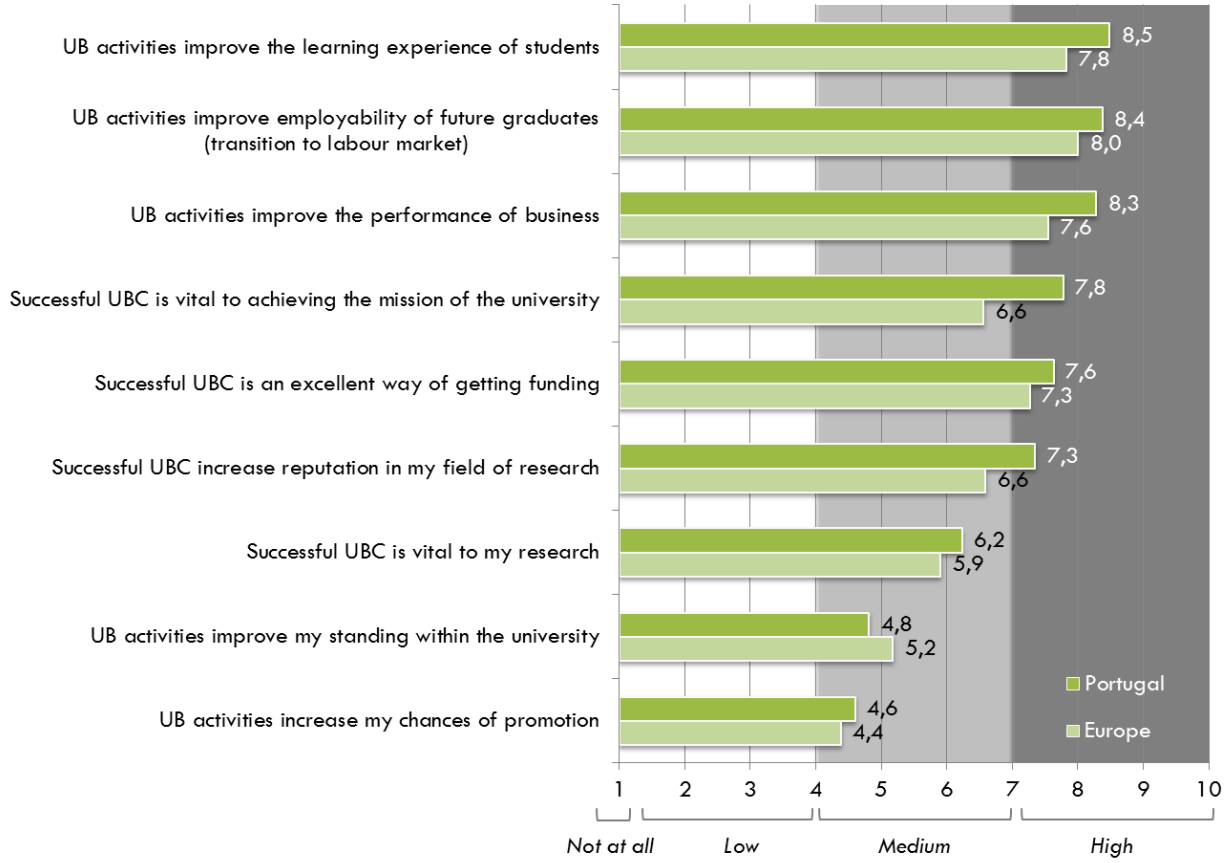
Benefits for business	Extent of importance (1-10)		Extent of importance (1-10)	
• UB activities improve the performance of business	Portugal		Europe	
	ACAD	8.3	ACAD	7.6

Benefits for HEIs	Extent of importance (1-10)		Extent of importance (1-10)	
• Successful UBC is vital to achieving the mission of the HEI	Portugal		Europe	
	ACAD	7.8	ACAD	6.6

Benefits for academics	Extent of importance (1-10)		Extent of importance (1-10)	
• Successful UBC is an excellent way of getting funding • Successful UBC increases my reputation in my field of research • Successful UBC is vital to my research • UB activities improve my standing within the university • UBC activities increase my chances of promotion	Portugal		Europe	
	ACAD	6.2	ACAD	5.9

Benefits from cooperation – Portugal vs Europe

As answered by academics



Portuguese academics perceive that students get the most benefit from UBC

Academics in Portugal nominate that the greatest *Benefits* from UBC go to students ('UB activities improve the learning experience of students' and 'UB activities improve employability of future graduates'). This result is in line with others within this study that also position students in a privileged position within UBC stakeholders. Students benefits are followed by benefits for business ('university-business activities improve the performance of business') as well as the university ('successful UB cooperation is vital to achieving the mission of the university') and finally rate self-benefit ('UB activities increase my chances of promotion') the lowest.

Portuguese academics perceive low self-benefit from UBC activities

Whilst academics report that UBC is an excellent way of getting funding (7.6), they are much more negative in respect to their *Benefits* related to an improvement of their standing within the university (4.8), and especially their increasing chances of promotion (4.6).

These results are in line with the grouped results (see previous page). Compared to these relatively high *Benefits* for all other stakeholders (8.4, 8.3, 7.8), academics perceive their own *Benefits* from UBC much lower (6.2). The fact that academics do not see any self-benefit from UBC could lead to a lower extent of cooperation.

Portuguese academics perceive slightly higher benefits from UBC than in Europe

In comparison with the European average, Portuguese academics see most *Benefits* slightly higher. The only exception is the benefit 'UB activities improve my standing within the university' (4.8 compared to 5.2), which is lower for Portuguese academics.

