The State of University-Business Cooperation in Germany

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

December 5th, 2013

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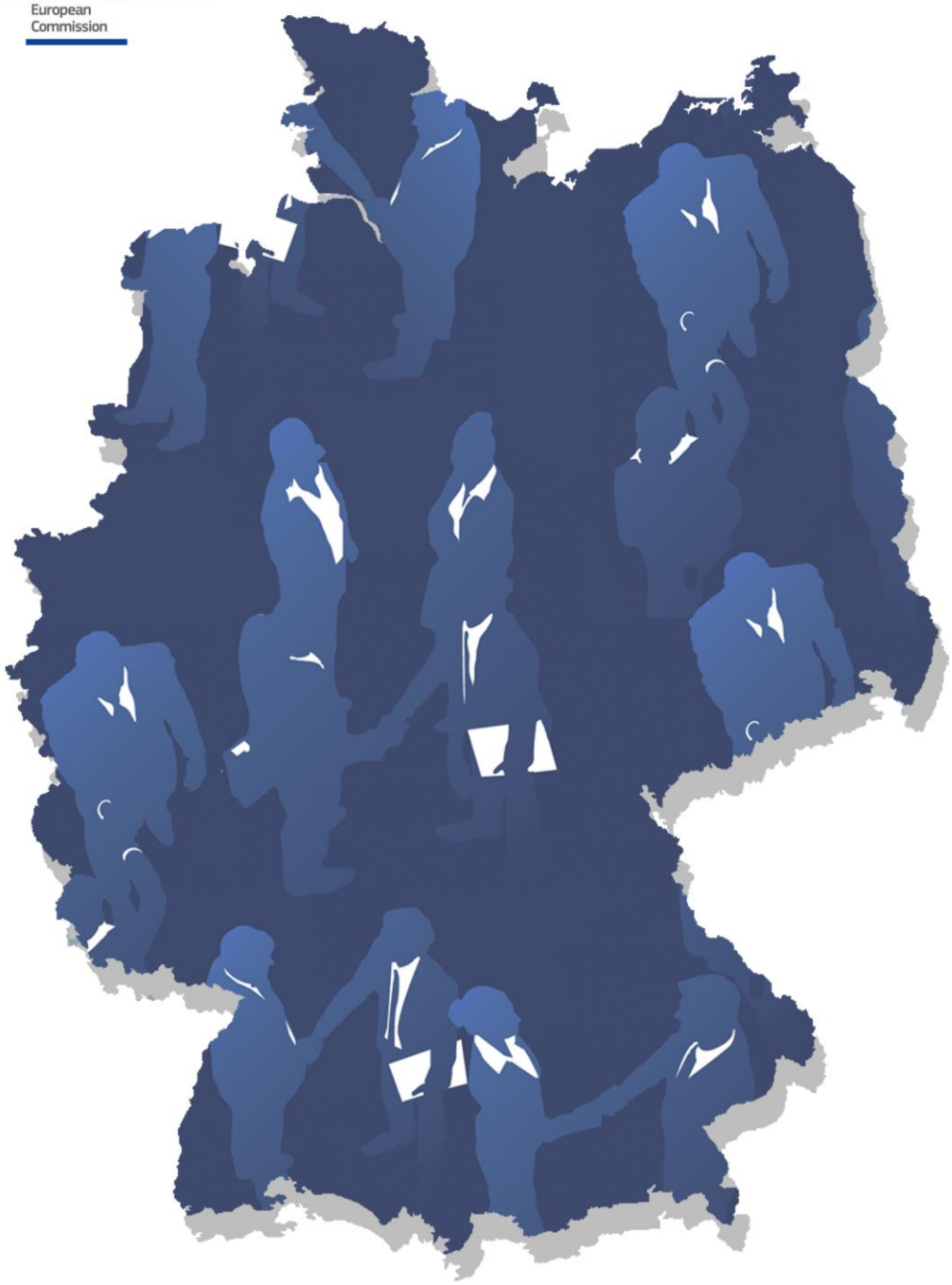

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Fachhochschule Münster University of Applied Sciences

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
UPB	University professional working with business

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, 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 EU 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

Germany are strong performers in university-business cooperation related to R&D

Potentially reflecting the high respect for research in Germany as well as research and development (R&D), expenditure (2.8% of GDP in 2011 according to the OECD, well above the European average of 1.9%), German universities perceive a high development of collaboration in R&D between universities and business. German HEI managers and academics both recognise lower *barriers* and higher *drivers* for university-business cooperation (UBC) than their European equivalents. However this is not reinforced through the development of *structures and approaches* or the level of *benefits* for academics or HEIs. In other words, Germany HEIs are missing an opportunity to institutionalise UBC and thus this provides some clear areas of improvement for German HEIs.

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 management (HEI managers and HEI professionals working with industry) whilst from Germany, 521 responses from academics (240) and HEI management (281) were received. The study measured the perceptions of these two groups in respect to their own cooperation efforts and those of their HEI respectively.

Collaboration in, and Commercialisation of R&D are the most developed forms of UBC

The most developed types of UBC in Germany are: (1) *Collaboration in research and development* (R&D), (2) *Mobility of students*, and (3) *Commercialisation of R&D* results with the least developed type being: *Mobility of academics*. In respect to the European average, the three most developed types of cooperation mentioned above are the only types of cooperation above the European average.

Barriers to UBC are lower in Germany but bureaucracy is a substantial problem

The primary *barriers* to UBC in Germany are: (1) 'business lack awareness of university research *activities*/offerings', (2) 'bureaucracy within or external to the HEI' and (3) 'lack of financial resources of the business'. However, compared to the European average, all types of *barriers* including *Relational barriers, business barriers* and *funding barriers* (the lowest type of *barriers*) are perceived by German HEI managers to be lesser *barriers* to UBC than their European counterparts. German academics primarily perceive the level of UBC *barriers* similarly to the HEI managers except for one area: bureaucracy. 'Bureaucracy within or external to the HEI' is the highest rated *barrier* by academics and therefore needs to be addressed to further increase German UBC.

Relationships drive cooperation in Germany

Germany HEI management and academics alike name relationships as the *drivers* of UBC in Germany. As in Europe generally, *relationships drivers* such as (1) 'existence of mutual trust', (2) 'existence of mutual commitment' and (3) 'having a shared goal' were nominated as the biggest *drivers* of UBC. This suggests that greater effort to bring academics together with business, with space for relationship building, could be a focus for further improvement of cooperation. Furthermore, both HEI managers and academics also perceive higher *drivers* generally for UBC than their European counterparts.

Academics perceive low personal *benefits*

German academics perceive the primary winners from UBC to be: (1) businesses, (2) students, (3) the HEI (though significantly less), and lastly (4) personal *benefits*, with a very low amount of academics stating that UBC increases their changes of promotion. These results imply that academics need to receive (or perceive) greater personal *benefits* from their HEI in order to increase UBC activity. HEI managers state that HEIs receive *benefit* the least from UBC coming after (1) students, (2) business and (3) society implying the need for governments to provide higher incentives to HEIs for UBC (or disincentives not to).

UBC *supporting mechanisms* are developed to a similar level to the European Union average

UBC *strategies* are highly developed in Germany especially *documented strategies*. Despite being above the European Union (EU) average, there is still some room for improvement in respect to *implementation strategies* especially to provide incentives and include UBC in the assessment of academics' work performance. Both *role-based approaches* and *internal/external agencies dedicated to UBC* are developed to a similar level in Germany with both also similar to the European average. The comparatively lower rating of 'business people on the HEI board' provides an obvious area of improvement. UBC *activities* are the only *supporting mechanisms* developed more in Germany, with all *activities* developed significantly more than the EU average.

Introduction

Background

With the creation of the Europe 2020, the EU's growth strategy for the coming decade, and the higher education modernisation agenda, Europe is embracing the need to create a more connected and functioning relationship between government, business and HEIs in order to increase employment, productivity and social cohesion[1]. If fostering UBC is understood as interactions between higher education institutions and business for mutual benefit, then fostering UBC and extracting its value can help society face a number of issues. These issues include universities with the problem of decreasing public funds[2] help businesses to gain and maintain their competitive advantage in today's dynamic international markets, contribute 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 Lifelong learning (LLL), Entrepreneurship or exchanges of workers with business 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 business 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 Germany 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 management 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:

