BARRIERS AND DRIVERS IN EUROPEAN UNIVERSITY-BUSINESS COOPERATION

PART OF THE DG EDUCATION AND CULTURE STUDY ON THE COOPERATION BETWEEN HIGHER EDUCATION INSTITUTIONS AND PUBLIC AND PRIVATE ORGANISATIONS IN EUROPE

Science-to-Business Marketing Research Centre
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Title: **Barriers and Drivers in European University-Business Cooperation**

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Science Marketing_
Science-to-Business Marketing Research Centre Germany

Authors: Todd Davey, Thomas Baaken, Victoria Galán Muros and Arno Meerman
Contributors: Michael Deery, Steffi Gosejohann, Anna Haasler, Christian Junker, Tobias Kesting, Thorsten Kliewe, Nisha Korff, Phillip Korzinetzki, Kerstin Linnemann, David Serbin, Anne Tijsma (Science-to-Business Marketing Research Centre, Germany), Dr. Carolin Plewa (University of Adelaide), Dr. Clive Winters (Coventry University, UK), Dr. Peter van der Sijde (Free University, The Netherlands), Tomasz Kusio (Cracow University of Economics, Poland), Silvia Rodríguez Sedano (RedOTRI, Spain), Friederike von Hagen and Pilar Osca

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A summary of findings

The study

This report presents the findings related to the barriers and drivers of university-business cooperation (UBC) that have been found to exist in Europe. These results derive from a fifteen and a half month study on the cooperation between higher education institutions[1] (HEIs) and public and private organisations in Europe. The study was conducted by the Science-to-Business Marketing Research Centre, Germany (S2BMRC) for the DG Education and Culture at the European Commission (EC) during 2010 and 2011.

The main components of the project are in-depth qualitative interviews with 11 recognised UBC 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 population 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. Further, 30 good practice UBC case studies have been created to provide positive examples of European UBC.

Both drivers and barriers have
a substantial influence on European UBC

Perceived barriers to UBC

All academics, regardless of their experience or extent of UBC, see the importance of barriers quite similarly. **The vast majority of academics of all levels of UBC experience agree that funding barriers and bureaucracy within the HEI are the most relevant barriers.** Further, they believe that the main responsibility for funding UBC rests with the HEI, thus seeing the main barriers to UBC within the HEI.

All HEI representatives with any degree of experience assessed the barriers similarly for HEIs. **The main barriers seen by most HEI representatives are almost entirely focussed on the lack of funding**, whilst bureaucracy is a factor not seen as such a barrier by HEI representatives. HEI representatives perceive the responsibility of funding UBC to be with governments and rated HEI-government relations as the highest source of barriers.

Barriers to UBC are perceived by all academics and HEIs similarly, although in various cases they can be overcome by the presence of high drivers.

[1] *HEIs* are understood to mean all types of institutions, which provide higher education. These institutions must be formally recognised by the relevant national/regional authority and includes:

- Universities,
- Universities of applied sciences,
- Polytechnics /technical universities,
- Colleges and tertiary schools.

Perceived drivers of UBC

Regarding the drivers of UBC, the study shows that the perceived level of UBC drivers significantly affects the extent of UBC for academics and HEIs. **This means that those academics or HEIs perceiving higher drivers for UBC are generally more engaged in UBC than those perceiving low drivers for UBC.**

The results show that the most important drivers for both HEIs and academics concern their relationships with businesses. For both academics and HEIs, the existence of mutual trust, mutual commitment and shared goals are rated as essential drivers, followed by drivers relating to the UB relationship. HEI representatives (management and professionals involved with UBC) generally perceive the UBC drivers in existence for the HEI to be significantly higher than academics do for their own UBC.