Overall, Portuguese academics perceive the *Benefits* from UBC to be of at a higher extent for students (8.4) and business (8.3), and to be of a lower extent for HEIs (7.8) and for themselves (6.2)

Main benefits of UBC identified by Portuguese academics
1. UB activities improve the learning experience of students
2. UB activities improve employability of future graduates
3. UB activities improve the performance of business
4. Successful UB cooperation is vital to achieving the mission of the university
5. Successful UB cooperation is an excellent way of getting funding

Benefits of cooperation (HEI perspective)

Benefits are the positive results that stakeholders perceive that they obtain from undertaking UBC.

The following table explains the extent of relevance of perceived *Benefits* of UBC by HEI representatives (orange) in Portugal compared to the European average. The *Benefits* have been factored into 'meta-groups' to provide a more strategic understanding of UBC *Barriers*.

Three groups of UBC benefits for HEIs

Resulting from an analysis of the results, *Benefits* for HEIs can be categorised in the following groups:

1. *benefits for students,*
2. *benefits for business and society,* and
3. *benefits for HEIs.*

Benefits (grouped) from cooperation – Portugal vs Europe

As answered by HEI representatives

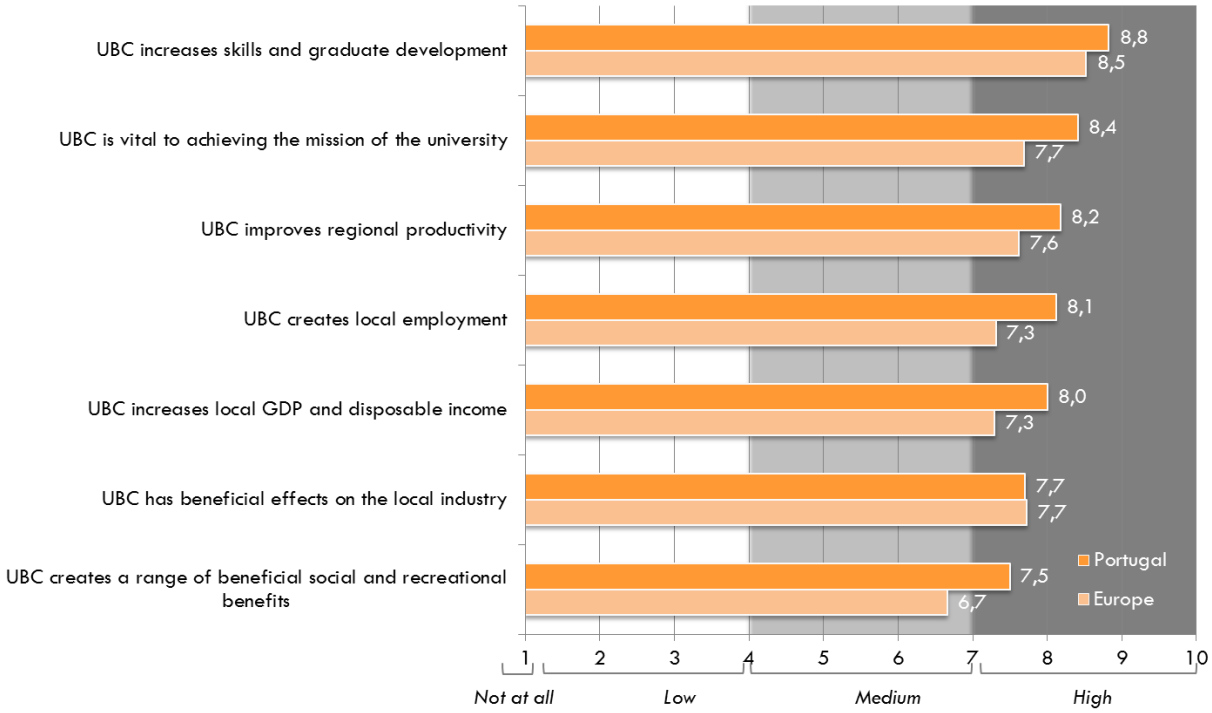
Benefits for the HEI	Extent of importance (1-10)		Extent of importance (1-10)	
• UBC is vital to achieving the mission of the HEI.	Portugal		Europe	
	HEI	8.4	HEI	7.7

Benefits for students	Extent of importance (1-10)		Extent of importance (1-10)	
• UBC increases skills and graduate development	Portugal		Europe	
	HEI	8.8	HEI	8.5

Benefits for business and society	Extent of importance (1-10)		Extent of importance (1-10)	
• UBC has beneficial effects on the local industry • UBC improves regional productivity • UBC creates local employment • UBC increases local GDP and disposable income • UBC creates a range of beneficial social and recreational benefits	Portugal		Europe	
	HEI	7.9	HEI	7.3

Benefits from cooperation – Portugal vs Europe

As answered by HEI representatives



HEI representatives perceive that students get the highest benefit from UBC

HEI representatives in Portugal perceive all *Benefits* from UBC to be of a high extent. The highest benefits are perceived to be for students ('UBC increases skills and graduates development'), then for the HEIs themselves ('UBC is vital to achieving the mission of the university'), followed by the region ('UBC improves regional productivity'), and the most indirect and diffuse benefit for society ('UBC creates local employment'). These results are similar to the ones from Portuguese academics and also position students as the central stakeholder in Portuguese UBC.