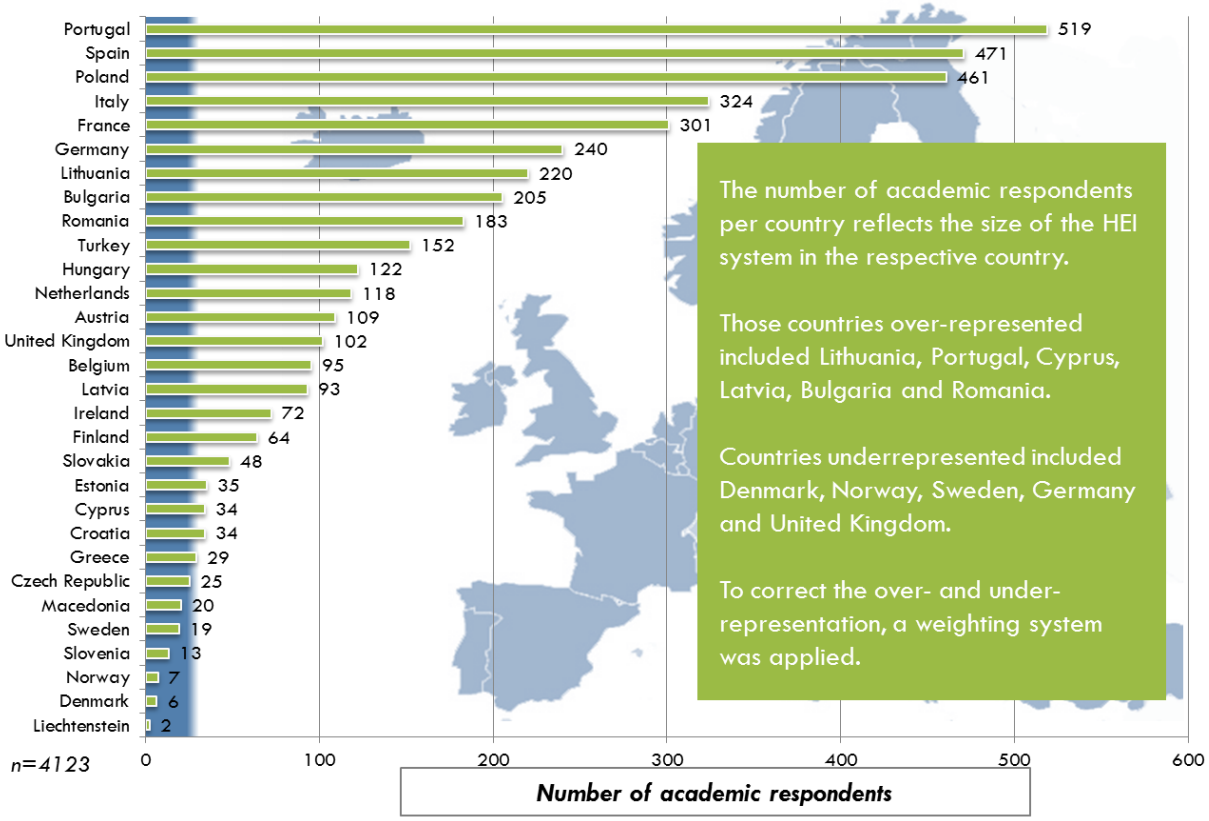
1. Individual academics were asked to respond on behalf of themselves.
2. HEI management (HEI managers and university professionals working with industry) were asked to respond on behalf of their HEI.

	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 thoughout the report to identify those results received from the academic (green) and those results received from the HEI (orange).

Respondents (academic)

Country



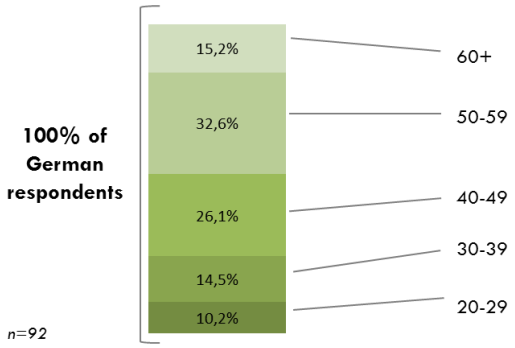
The number of academic respondents per country reflects the size of the HEI system in the respective country.

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

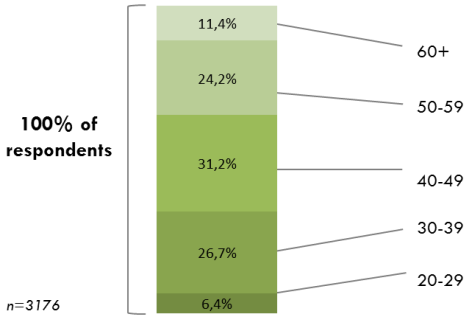
Countries underrepresented included Denmark, Norway, Sweden, Germany and United Kingdom.

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

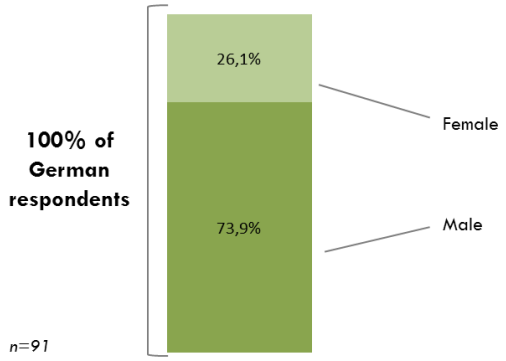
Age of respondents in Germany



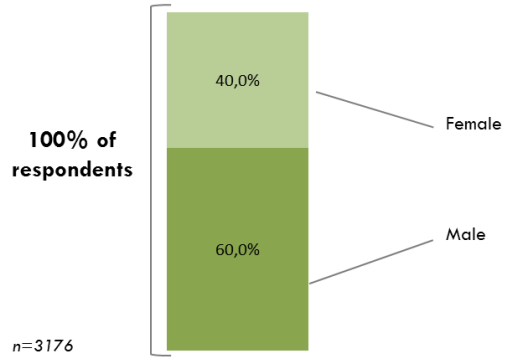
Age of respondents in Europe



Gender of respondents in Germany

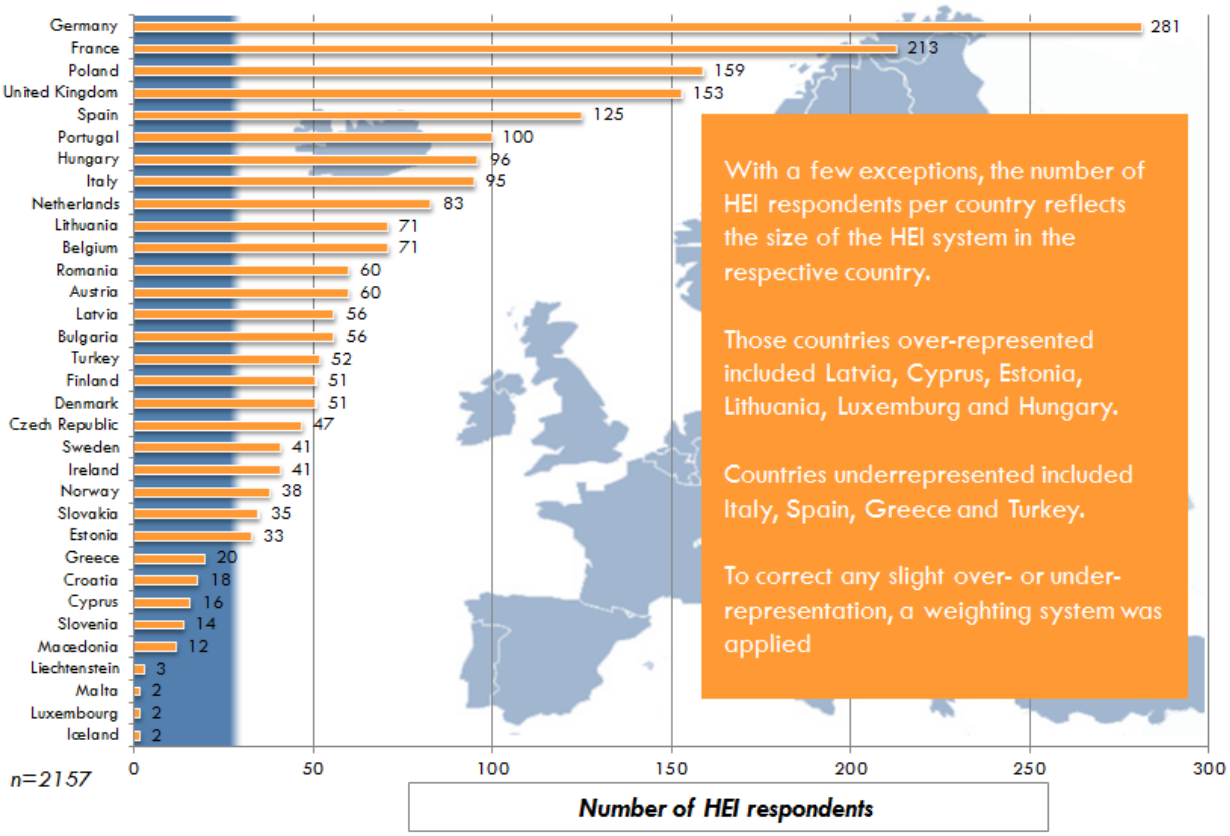


Gender of respondents in Europe

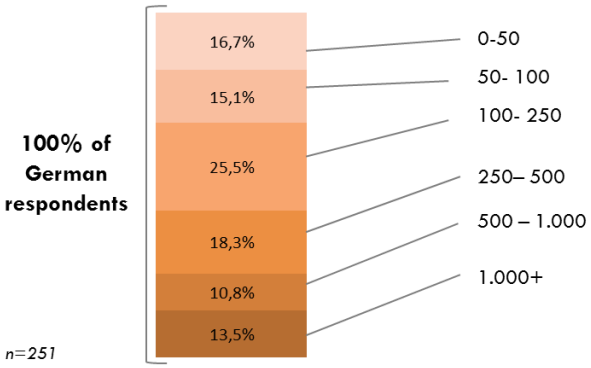


Respondents (HEIs)