Drivers and barriers are related

A barrier provides a hindrance or obstacle to do something, while a driver provides the motivation to do that. Funding has been listed by both academics and HEIs as the highest barrier to UBC, meaning that they perceive that UBC cannot occur if there are no funds available. However, both academics and HEIs did not assess the 'possibility to access funding / financial resources for working with business' as one of the main drivers of UBC. Thus funding alone is not a sufficient incentive for academics to cooperate. Instead, mutual trust, commitment and a shared goal were the highest rated drivers. This means that even with the lack of funds as the highest barrier (obstacle) owing to the impossibility of cooperating without funds, **the presence of funds is not enough to cooperate if the 'relationship drivers' or perceived benefits (motivators) are not developed.**

Drivers and barriers are not the only influencing factors in UBC

Other factors also influence the extent of UBC which are not mentioned in this report however were found nevertheless to have substantial influence. The factors of *benefits* and *situational factors* also need to be considered in respect to the UBC environment rather than simply viewing barriers and drivers in isolation.

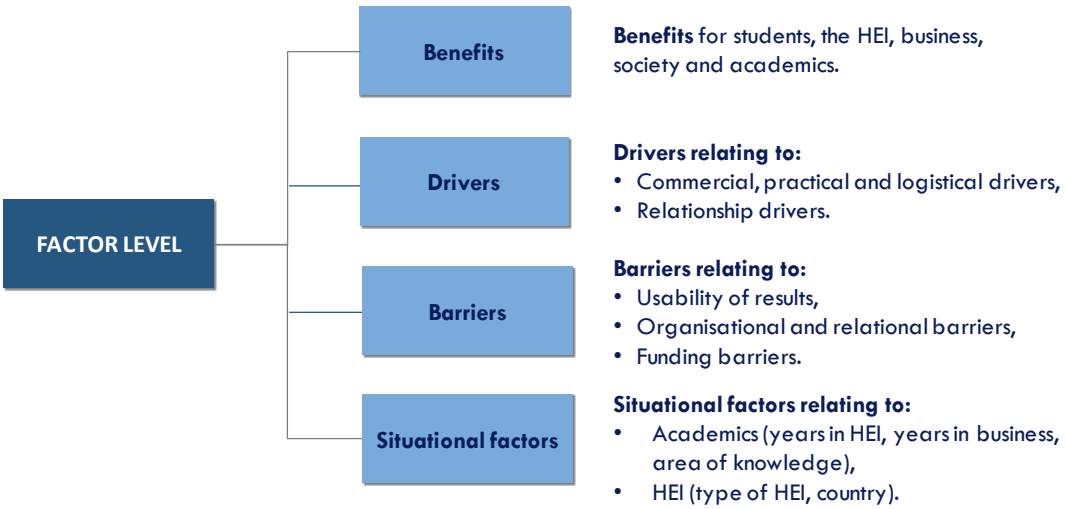


Diagram: Factors influencing the extent of European UBC
Davey, T., et al (2011)

Abbreviations

EC	European Commission
EEA	European Economic Area
EU	European Union
EUA	European University Association
HEI	Higher Education Institution
ICT	Information and Communication Technology
IP	Intellectual Property
IPR	Intellectual Property Rights
LLL	Lifelong Learning
MUAS	Münster University of Applied Sciences
NQF	National Qualifications Framework
PhD	Doctorate of Philosophy
R&D	Research and Development
SME	Small- and Medium-sized Enterprise
S2BMRC	Science-to-Business Marketing Research Centre
TTO	Technology Transfer Office
UB	University-Business
UBC	University-Business Cooperation
UPB	University professional working with business
VU	Free University of Amsterdam

Definitions

Drivers

Drivers are those factors that facilitate the academic or the HEI to engage in UBC. In essence they are factors that provide motivation to undertake UBC and can be grouped under two headings: relationship drivers and business drivers.

Type of driver	Explanation
Relationship drivers	Drivers that relate to the relationship between the academic/HEI and the business, and these include: • Existence of mutual trust, • Existence of mutual commitment, • Having a shared goal, • Understanding of common interest by different stakeholders (e.g. HEIs; business; individuals; students), • Prior relation with the business partner, • Cooperation as effective means to address societal challenges and issues.
Business drivers	Drivers that relate to the business factors that motivate UBC; and these include: • Employment by business of HEI staff and students, • Interest of business in accessing scientific knowledge, • Possibility of accessing 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.