Higher benefit perceived from UBC for students, HEIs by Portuguese HEI´s and business than in Europe

Comparing the factor level results to the European average, it can be stated that Portuguese HEIs see slightly higher *Benefits* from UBC for students, business and society than their European counterparts. The highest difference compared to the European average is found for the benefit for their mission and vision (8.4 compared to 7.7). This shows a top level management commitment to UBC. Furthermore, while the *Benefits* for the local industry are assessed exactly the same (both 7.7) a big difference is found in the recreational benefits (7.5 compared to 6.7) and the benefits for local employment (8.1 to 7.3), which Portuguese HEI representatives consider to be higher.

Main benefits of UBC identified by Portuguese HEIs	
1.	UBC increases skills and graduate development
2.	UBC is vital to achieving the mission of the university
3.	UBC improves regional productivity
4.	UBC creates local employment
5.	UBC increases local GDP and disposable income

Benchmark

…universities in your region!

Assisting governments and universities improve University-Business Cooperation

Using the State of European University-Business Cooperation study results, decision makers, managers and practitioners involved in university-business cooperation can benefit from receiving:

1. a benchmark in terms of UBC of your organisation, institution, sector, region or country against others.
2. a clear picture of progress in efforts to increase university-business cooperation,
3. proactive areas of focus for increasing UBC,
4. the required information to advance university-business cooperation within their region or institution

Provided to your organisation in the form of a report and/or presentation, a state of the UBC report dedicated to your organisation can assist with developing greater financial and other benefits from University-Business Cooperation

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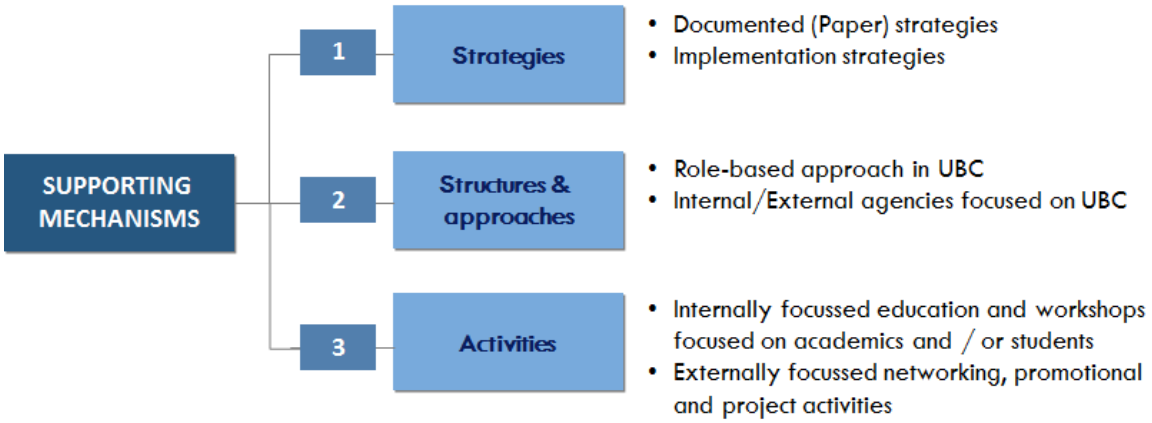
Supporting mechanisms for UBC

Supporting mechanisms are interventions designed to support the development of cooperation between HEIs and business.

The coming section will outline the extent to which UBC *Supporting mechanisms* are developed in Portugal. The development of these mechanisms has been found to significantly influence cooperation within the European context.



Supporting mechanisms explained

The UBC *Supporting mechanisms* constitute the 'action-level', where all stakeholders need to focus their efforts when they want to influence the extent of UBC.

The specific role and importance of *Supporting mechanisms* at HEIs has long been recognised in both practice and literature. They are often recognised in multiple ways including (i) in a variety of different names (e.g. interventions, enablers), (ii) captured in a model (e.g. ecosystem, regional innovation system) or (iii) known as individual elements (e.g. activities, infrastructure).

A key finding of the *State of European UBC Report* was that the extent of development of the *Supporting mechanisms* was found to significantly affect the extent of general activity between HEIs and business. The nature of the *Supporting mechanisms* in terms of (i) responsibility, (ii) expense and (iii) time to impact are summarised in the table below.

	Primary responsibility for the mechanism	Secondary responsibility	Expense	Time to impact
Strategies	HEI representatives	All UBC stakeholders	Low	Long term
Structures and approaches	HEI / regional Govt. and agencies	Regional UBC stakeholders	Agencies: High Personnel: Med-high	Agencies: Long Personnel: Medium
Operational activities	Knowledge transfer Professionals	Regional UBC stakeholders	Medium	Short-medium term

Strategies for UBC in Portugal

Strategies are the drafting and implementation of cross-functional decisions by a HEI that will enable it to achieve its long-term objectives with respect to UBC.

The primary responsibility for the creation of UBC *Strategies* is with HEI representatives as a strategic instrument is usually created by decisions made at a HEI board level.

Two groups of UBC strategies

Resulting from an analysis of the results, *Strategies* can be categorised in the following groups:

1. *Documented strategies*
2. *Implementation and motivation strategies*

Development of UBC Strategies (grouped) – Portugal vs Europe

As answered by HEI representatives

Documented (Paper) strategies	Extent of development (1-10)		Extent of development (1-10)	
• A top-level management committed to University-Business cooperation, • A documented mission / vision embracing University-Business cooperation, • A strategy for University-Business cooperation, • The internal promotion of University-Business cooperation., • The external promotion of University-Business cooperation.	Portugal		Europe	
	HEI	6.7	HEI	6.8