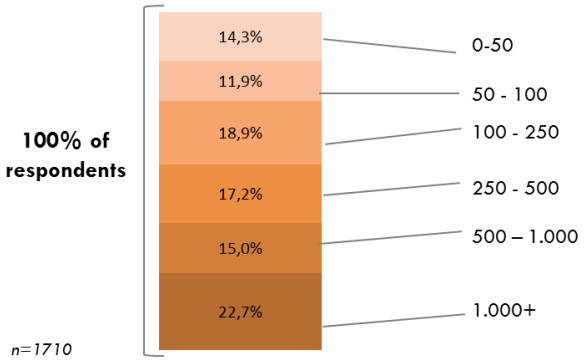
Country



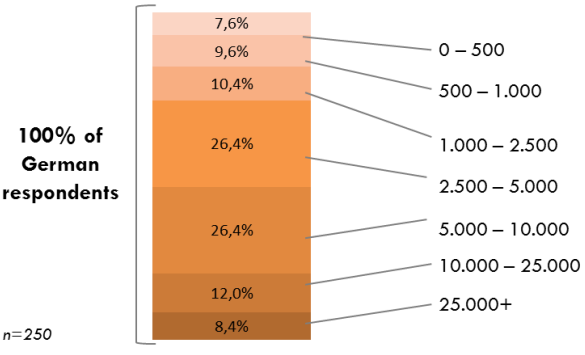
Size of HEI (no. of academics) in Germany



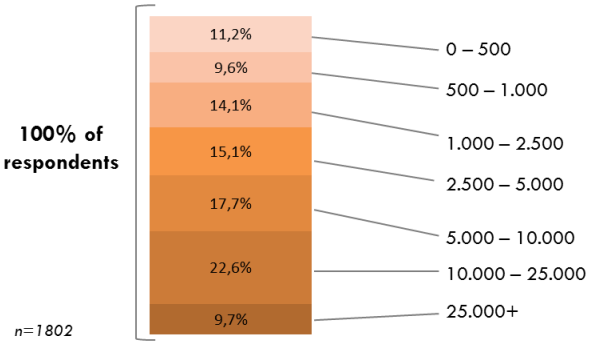
Size of HEI (no. of academics) in Europe



Size of HEI (no. of students) in Germany



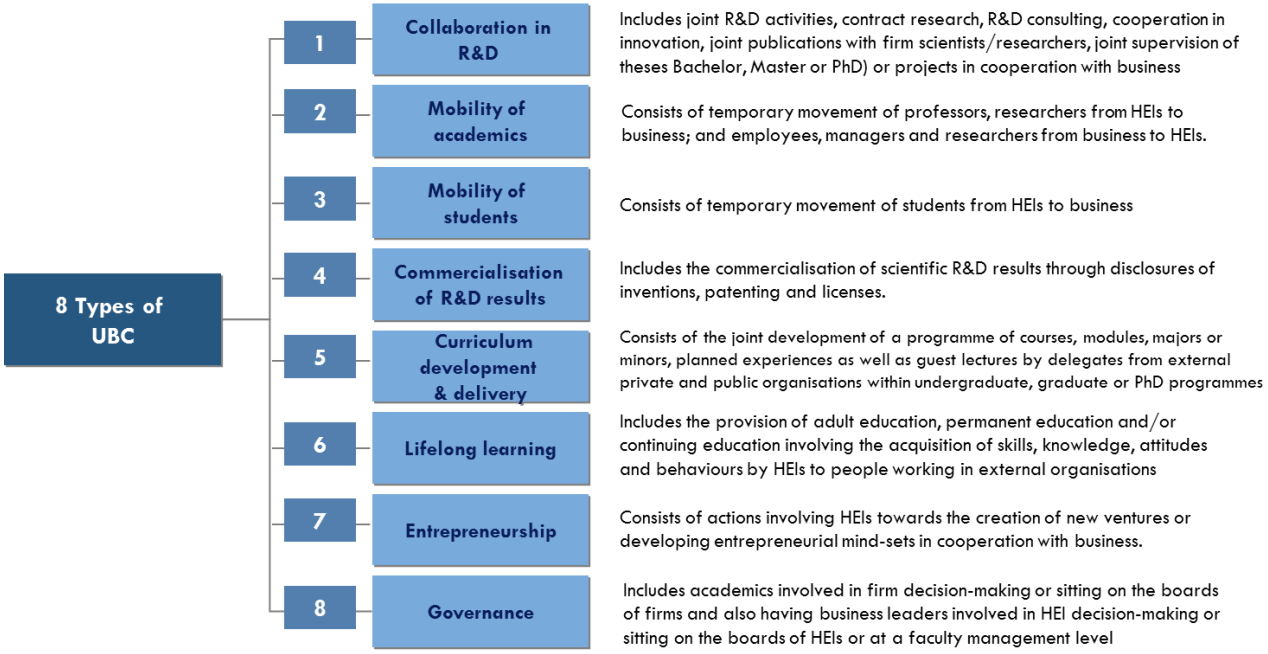
Size of HEI (no. of students) in Europe



Results

Extent of UBC

There have been eight types of cooperation recognised between university and business [10]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.

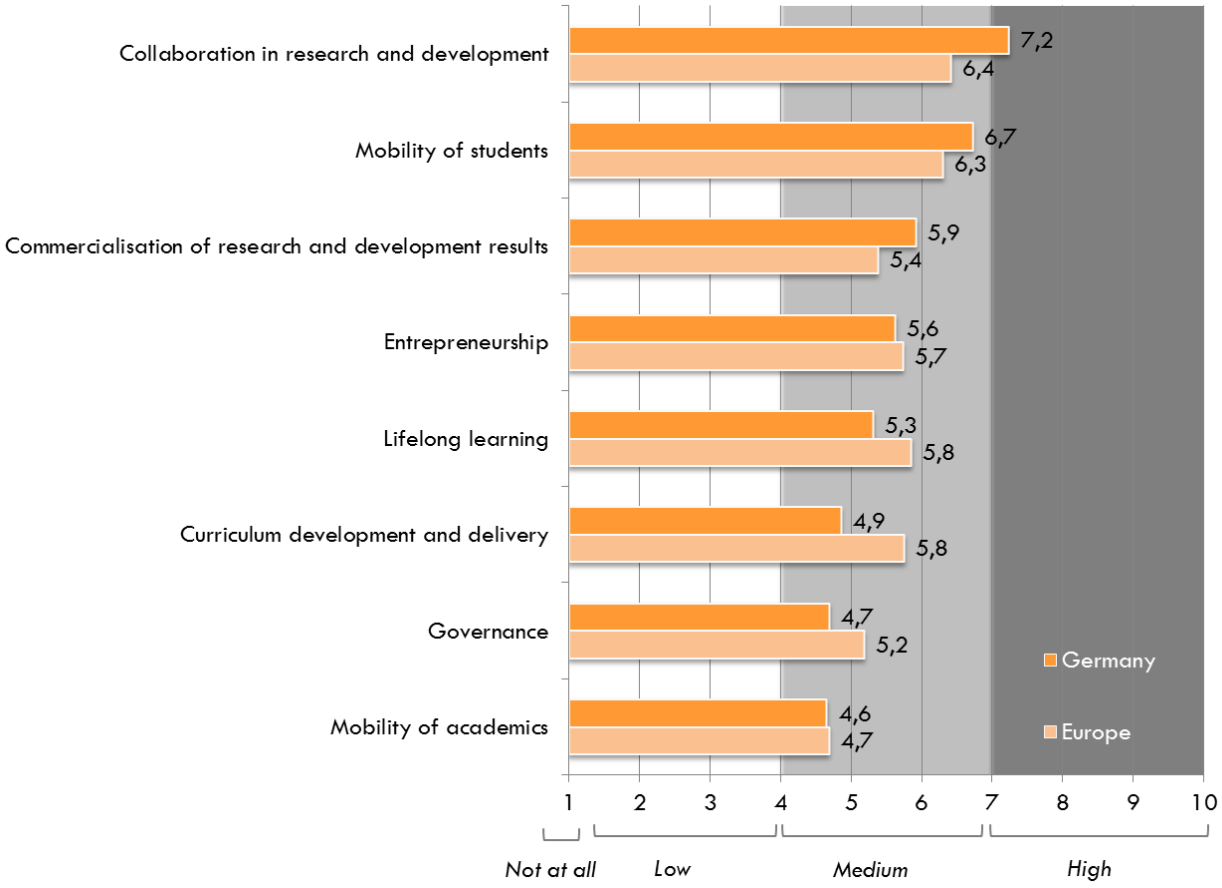
Relationship among cooperation types

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.

[10] Davey *et al.*, 2011

Extent of UBC in Germany

As answered by HEI management



Extent of cooperation in Germany

There is a high degree of diversity in the development of the different types of UBC in Germany, with 'collaboration in R&D' (7.2) and 'mobility of students' (6.7) being the most developed types. 'Mobility of academics' (4.6), 'governance' (4.7) and 'curriculum development and delivery' (4.9), on the other hand, are the least developed ones.