Barriers

Barriers are those obstacles that restrict or inhibit the ability of the academic or HEI to engage in UBC and can be grouped under three headings: usability of results, funding barriers and relational barriers.

Type of barrier	Explanation
Usability of results	Barriers that relate to the way the results of UBC (mainly R&D results) are utilised by business; and these include: • The focus on producing practical results by business, • The need for business to have confidentiality of research results, • Business fears that their knowledge will be disclosed.
Funding barriers	Barriers that relate to the provision of funds for UBC from both internal and external sources; and these include: • Lack of external funding for UBC, • Lack of financial resources of the business, • Lack of HEI funding for UBC, • The current financial crises.
Relational barriers	Barriers that relate to or affect the actual UBC relationship or interactions, occurring between the academic /HEI and the business; and these include: • 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, • HEIs lack awareness of opportunities arising from UBC, • 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.

Survey sample size

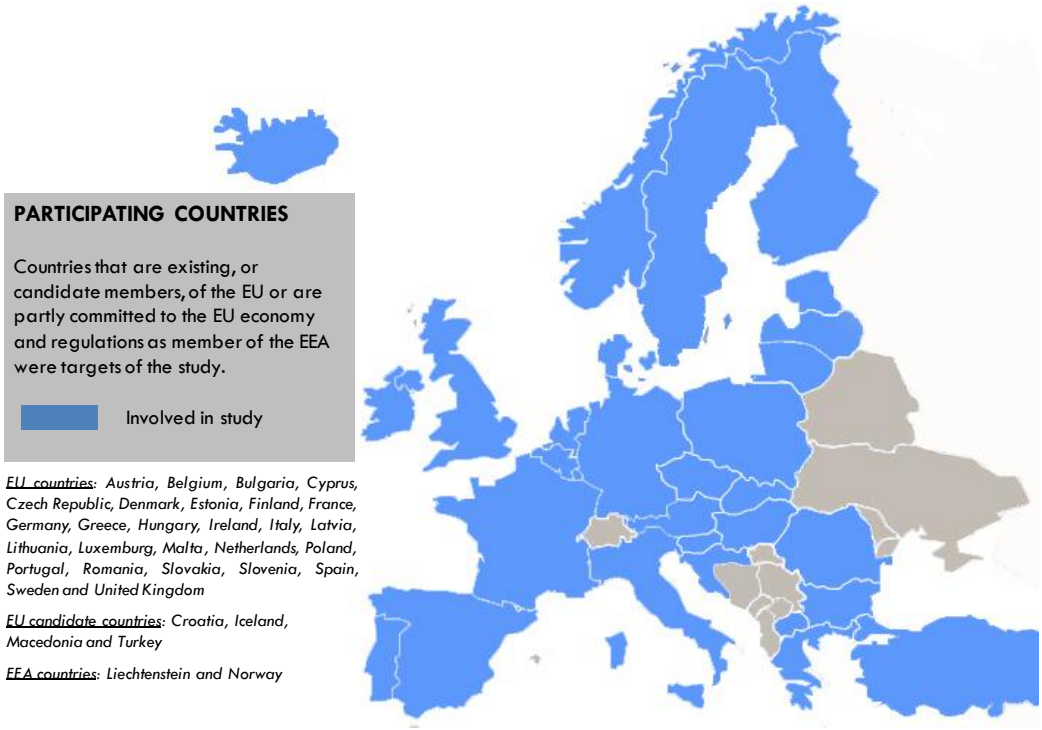
The survey was created, translated and sent to over 11,000 HEI managers within Europe in February 2011 and was concluded in April 2011 with the response rates recorded as follows:

	Groups	No. of responses
I	**Academics**	4,123
II	**HEI management**	1,150
III	**University professional working with business**	1,007
	***Total responses** (after data cleansing [2])*	**6,280**

Target group

Target countries – existing and candidate members of the EU plus those partly committed to the EU economy and regulations as members of the European Economic Area (EEA) were targets of the study. Refer to the map below which describes the participating countries,

Target respondents – HEIs and academics within the target countries are the target respondents of this study. The study provides relevant information on a representative sample of HEIs, in terms of geographical and typological distribution and a representative number of academics, in terms of gender, age, experience and area of knowledge.