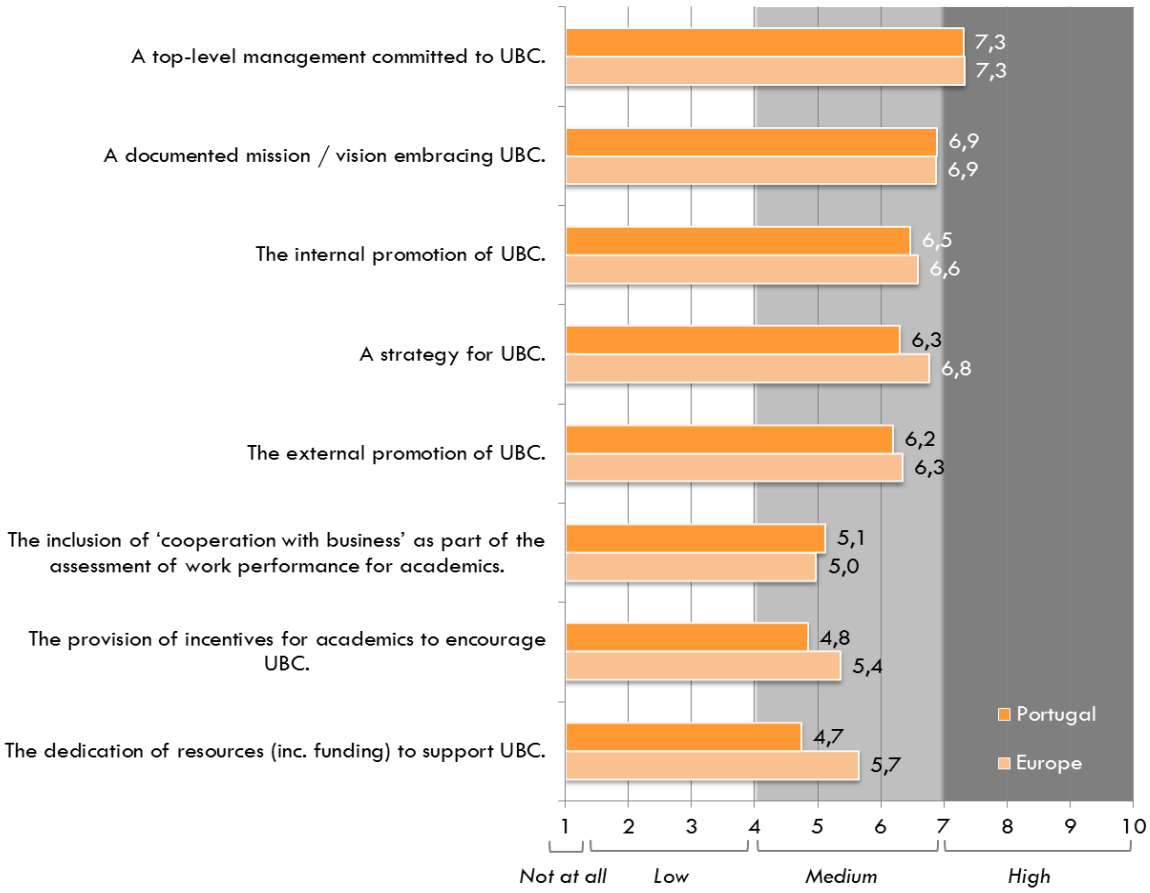
Implementation and motivation strategies	Extent of development (1-10)		Extent of development (1-10)	
• The dedication of resources (inc. funding) to support University-Business cooperation, • The provision of incentives for academics to encourage University-Business cooperation, • The inclusion of 'cooperation with business' as part of the assessment of work performance for academics.	Portugal		Europe	
	HEI	4.9	HEI	5.4

Documented (paper) strategies are the most developed strategies in Portugal

On a factored (grouped) level, '*documented strategies*' are significantly more developed in Portugal than '*implementation and motivation strategies*' supporting UBC. Overall, notable differences between Portugal and Europe can be found with respect to implementation and motivation strategies on a factored level, with Portugal having less implementation strategies. It needs to be underlined that documented strategies per se only show an official commitment from the institution and are not effective unless they are put in place together with implementation strategies. Portuguese HEIs need to make this change real.

Development of UBC strategies – Portugal vs Europe

As answered by HEI representatives



Portuguese HEI representatives perceive UBC documented strategies as the most developed ones

The most developed UBC *Strategies* in Portugal, as reported by Portuguese HEI representatives, are 'a top-level representatives committed to UBC' (7.3), 'a documented mission / vision embracing UBC' (6.9) and 'the internal promotion of UBC' (6.5), being all paper strategies. On the other extreme, 'the inclusion of cooperation with business as part of the assessment of work performance for academics' (5.1), 'the provision of incentives for academics to encourage UBC' (4.8) and 'the dedication of resources, incl. funding, to support UBC' (4.7), which are all implementation strategies, are less developed.

Documented (paper) strategies are similarly developed in Portugal as in Europe

When compared to the European average, Portugal shows a similar extend of implementation of '*documented strategies*' with most items showing similarity in responses. However, with respect to '*implementation and motivation strategies*' Portugal is rated at a lower degree compared to the average in Europe (4.9 compared to 5.4), with the largest gap found in the 'dedication of resources (incl. funding), to support UBC' where Portugal performs lower (4.7) than the European average (5.7). This gap shows another potential area of improvement.