Benchmarking Germany against the EU

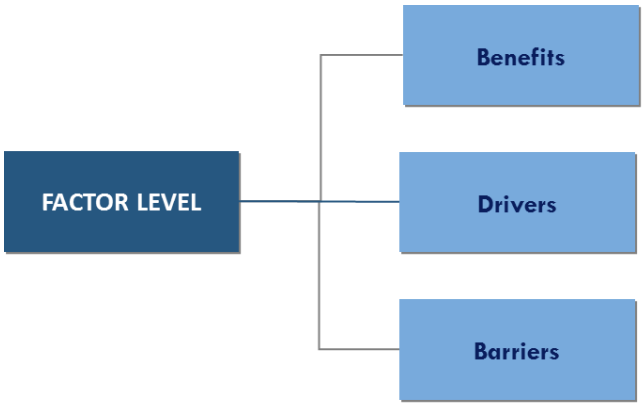
In comparison to the European average, German HEI management report a higher extent of development in 'collaboration in R&D', 'mobility of students' and 'commercialisation of R&D results'. All other types are less developed than on European level.

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

	Germany	Europe
Highly developed	1. Collaboration in R&D	
Moderately developed	1. Mobility of Students 2. Commercialisation of R&D results 3. Entrepreneurship 4. Lifelong Learning 5. Curriculum development and delivery 6. Governance 7. 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 Germany. 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 *drivers* and *barriers*

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. It is the *driver* that means that an academic cooperates 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

It is 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

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 Finland compared to the EU 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 – Germany v Europe

As answered by academics and HEI management

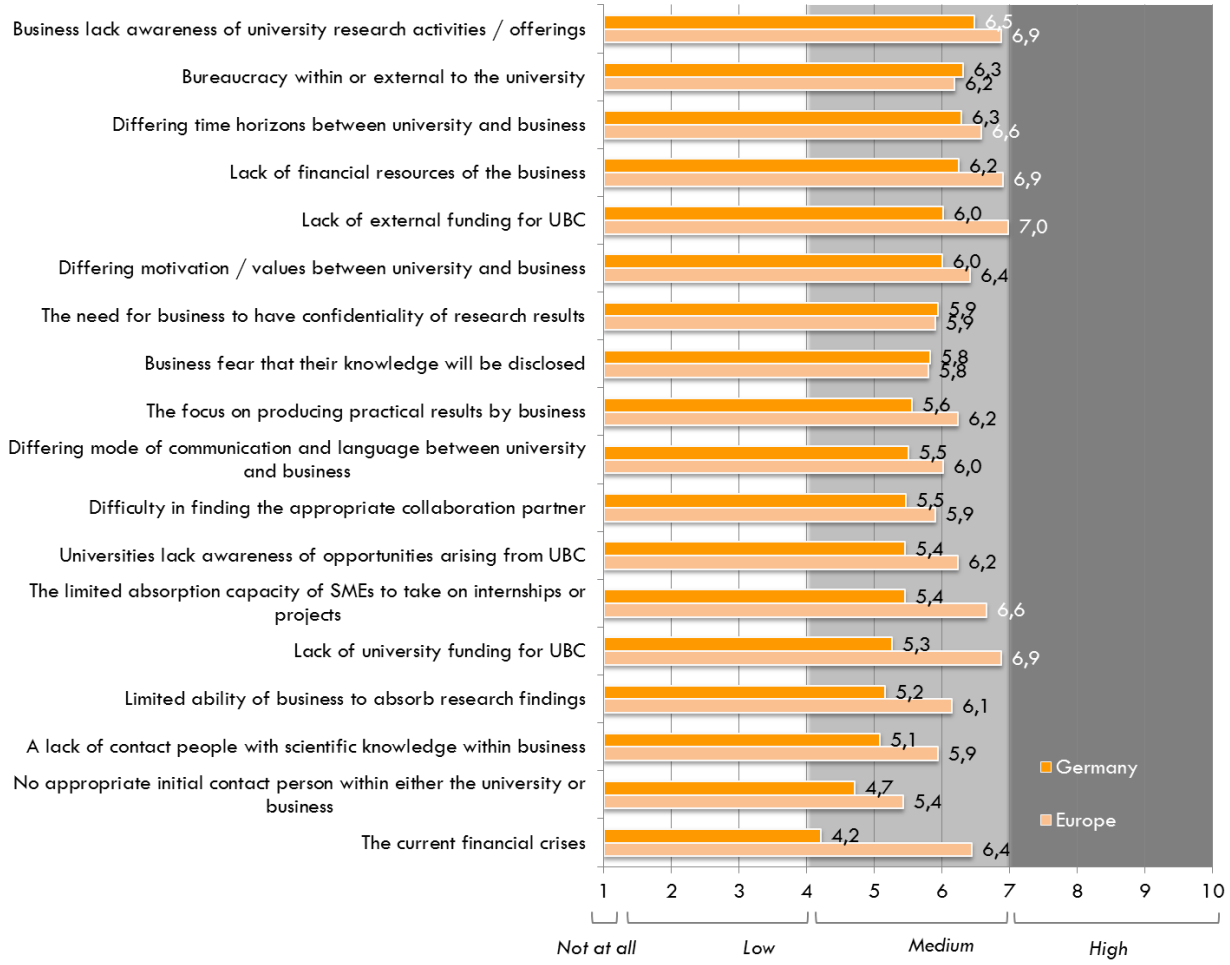
Usability of results	**Extent of relevance (1-10)**		**Extent of relevance (1-10)**	
• The focus on producing practical results by business, • The need for business to have confidentiality of research results, • Business fear that their knowledge will be disclosed.	**Germany**		**Europe**	
	ACAD	**5.8**	**ACAD**	**6.1**
	HEI	**5.8**	**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.	**Germany**		**Europe**	
	ACAD	**5.5**	**ACAD**	**6.5**
	HEI	**5.4**	**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.	**Germany**		**Europe**	
	ACAD	**5.8**	**ACAD**	**6.4**
	HEI	**5.7**	**HEI**	**6.2**

Main *barriers* to cooperation – Germany v Europe

As answered by HEI management



It can be stated that HEI management report moderate *barriers* towards UBC in Germany. The most prominent *barriers* named by German HEI management are 'business lack awareness of university research *activities*/offerings' (6.5), 'bureaucracy within or external to the university' (6.3), 'lack of financial resources of the business' (6.3). The least important *barrier* is the current financial crisis (4.2), followed by having 'no appropriate initial contact person within either the university or business' (4.7).

Comparing German HEI representative responses with EU HEI representative (see graph above)

Among all 18 *barriers* only one, 'bureaucracy within or external to the university' is considered higher compared to the European average (6.3 compared to 6.2). Two other *barriers* are on the same level, with the remaining 15 *barriers* being less hindering in Germany than on European level.

Compared to the European average (see the results from the previous page), all factored *barriers* are lower in Germany, especially *funding barriers* (1.0 to 1.4 higher on European level), which shows that generally there are lower perceived *barriers* to UBC in Germany than in Europe.

Comparing German HEI representative responses with German academic responses (see table previous page)

Germany HEI management and academics see the *barriers* to UBC very similarly with no significant difference between the respective *barriers*. This is true with a major exception whereby Germany academics rate 'bureaucracy within or external to the university' (7.8) the highest *barrier* by far (the next highest is rated at 6.4), a result that is almost identical to that experienced in Europe.

Main *barriers* to UBC in Germany
1. Business lack awareness of HEI research *activities*/offerings
2. Bureaucracy within or external to the HEI*
3. Differing time horizons between university and business
4. Lack of financial resources of the business
5. Lack of external funding for UBC

* Especially for German academics

Drivers stimulating UBC

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 Germany compared to the EU 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 – Germany v Europe