EU countries: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom

EU candidate countries: Croatia, Iceland, Macedonia and Turkey

EEA countries: Liechtenstein and Norway

[2] Data cleansing consisted of :
1. Removing responses in which 'required questions' were not answered
2. Removing responses in which inconsistencies were identified
3. Removing responses containing extreme outliers

Explanation of the results

The following information provides instructions for the comprehension of results.

Who answered the survey (academic or HEI)

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

Qualitative interviews

Comments and findings from experts in UBC

Content found in a box like this is relevant information from the qualitative interviews with experts/practitioners in European UBC.

Case studies results

Content found in a box like this include relevant information from the cases studies analysis carried out as part of the entire study.

Hypotheses testing

During the secondary research review, many statements about UBC were gathered and converted into hypotheses. Using the data from the survey, it was tested whether the hypotheses could be rejected or not.

The source of the hypothesis is stated next to the hypothesis.

"Where the hypothesis came from is detailed here" [3]

The hypothesis is stated here ***The result is here***

The hypothesis has been confirmed by the results of the survey

The hypothesis has not been confirmed by the results of the survey

[3] Crosier *et al* (2007)

Barriers to UBC

Lack of funding and excess of bureaucracy at all levels (HEI, national, European) are the highest barriers to UBC …
however removal of barriers does not create UBC

Explanation

A series of barriers for European UBC were identified through literature and a round of expert interviews. These barriers were considered in the study and grouped in 3 categories using a factor analysis. In the study, both academics and HEI representatives were asked to indicate the extent to which there were barriers to UBC on the following scale:

1 no UBC >1 – 4 low >4 – 7 medium >7 - 10 high

In the tables, the figures represent the mean UBC value of respondents on the scale.

Type and grouping of barriers

Usability of results	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.	ACAD	**6.1** (Medium)
	HEI	**6.0** (Medium)

Funding barriers	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.	ACAD	**6.5** (Medium)
	HEI	**6.8** (Medium)

Relational barriers	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.	ACAD	**6.4** (Medium)
	HEI	**6.2** (Medium)

Focus for barriers of UBC

Are scientifically proven to be structured into three areas:

1. Usability of results
2. Funding
3. Relational barriers.

Funding barriers are the biggest barriers for UBC (assessed by both academics and HEI representatives).

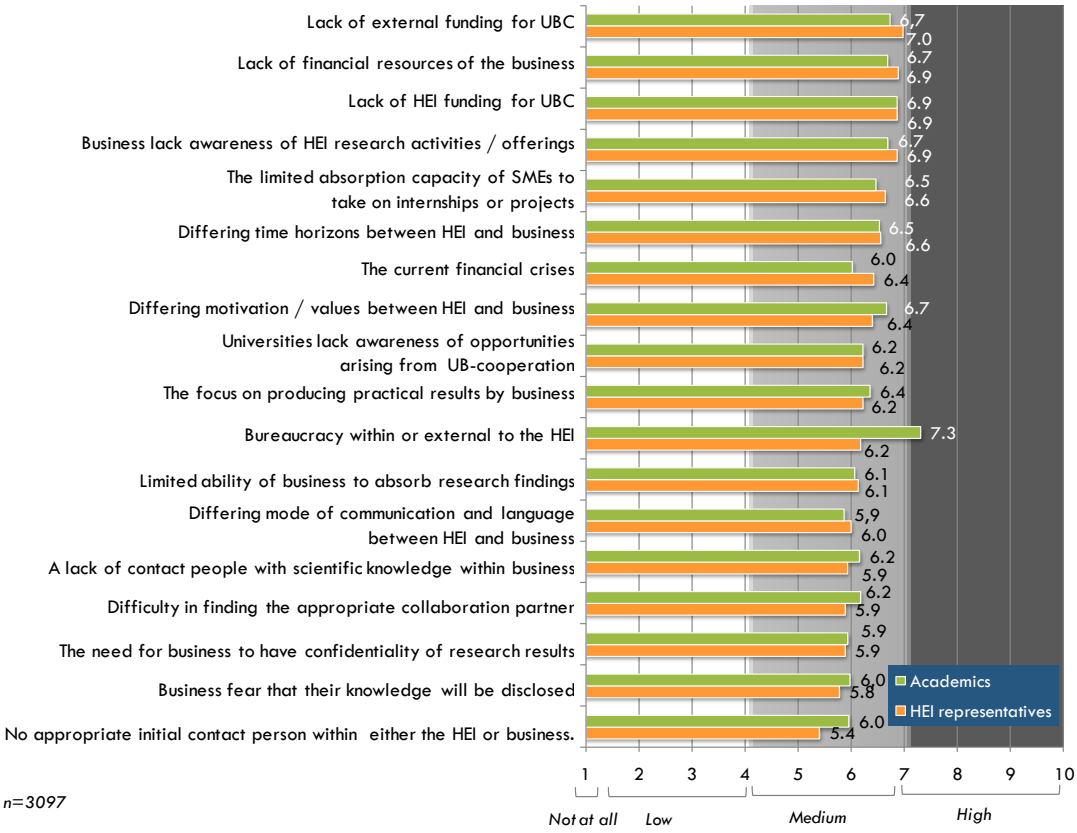
NB Barriers were determined through two rounds of research (secondary and primary) and then further tested in a pre-test.