Highly developed	1. A top-level representatives committed to UBC 2. A documented mission / vision embracing UBC
Moderately developed	3. The internal promotion of UBC 4. A strategy for UBC 5. The external promotion of UBC 6. The inclusion of 'cooperation with business' as part of the assessment of work performance for academics 7. The provision of incentives for academics to encourage UBC 8. The dedication of resources (inc. funding) to support UBC

Structures and approaches for UBC in Portugal

UBC *Structures and approaches* are constructions created as a result of top-level strategic decisions within (or related to) a HEI that are an 'enabler' of UBC and include the creation or development of institutions, positions, methods and policies and programmes. They are put in place in order to promote, develop or implement UBC with a mid to long term focus and can be created within the HEI or as a bridge between the HEI and business. *Structures and approaches* usually involve significant investment and can be funded by the HEI, the government, business or a combination of these sources.

Two groups of UBC structures and approaches

Resulting from an analysis of the results, *Structures and approaches* can be categorised in the following groups:

1. *the creation and /or expansion of positions (personnel)* and
2. *agencies (units of focus)*.

Development of UBC structures and approaches (grouped) – Portugal vs Europe

As answered by HEI representatives

Roles-based approaches in UBC	Extent of development (1-10		Extent of development (1-10	
• The presence of academics on company boards, • The presence of business people on the HEI board, • Board member or vice rector positions for UBC. • The practise of recruiting industry professionals into the knowledge transfer area., • An alumni network.	Portugal		Europe	
	HEI	5.3	HEI	5.4

Internal/External agencies focused on UBC	Extent of development (1-10		Extent of development (1-10	
• Career offices within the HEI, • Agencies external to the HEI dedicated to UBC • Agencies (internal) within the HEI dedicated to UBC, • Incubators for the development of new business.	Portugal		Europe	
	HEI	4.9	HEI	5.3

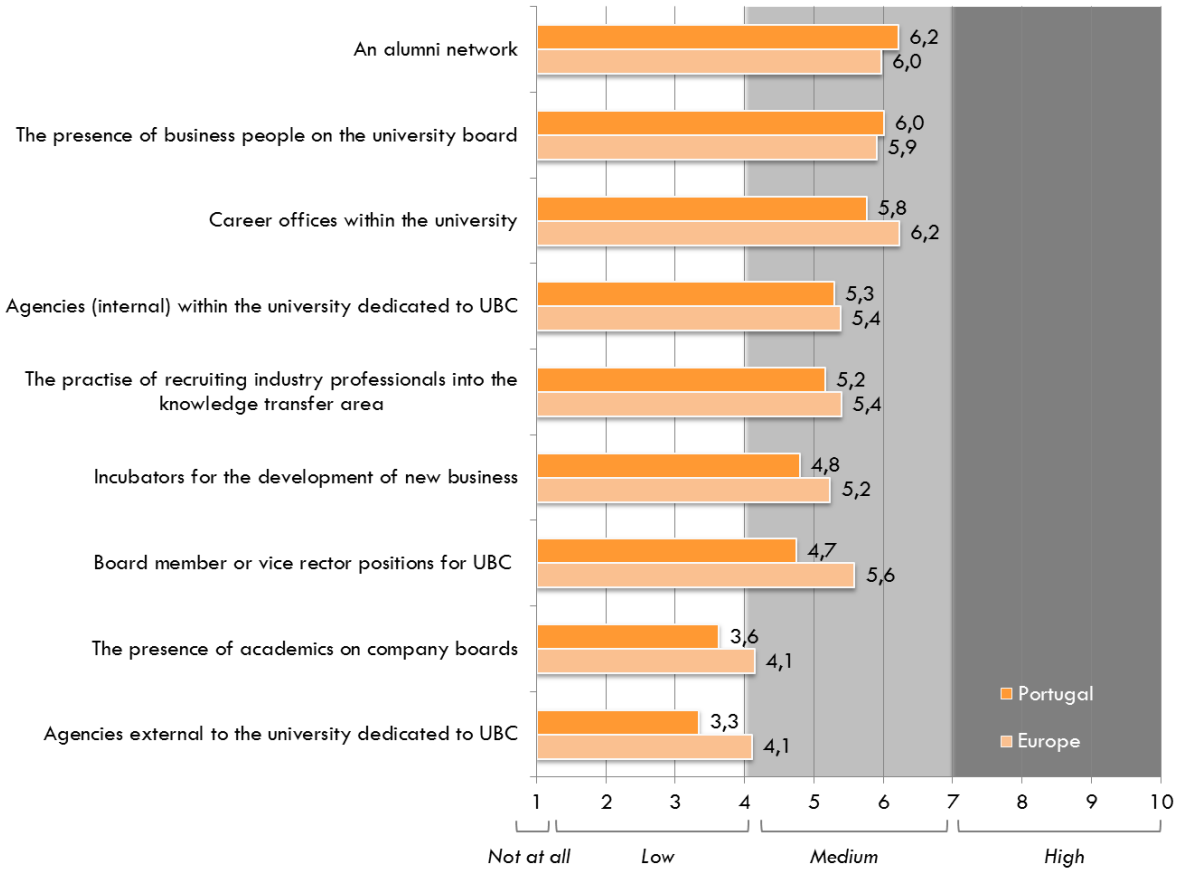
<u>*Role-based approaches are more develop in Portugal*</u>

The extent of development of the *Structures and approaches* for UBC in Portugal at a factored level shows that '*role-based approaches in UBC*' are significantly more developed than '*internal/external agencies focused on UBC*' (5.3 compared to 4.9).

While there is a similar development of '*role-based approaches*' in Portugal with respect to the average in Europe (5.3 compared to 5.4) the extent of development of '*internal/external agencies focused on UBC*' in Portugal shows a less degree of development compared to the European average (4.9 to 5.3).