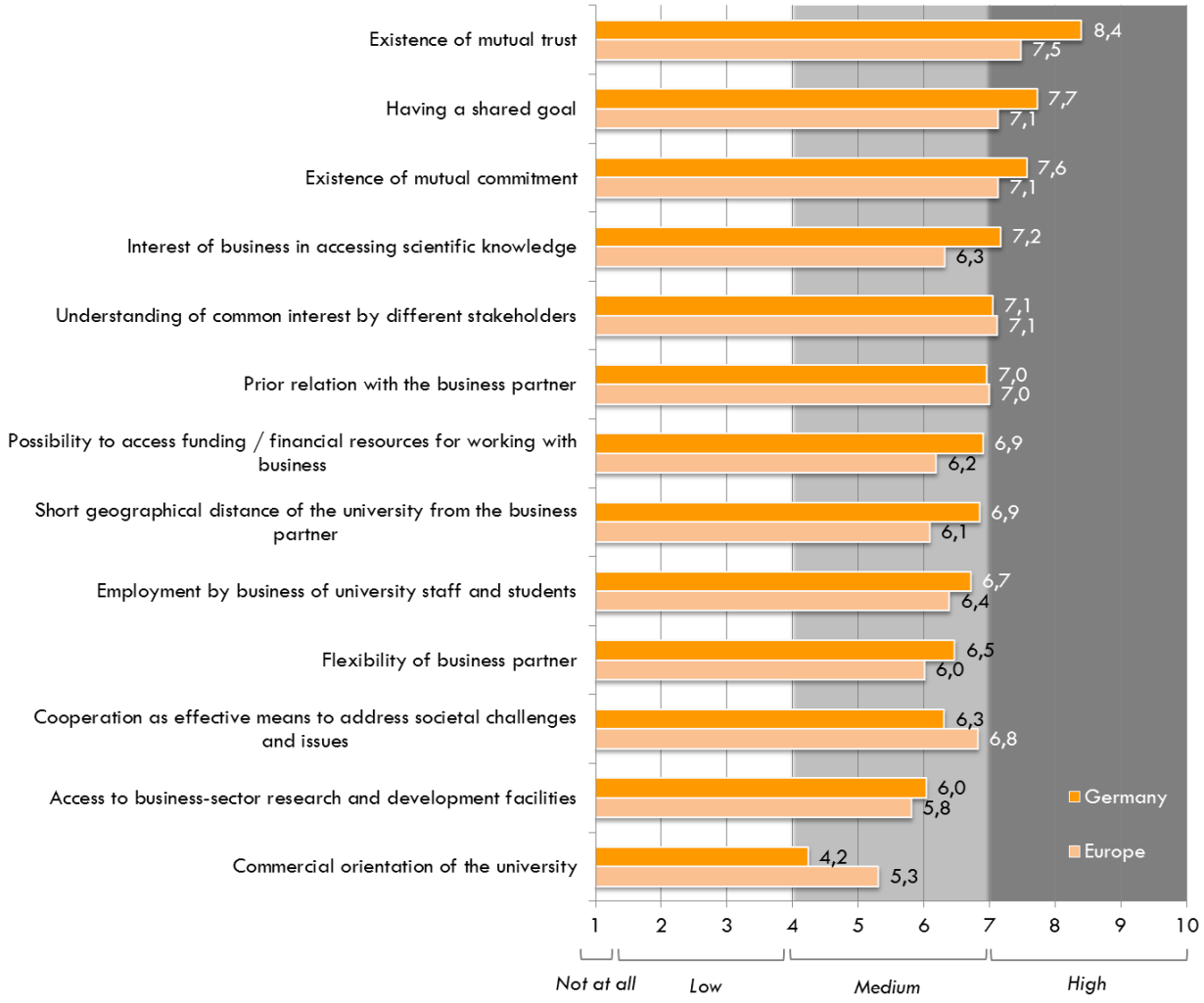
As answered by academics and HEI management

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.	Germany		Europe	
	ACAD	7.2	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.	Germany		Europe	
	ACAD	6.0	ACAD	5.6
	HEI	6.3	HEI	6.7

Main *drivers* of cooperation – Germany v Europe

As answered by HEI management



The HEI management in Germany perceive the highest *drivers* of UBC to be *relationship drivers* such as 'existence of mutual trust' (8.4), 'having a shared goal' (7.7), and 'existence of mutual commitment' (7.6). On the other extreme, 'commercial orientation of the university' is not seen as a great stimulator of UBC.

<u>*Comparing German HEI representative responses with German academic responses*</u> *(see table previous page)*

Both HEI management and academics recognise these *drivers* to the same degree, a result not replicated throughout Europe where HEI management recognise significantly higher *drivers* than academics.

<u>*Comparing German with EU responses*</u> *(see graph above)* In general, both German HEI management and academics perceive *relationship drivers* to be of high importance (7.3 and 7.2). Compared to the European average, the German values are 0.3 respectively 0.5 higher. With respect to *business drivers*, the data shows more diversified results. German academics perceive *business drivers* higher than European average (6.0 compared to 5.6) while HEI management perceive them lower (6.3 compared to 6.7 on European level).

Overall, German HEI management consider most *drivers* as more important than HEI management in Europe. The only two exceptions are the 'commercial orientation of the university' and 'cooperation as effective means to address societal challenges and issues'.

Main *drivers* of UBC in Germany	
1.	Existence of mutual trust
2.	Having a shared goal
3.	Existence of mutual commitment
4.	Interest of business in accessing scientific knowledge
5.	Understanding of common interest by different stakeholders

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 Germany compared to the EU average. 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 – Germany v 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	Germany		Europe	
	ACAD	7.9	ACAD	7.9

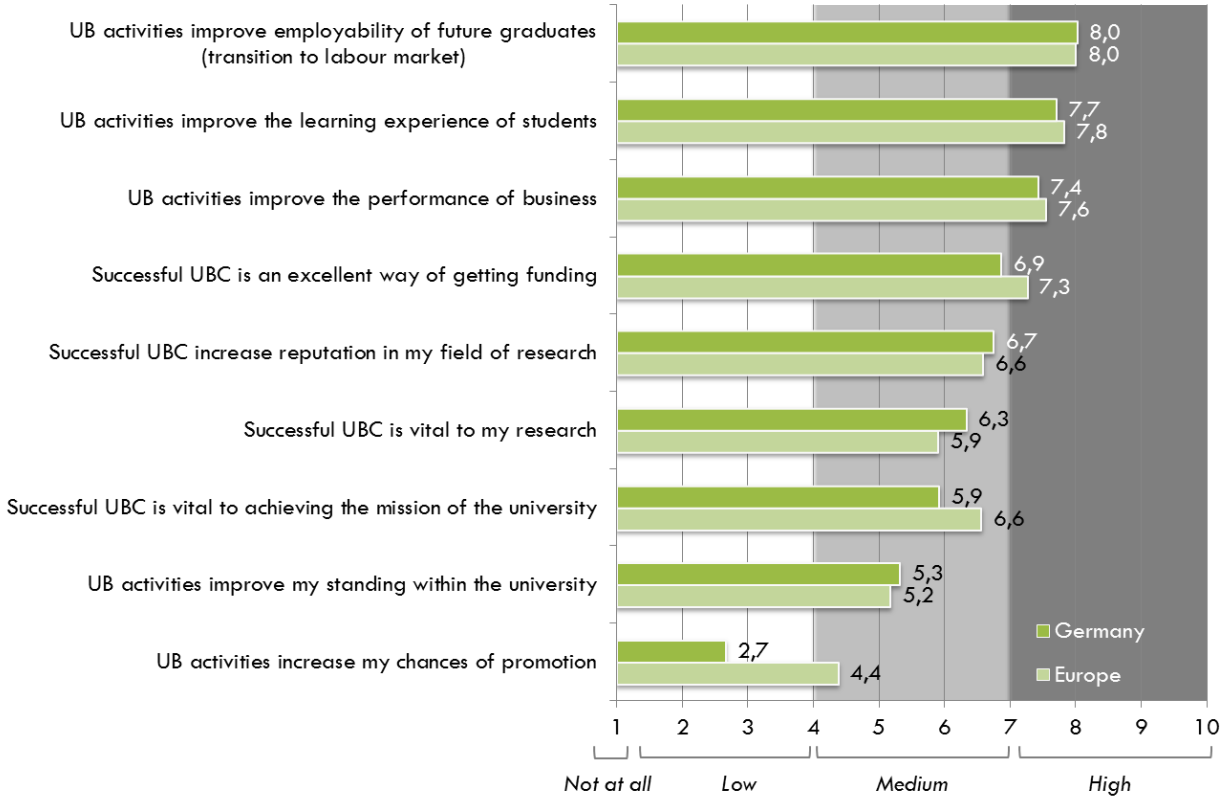
Benefits for business	Extent of importance (1-10)		Extent of importance (1-10)	
• UB activities improve the performance of business	Germany		Europe	
	ACAD	7.4	ACAD	7.6

Benefits for HEIs	Extent of importance (1-10)		Extent of importance (1-10)	
• Successful UBC is vital to achieving the mission of the HEI	Germany		Europe	
	ACAD	5.9	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	Germany		Europe	
	ACAD	5.7	ACAD	5.9

Benefits from cooperation – Germany v Europe

As answered by academics



Academics in Germany nominate that the greatest *benefits* from UBC go to graduates and students ('UBC *activities* improve employability of future graduates', 'UBC *activities* improve the learning experience of students') then to business ('UBC *activities* improve the performance of business'), followed by *benefits* for the HEI and lastly personal *benefits*.

Comparing German with EU responses (see graph above) Overall, the perception of most *benefits* is in line with the European average, but German academics are more negative with respect to UBC helping to get funding and UBC being vital to achieve the mission of the HEI. Quite discernible is that by far lowest reported *benefit* is 'UBC *activities* increase chance of promotion' of the academic itself (2.7). While the chance of promotion is also the lowest value on European level (4.4), a significant difference can be reported.

Main *benefits* of UBC identified by German academics
1. UBC *activities* improve employability of future graduates,
2. UBC *activities* improve the learning experience of students,
3. UBC *activities* improve the performance of business
4. Successful UBC is an excellent way of getting funding
5. Successful UBC increase reputation in my field of research

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 management (orange) in Germany compared to the EU average. The *benefits* have been factored into 'meta-groups' to provide a more strategic understanding of UBC *barriers*.