* A factor analysis was performed to determine this

Hypothesis source	*Hypothesis*	*Result*
"The most prevailing structural barriers companies and universities have to overcome are the bureaucracy and the difficulty of finding an appropriate cooperation partner."[4]	The bureaucracy within or external to the HEI for the UBC is relevant / very relevant	✓

[4] Corsten (1987)

Extent of barriers



Funding for UBC (i.e. lack of external funding, lack of financial resources of business, lack of HEI funding) is identified as the most important barrier, or more specifically, how the lack of it hinders both HEIs and academics in undertaking UBC. Academics also perceive the bureaucracy within or external to the HEI as an important barrier in undertaking UBC, whereas the HEIs rated the importance of this barrier significantly lower.

Hypothesis source	*Hypothesis*	*Result*
"Many of the barriers that exist are similar across the EU."[5]	Barriers do not present significant differences among countries/regions	✗

Hypothesis source	*Hypothesis*	*Result*
"Funding is extremely important (Respondent 8) and a key factor for universities in undertaking UBC is money" [6]	The possibility to access funding/financial resources for working with business is relevant / very relevant	✓

[5] Expert interviews: respondent 8
[6] Expert interviews: respondent 10

Key finding	All academics and HEIs see the importance of barriers quite similarly regardless of their level of UBC. The highest barriers for academics are related to bureaucracy and funding, while the ones for HEIs exclusively with funding.
Recommendation(s)	Reduce the highest barriers, particularly ensuring that funds are available to encourage UBC as well as simplifying the bureaucratic procedures of UBC

Drivers of UBC

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

Existence of mutual trust and commitment are the most important drivers of UBC for both academics and HEIs. Those academics or HEIs perceiving higher drivers for UBC are more engaged in UBC than those perceiving low drivers for UBC

Explanation

A series of drivers of European UBC were identified through literature and a round of expert interviews. These drivers were considered in the study and grouped in 3 categories using a factor analysis. In the study, both academics and HEI representatives were asked to indicate the extent to which drivers facilitated their extent of UBC undertaken on the following scale:

1 no UBC >1 – 4 low >4 – 7 medium >7 - 10 high

In the tables, the figures represent the mean UBC value of respondents on the scale.