Development of UBC structures and approaches –Portugal vs Europe

As answered by HEI representatives



An alumni network is the most developed approach in Portugal

The graph above shows that those role-based approaches are more developed. From the three most developed structures and approaches, two of them are related to students, showing again the Portuguese UBC strong focus on students. One of these items is 'alumni networks' (6.2), which are more developed than the European average, although there is a doubt of whether alumni networks in Portugal are truly enablers of UBC. The other structure is 'career offices within the university' (5.8), whose development is slightly lower than the European average. In the top three there is also 'the presence of business people on the university board' (6.0), which are also slightly more developed than in Europe and depict the predisposition of Portuguese business people to collaborate with HEIs at an institutional level.

Similar development of roles-based approaches to Europe

With respect to agencies focused on UBC, it can be stated that Portugal has on average more 'internal agencies dedicated to UBC', than 'external agencies'. Portugal has a quite low development on 'the presence of academics on company boards' (3.6) who take an active role in business strategic decisions and on 'agencies external to the university dedicated to UBC' (3.3). Compared to the European average, it also shows a lower level of development on these two *Structures and approaches* for the creation of truly regional innovation ecosystems. The creation of board members or vice rector positions for UBC is a key aspect in the institutionalisation of UBC within HEIs in Europe. Thus it is recommended for an efficient and official integration of UBC in the HEI culture.

Medium developed structures and approaches	1. An alumni network 2. The presence of business people on the HEI board 3. Career offices within the university 4. Agencies (internal) within the HEI dedicated to UBC 5. The practise of recruiting industry professionals into the knowledge transfer area 6. Incubators for the development of new business 7. Board member or vice rector positions for UBC
Low developed structures and approaches	8. The presence of academics on company boards 9. Agencies external to the university dedicated to UBC

Operational activities for UBC in Portugal

Operational activities are actions of a practical and immediate nature undertaken by HEIs, governments, regional agencies, HEIs and business to create and support UBC. *Operational activities* are usually of minimum cost of the *Supporting mechanisms* and require less commitment from HEI representatives and whose scope and volume can be described/measured.

Three groups of UBC operational activities

Resulting from an analysis of the results, *Operational activities* can be categorised in the following groups:

1. *Internally focused education and workshops focused on academics*
2. *Internally focused education and workshops focused on students*
3. *Externally focused networking, promotional and project activities*

Development of UBC operational activities (grouped) – Portugal vs Europe

As answered by HEI representatives

Internally focused education and workshops focused on academics	**Extent of development (1-10)**		**Extent of development (1-10)**	
• Workshops, information sessions and forums for University-Business collaboration targeting academics, • Entrepreneurship education offered to academics.	**Portugal**		**Europe**	
	HEI	**4.8**	**HEI**	**5.3**

Internally focused education and workshops focused on students	**Extent of development (1-10)**		**Extent of development (1-10)**	
• Entrepreneurship education offered to students.	**Portugal**		**Europe**	
	HEI	**6.7**	**HEI**	**6.3**

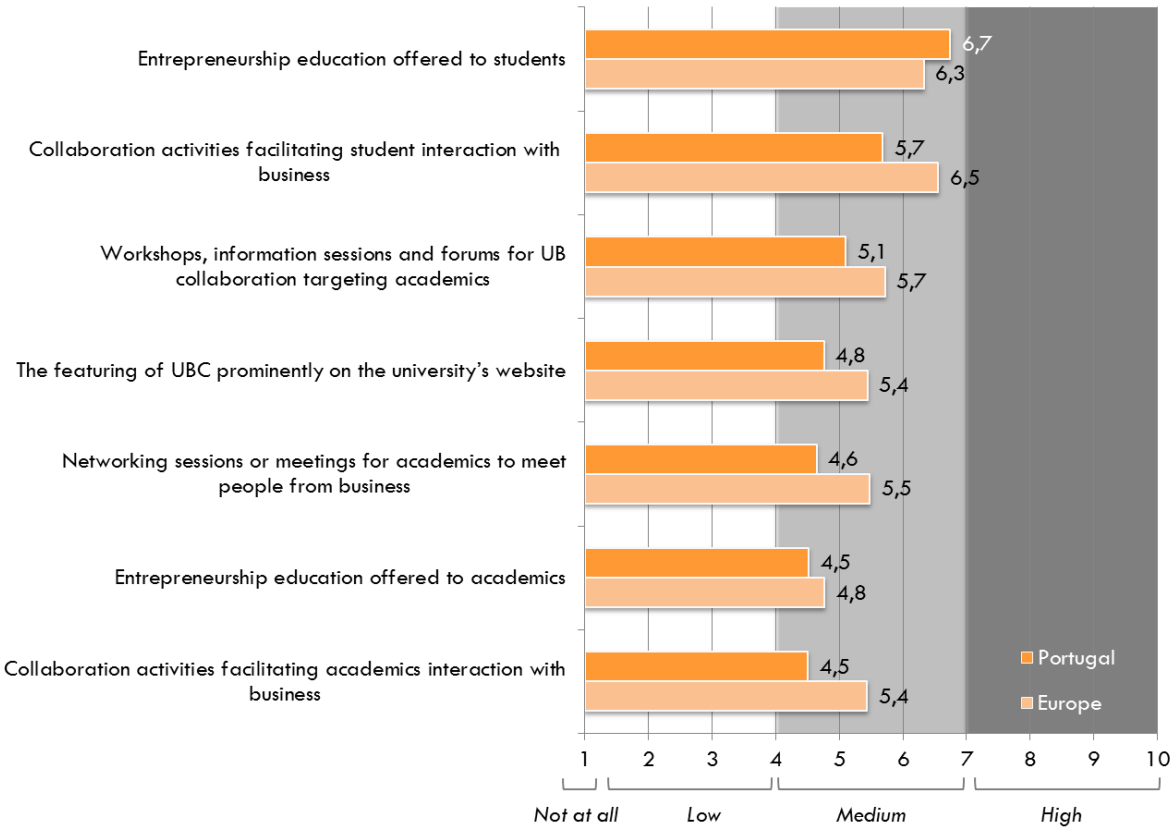
Externally focused networking, promotional and project activities	**Extent of development (1-10)**		**Extent of development (1-10)**	
• Networking sessions or meetings for academics to meet people from business, • The featuring of University-Business cooperation prominently on the HEI's website, • Collaboration activities facilitating student interaction with business, • Collaboration activities facilitating academics interaction with business.	**Portugal**		**Europe**	
	HEI	**5.0**	**HEI**	**5.7**