Three 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 and society, and*
3. *benefits for HEIs.*

Benefits (grouped) from cooperation – Germany v Europe

As answered by HEI management

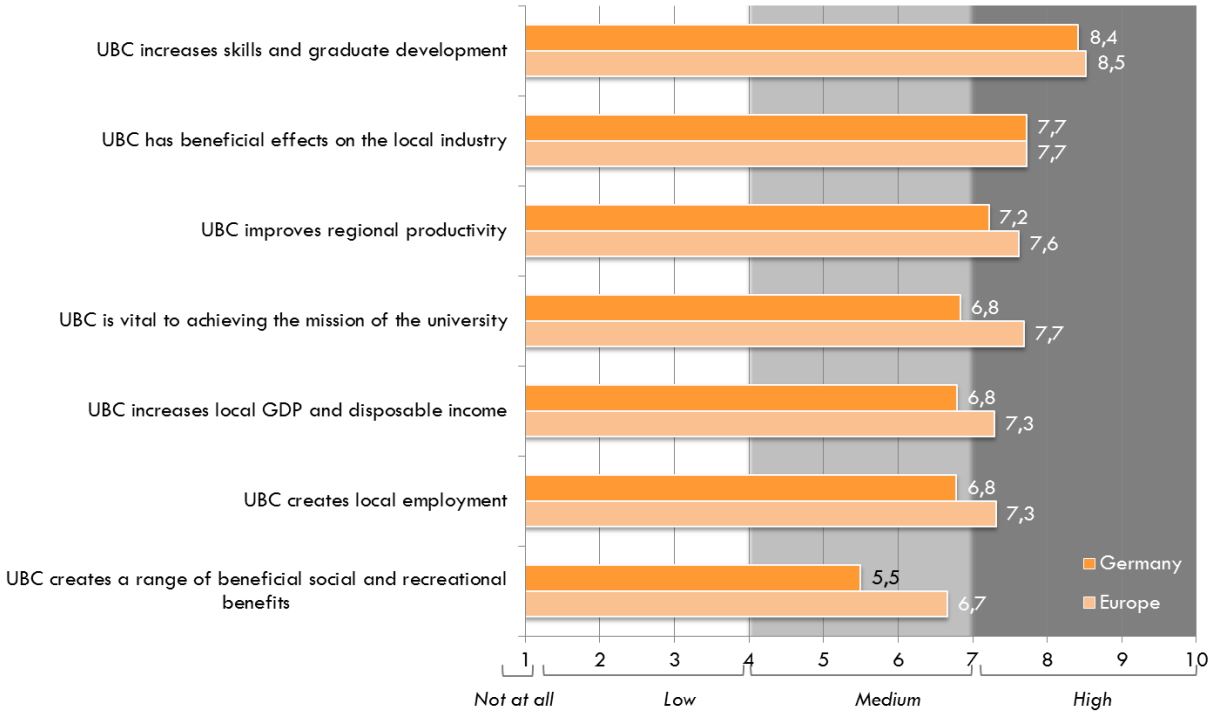
Benefits for the HEI	Extent of importance (1-10)		Extent of importance (1-10)	
• UBC is vital to achieving the mission of the HEI.	Germany		Europe	
	HEI	6.8	HEI	7.7

Benefits for students	Extent of importance (1-10)		Extent of importance (1-10)	
• UBC increases skills and graduate development	Germany		Europe	
	HEI	8.4	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	Germany		Europe	
	HEI	6.9	HEI	7.3

Benefits from cooperation – Germany v Europe

As answered by HEI management



With the exception of social and recreational *benefits*, all UBC *benefits* are perceived on an upper moderate or high level. The highest recognised *benefit* is 'skills and graduate development' (8.4), followed by 'beneficial effects on the local industry' (7.7).

Comparing German with EU responses *(see graph above)* Apart from 'beneficial effects on the local industry' and 'increasing skills and graduate development', which are reported by German HEI management on the same / nearly the same level as in Europe, all *benefits* are lower compared to the European average. The differences between Germany and Europe range from 0.4 ('improvement of regional productivity') over 0.5 ('increase of local GDP and disposable income' and 'creation of local employment') to more significant gaps in 'UBC is vital to achieving the mission of the university' (1.1) and 'UBC creates a range of beneficial social and recreational *benefits*' (1.2).

Main *benefits* of UBC identified by German HEI management
1. UBC increases skills and graduate development
2. UBC has beneficial effect on the local industry
3. UBC improves regional productivity
4. UBC is vital to achieving the mission of the HEI
5. UBC increases local GDP and disposable income

Benchmark

…universities in your region

Assisting governments and universities improve University-Business Cooperation (UBC)

Using the State of European UBC study results, decision makers, managers and practitioners involved in UBC 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 UBC,
3. proactive areas of focus for increasing UBC,
4. the required information to advance UBC 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 UBC

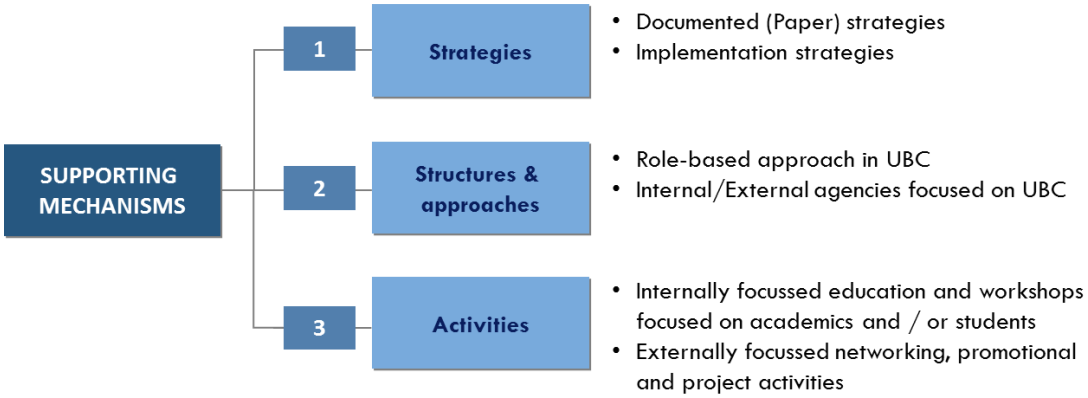
…your HEI!

Please contact davey@apprimo.com for more information.

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 Germany. 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 management	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

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 management 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) – Germany v Europe

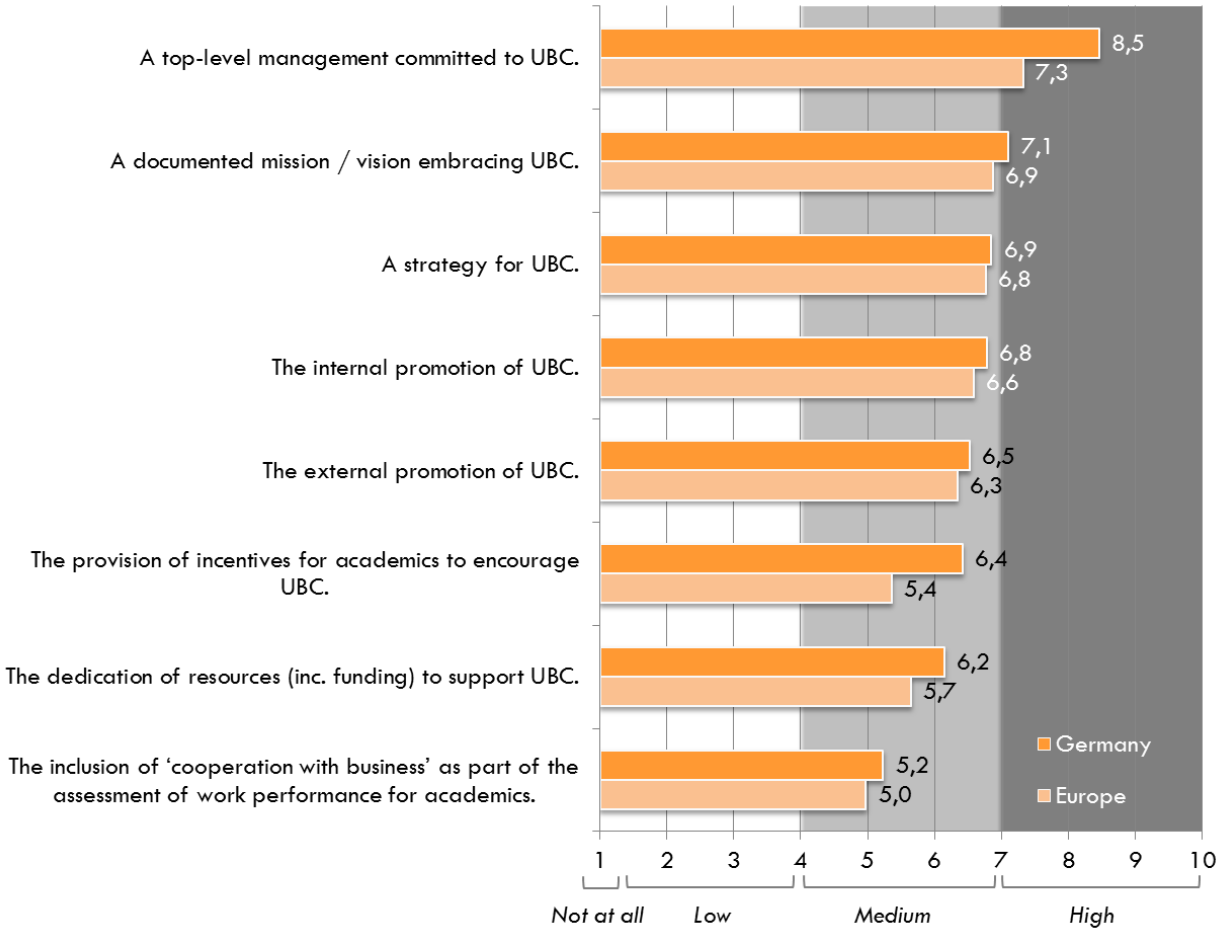
As answered by HEI management

Documented (Paper) strategies	Extent of development (1-10)		Extent of development (1-10)	
	Germany		Europe	
• 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.	HEI	7.2	HEI	6.8