Type and grouping of drivers

Relationship drivers	**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.	**ACAD**	**6.7** (Medium)
	HEI	**7.0** (High)

Business drivers	**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.	**ACAD**	**5.6** (Medium)
	HEI	**6.7** (Medium)

Focus for drivers of UBC

Are scientifically proven to be structured into two areas:

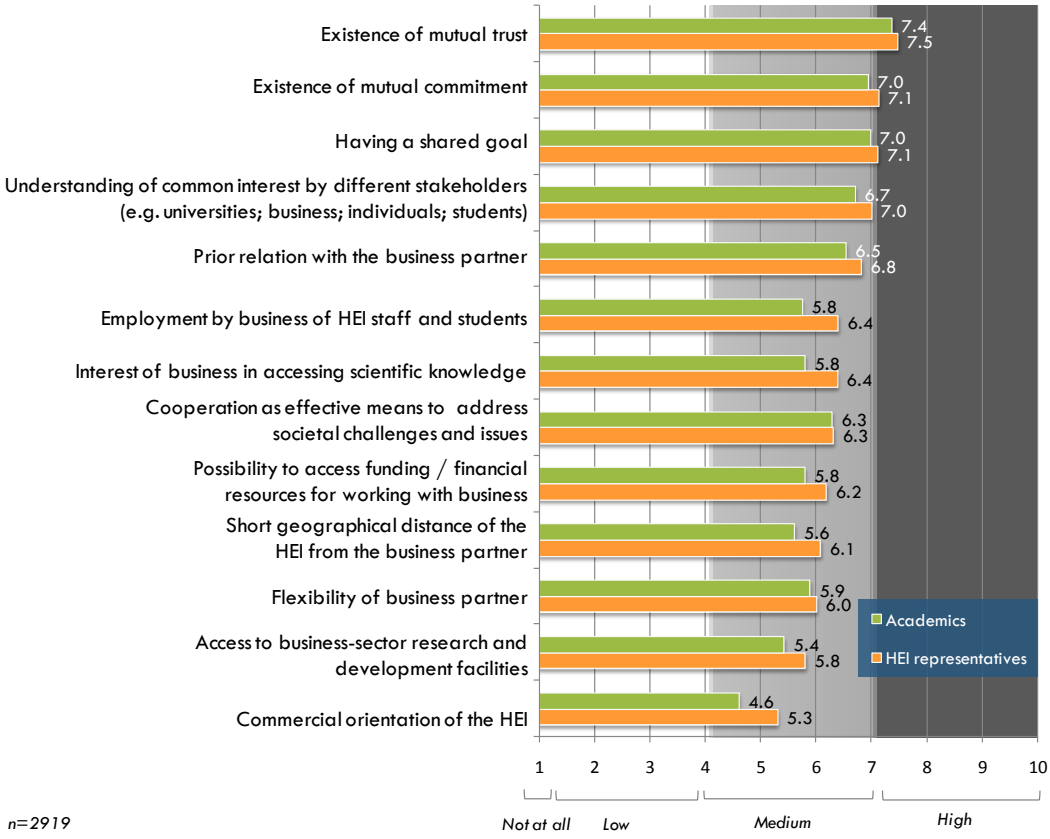
1. Relationship drivers
2. Business drivers

Relationship drivers are the biggest facilitators of UBC (assessed by both academics and HEI representatives).

***NB** Drivers were determined through two rounds of research (secondary and primary) and then further tested in a pre-test.*

* A factor analysis was performed to determine this

Extent of facilitation of drivers



The drivers that facilitate both HEIs and academics in their UBC are perceived similarly by both groups. The drivers related to mutual trust, commitment and respect are clearly perceived to be important in the facilitation of UBC, whilst 'the commercial orientation of the HEI' as well as 'the access to business-sector research and development facilities' are perceived to be the lowest facilitators of UBC.

Hypothesis source	*Hypothesis*	*Result*
The most important drivers are trust, commitment and communication/integration[7]	Trust and commitment are the most important drivers of UBC	✓