There are differences in the development of UBC activities compared Europe

On a factored (grouped) level, it can be summarised that Portugal is slightly more developed than the European average with respect to '*internally focused education and workshops focused on students*', (6.7 compared to 6.3) while it is less developed in '*internally focused education and workshops focused on academics*' (4.8 compared with 5.3) and '*externally focused networking, promotional and project activities*' (5.0 compared to 5.7). Activities seem to be again focussed on students, or at least they are more visible and recognised in the public arena than "taylor-made" activities dedicated to academics.

Development of UBC operational activities – Portugal vs Europe

As answered by HEI representatives



Internally focused education for students is the focus of UBC activities in Portugal

All UBC activities in Portugal are developed to a medium level. The most develop activity in Portugal is 'entrepreneurship education offered to students', which is higher in comparison to the European average (6.7 compared to 6.3). However, in all the other UBC *Operational activities* Portugal has a lower degree of development than Europe. The least developed strategies are those concerning academics: their networking with business (4.6), entrepreneurship education (4.5) and their interaction with business (4.5). This suggests a clear need to focus more in academics and those UBC types related to research.

The development of collaboration activities is lagging behind Europe

Almost all UBC activities considered are less developed than in Europe, with 'collaboration activities facilitating students' interaction with business' and 'collaboration activities facilitating academics interaction with business' lagging far behind the European average. It is important that strategies are turned into structures and those undertake a series of operational activities.

Moderately developed	1. Entrepreneurship education offered to students 2. Collaboration activities facilitating student interaction with business 3. Workshops, information sessions and forums for UBC targeting academics 4. The featuring of UBC prominently on the university's website 5. Networking sessions or meetings for academics to meet people from business 6. Entrepreneurship education offered to academics 7. Collaboration activities facilitating academics interaction with business

Describing University-Business Cooperation (UBC)

The UBC Ecosystem

The UBC ecosystem is a model for understanding the important elements affecting University-Business Cooperation (UBC)

Model created by

Todd Davey, Victoria Galan Muros, Arno Meerman.

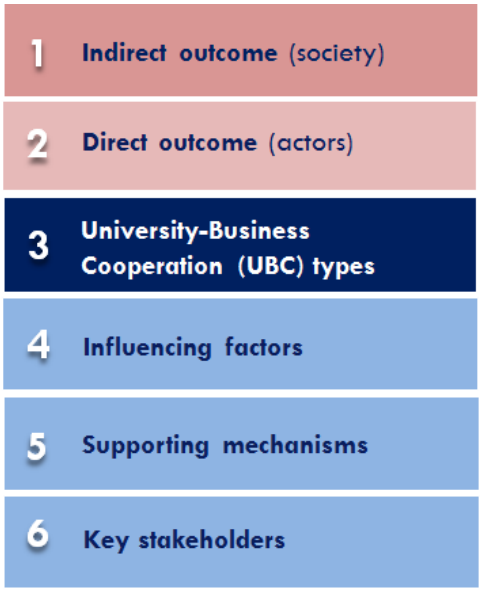
Model validation partners

Science-to-Business Marketing Research Centre, UIIN, apprimo UG

Co-created by

105 practitioners validating the model in their work.

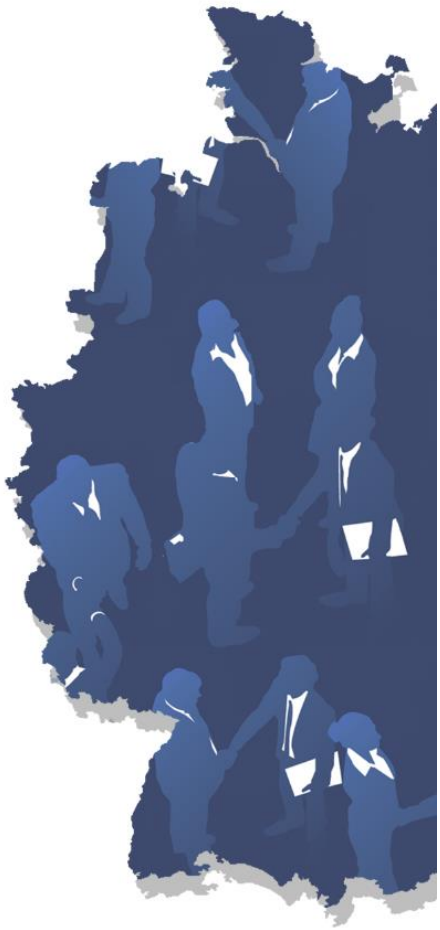
The model relationships have been scientifically validated by the Science-to-Business Marketing Research Centre



Are you…?