Implementation and motivation strategies	Extent of development (1-10)		Extent of development (1-10)	
	Germany		Europe	
• 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.	HEI	5.9	HEI	5.4

Development of UBC *strategies* – Germany v Europe

As answered by HEI management



German HEI management report a high extent of development of 'a top-level management committed to UBC' (8.5) and 'a documented mission / vision embracing UBC' (7.1), followed by all other *Strategies* being developed to a medium degree.

The above figure shows a clear separation between *documented strategies* (the 5 top-rated *Strategies*) and *implementation and motivation strategies* (the 3 lowest-rated *strategies*).

<u>*Comparing German HEI representative responses with EU HEI representative*</u> *(see table previous page)*

Compared to the European average, both *documented strategies* as well as *implementation and motivation strategies* are ranked higher (0.4 resp. 0.5), with the former being highly developed (7.2) and the latter being moderately developed (5.9).

As can be seen in the graphic above, the extent of development of most strategies is similar in Germany and Europe, however two strategies stand out. First, the 'a top-level management committed to UBC' is ranked significantly higher (+1.2) in Germany. Second, HEI management report that the 'provision of incentives for academics' is more developed (6.4 compared to 5.4 on European level).

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

Structures and approaches for UBC

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) – Germany vs Europe

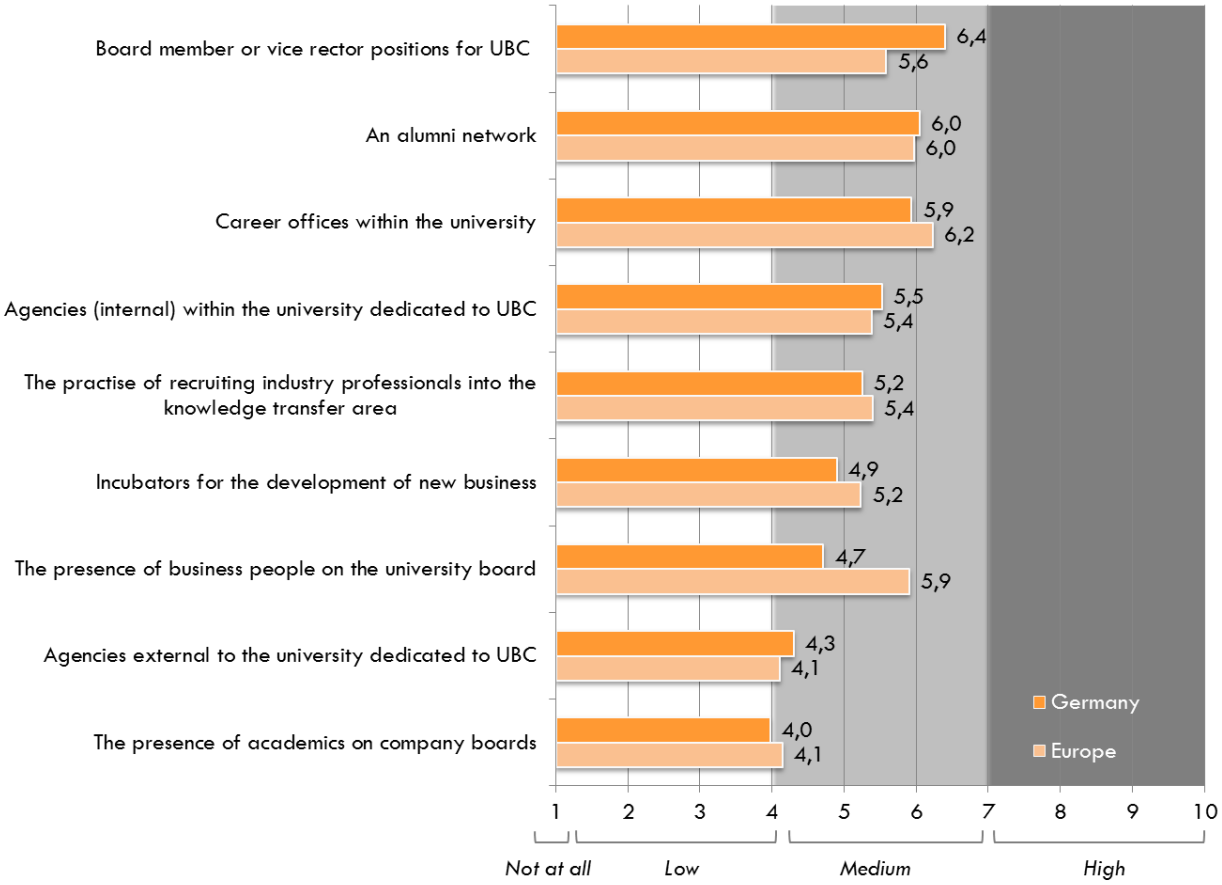
As answered by HEI management

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.	Germany		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.	Germany		Europe	
	HEI	5.2	HEI	5.3

Development of UBC *structures and approaches* – Germany v Europe

As answered by HEI management



All UBC *structures and approaches* are rated as medium developed in Germany whereby 'board member or vice rector positions for UBC' (6.4), 'alumni network' (6.0) and 'career offices within the university' (5.9) are the most developed. Compared to this, 'agencies external to the university dedicated to UBC' (4.3) and 'academics on company board' (4.0) are the lowest developed.

Comparing UK HEI representative responses with EU HEI representative (see graph this page)

Excluding 'board member or vice rector positions for UBC' (+0.8 compared to European level) and 'business people on the university board' (-1.2 compared to European level), most *structures and approaches* are on a similar development level. On a factored level (see previous page) the differences even out so that both, *role-based approaches* as well as *internal / external agencies focused on UBC* are nearly on the same level as in Europe.

Medium developed	1. Board member or vice rector positions for UBC 2. An alumni network 3. Career offices within the HEI 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. The presence of business people on the HEI board 8. Agencies external to the HEI dedicated to UBC 9. The presence of academics on company boards

Operational activities for UBC

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 the least cost to implement of all the *supporting mechanisms*, require less commitment from HEI management 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) – Germany v Europe

As answered by HEI management

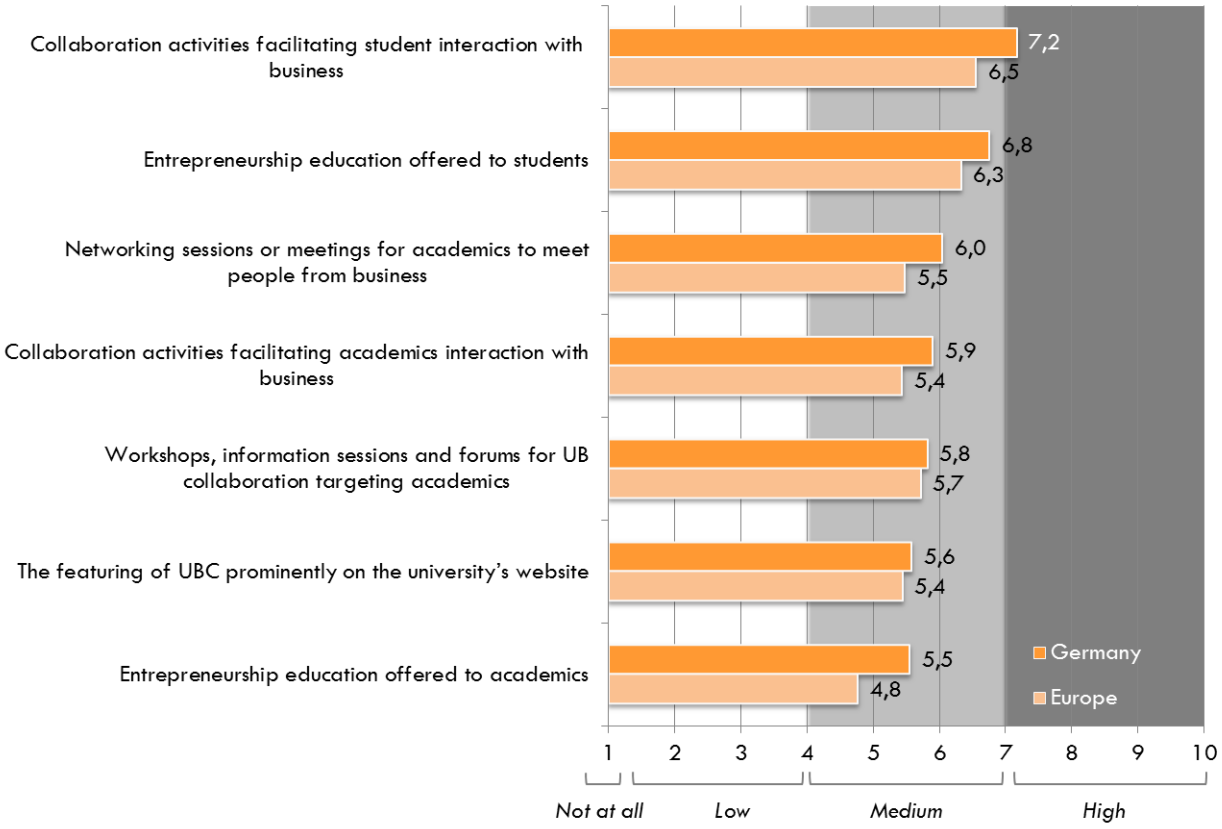
Internally focused education and workshops focused on academics	Extent of development (1-10)		Extent of development (1-10)	
• Workshops, information sessions and forums for University-Business collaboration targeting academics, • Entrepreneurship education offered to academics.	Germany		Europe	
	HEI	5.7	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.	Germany		Europe	
	HEI	6.8	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.	Germany		Europe	
	HEI	6.2	HEI	5.7

Development of UBC operational *activities* in Germany

As answered by HEI management



The highest advanced operational UBC *activities* are 'collaboration *activities* facilitating student interaction with business' (7.2) and 'entrepreneurship education offered to students' (6.8) with 'entrepreneurship education offered to academics' being the least developed activity.

Comparing UK HEI representative responses with EU HEI representative (see table from previous page in combination with graph this page)

With the exception of 'workshops, information sessions and forums for UBC collaboration targeting academics' and 'featuring of UBC prominently on the university's website', both being similarly developed compared to the European level, the data shows a higher degree of implementation of UBC *activities* in Germany. This is also reported in the factored results (see previous page) which show that all factors, namely *internally focused education and workshops focused on academics*, *externally focused education and workshops focused on students* and *externally focused networking, promotional and project activities*, are all further developed in Germany than on the European level (+0.5 to +0.6).

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

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.

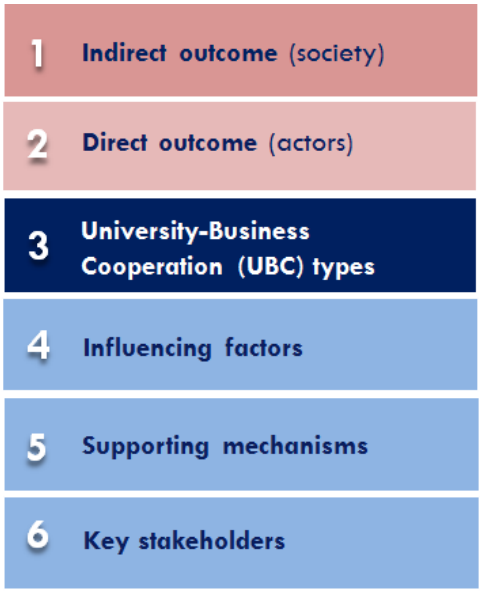
Model validation partners

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

Co-created by

105 practitioners validating the model in their work.

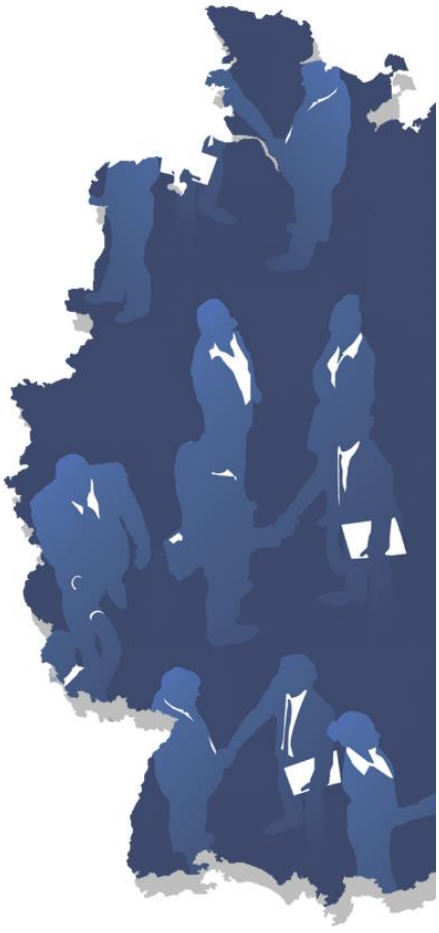
The model relationships have been scientifically validated by the Science-to-Business Marketing Research Centre

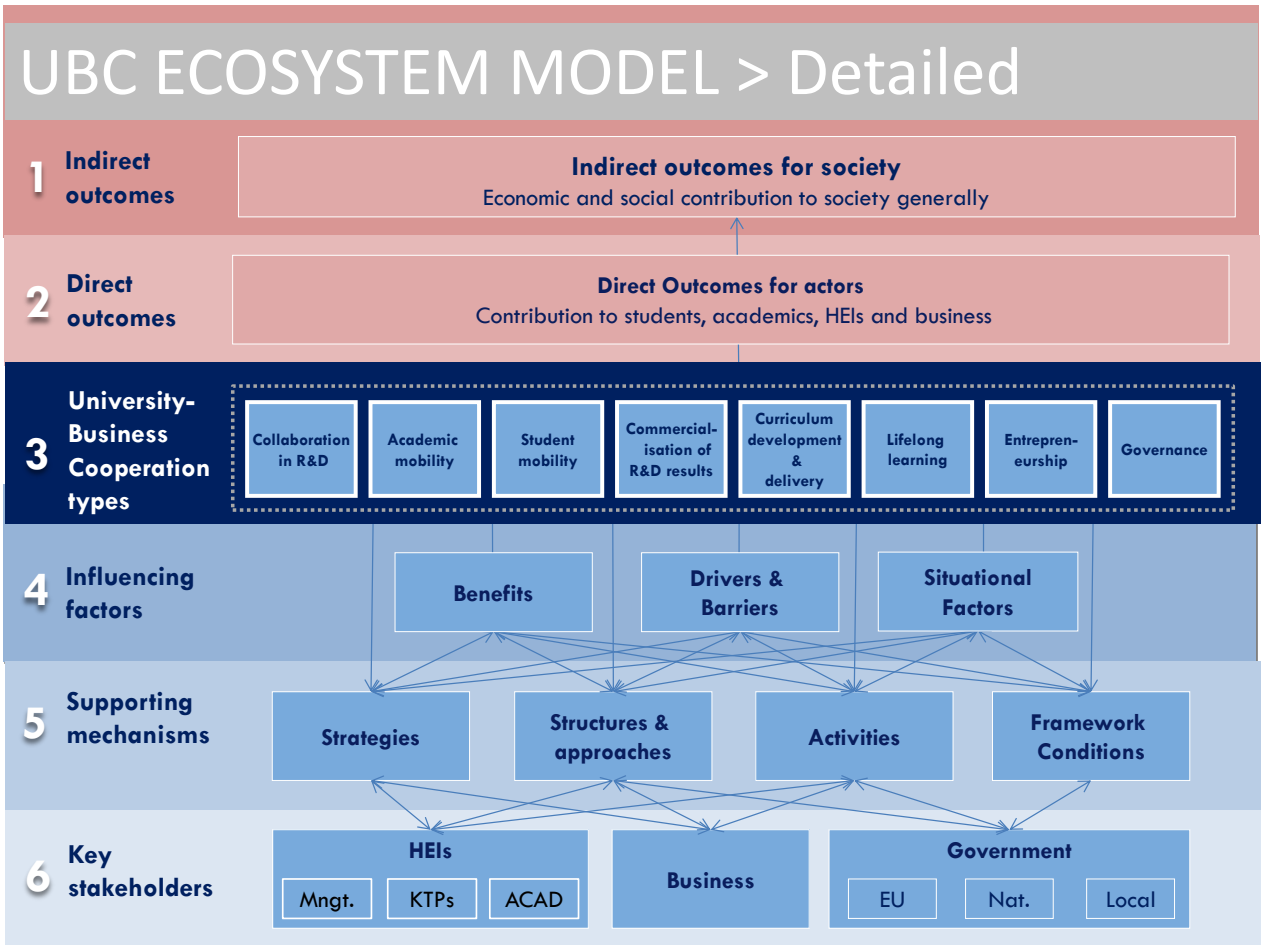


Are you?

- 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





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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Project team members

The State of European UBC was a project originally completed for the European commission. The project team included the following members.

Todd Davey, Project Manager

Dr. Thomas Baaken, Project Director

Victoria Galan Muros, Analysis Management

Arno Meerman, Data Management and Analysis

David Serbin, Survey Design and Data Management

Michael Deery, Case Study Management

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