- …attempting to develop UBC within your organisation?
- …repetitively thinking about the factors affecting cooperation between university and business as well as their how they relate to each other?
- …trying to foster open innovation involving universities?
- …continually confronted with the challenge of creating better relationships between HEIs and business?
- …a revolutionary trying to match researchers with business partners?

… if you answered 'yes' to any of these questions, you are not alone: this model was developed by people like you for these reasons



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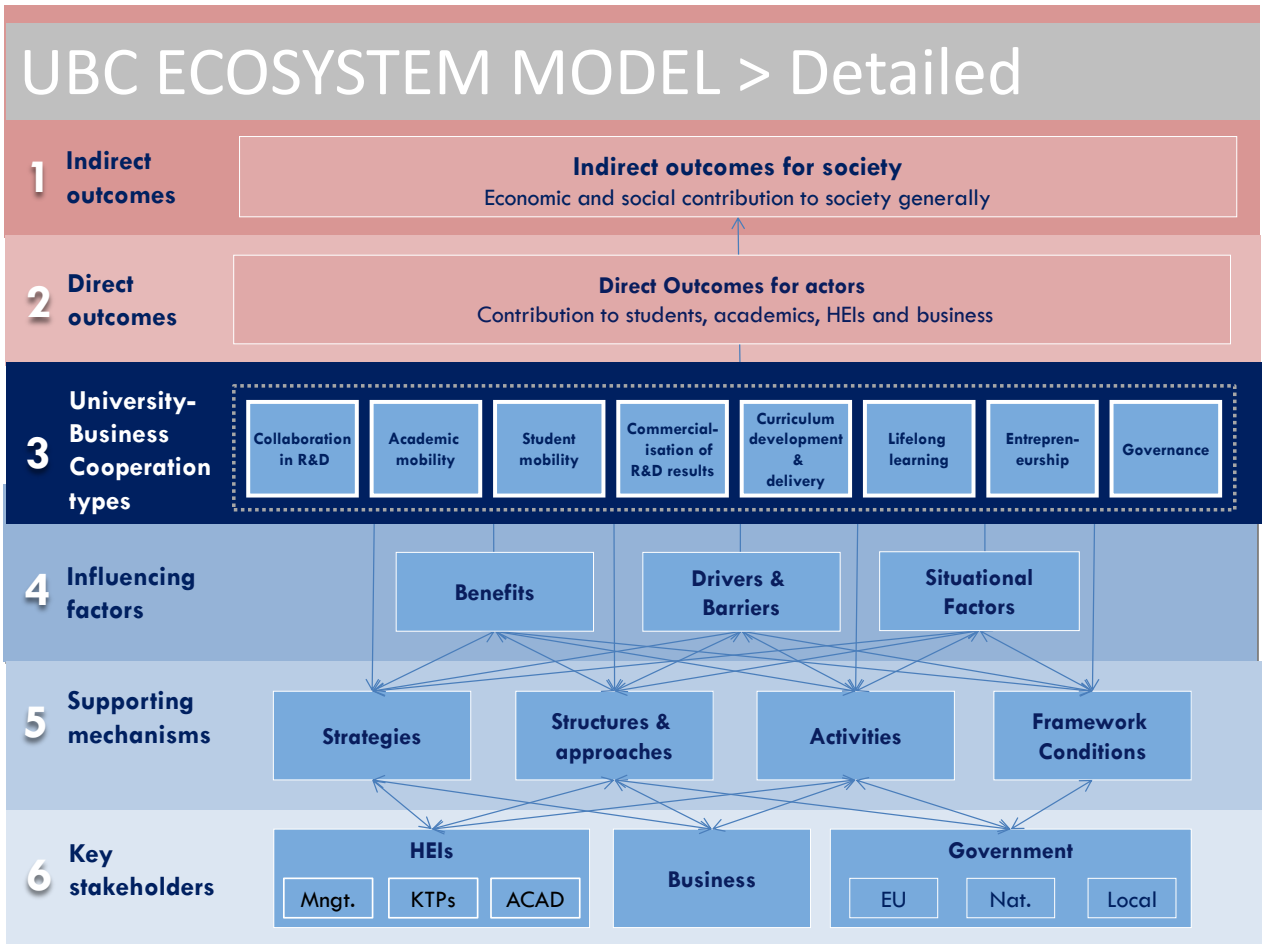

6 Ecosystem Elements (and their key findings)

1. UBC is vital in creating a knowledge society
2. UBC provides direct outcomes for students, HEIs, academics and businesses
3. Those UBC types with more direct, measurable, and promotable *Benefits* are the most developed (e.g. *Collaboration in R&D*, *Mobility of students*)

4a. *Situational factors* (e.g. age, faculty) help to explain UBC but there is little that can be implemented from these results

4b. Lack of funding and excess of bureaucracy at all levels (HEI, national, European) are the highest *Barriers* to UBC

4c. Personal relationships drive UBC. It's a people game!

4d. Perceptions of high personal *Benefits* & incentives are motivators of UBC

5. The creation and development of *Supporting mechanisms* (especially those with the highest impact) are critical for UBC
6. In the UBC ecosystem, the multiple actors need to work cooperatively and in a coordinated manner

UBC ECOSYSTEM Layers explained		All aspects are measurable (benchmarking)
1 Indirect Impact	Impact level	How it impacts society
2 Direct outcomes	Outcome level	How it affects stakeholders
3 University-Business Cooperation types	Result level	What occurs
4 Influencing factors	Factor level	What you have to consider
5 Supporting mechanisms	Action level	What you can do
6 Key stakeholders	Stakeholder level	

Please go to http://ub-cooperation.eu/pdf/UBCECO.pdf for more information or contact davey@apprimo.com.

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