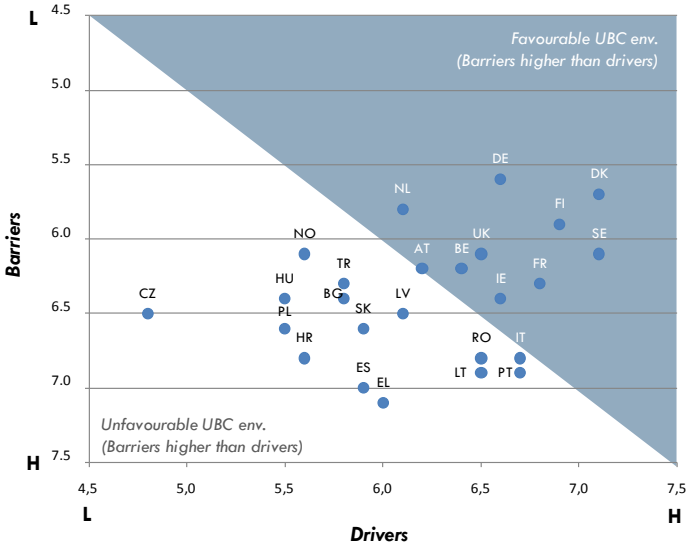
Key finding	Relationship drivers, especially mutual trust, commitment and respect are the highest rated drivers by both groups. Contrary, business drivers are perceived lower facilitators of UBC.
Recommendation(s)	Support or increase the most important drivers while increasing the awareness of the existence and the benefits of UBC drivers for academics and HEI representatives as a way to increase the extent of UBC.

[7] Corsten (1987)

Comparing drivers and barriers

Comparing drivers and barriers creating a favourable environment for UBC

For UBC to prosper, it is preferable to create an environment where the drivers and high and the barriers are low. Approximately half of the countries fit into the favourable UBC situation of high drivers and low barriers lead by Denmark, Finland, Sweden and Germany. It is revealed that the Czech Republic has very low drivers for UBC whilst Greece and Spain had the highest UBC barriers.



1 = "Not at all developed yet" to 10 = "Highly developed"

9.9 Highest driver /lowest barrier mean

Country	Short Code	Drivers	Barriers
Austria	AT	6.2	6.2
Belgium	BE	6.4	6.2
Bulgaria	BG	5.8	6.4
Croatia	HR	5.6	6.8
Czech Republic	CZ	4.8	6.5
Denmark	DK	**7.1**	5.7
Finland	FI	6.9	5.9
France	FR	6.8	6.3
Germany	DE	6.6	**5.6**
Greece	EL	6.0	7.1
Hungary	HU	5.5	6.4
Ireland	IE	6.6	6.4
Italy	IT	6.7	6.8
Latvia	LV	6.1	6.5
Lithuania	LT	6.5	6.9
Netherlands	NL	6.1	5.8
Norway	NO	5.6	6.1
Poland	PL	5.5	6.6
Portugal	PT	6.7	6.9
Romania	RO	6.5	6.8
Slovakia	SK	5.9	6.6
Spain	ES	5.9	7.0
Sweden	SE	**7.1**	6.1
Turkey	TR	5.8	6.3
United Kingdom	UK	6.5	6.1

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Project Team

Prof. Dr. habil. Thomas Baaken, Project Director

Thomas Baaken is a Professor in Technology- and Business-to-Business Marketing at Münster University of Applied Sciences, Germany. He holds an Adjunct Professorship at the University of Adelaide, AUS since 2008 and a visiting professor at Christ University in Bangalore, India. From 1998 to 2003 he served as Vice-rector Research and Technology Transfer in his the university. In 2002 Thomas Baaken founded the Science-to-Business Marketing Research Centre.

Todd Davey, Project Manager

Todd Davey is an invited lecturer in innovation and entrepreneurship at Münster University of Applied Sciences, Germany, Free University, Holland and Nelson Mandela Metropolitan University, South Africa whilst leading the Science-to-Business Marketing Research Centre's European project commitments. Todd is a PhD candidate and is also the Managing Director at *Apprimo*, a strategic consultancy dedicated to University-Business Cooperation. Prior to MUAS he was Senior Manager at Deloitte Australia in their Technology Commercialisation Group.

Arno Meerman, Data Management and Analysis

Arno Meerman is an undergraduate at the International Business School of the Hanze University of Applied Sciences, Holland. Within his role as scientific support for international projects, Arno has undertaken the survey distribution and promotion as well as the data management. Arno is academic researcher at the Science-to-Business Marketing Centre and has also been involved in the development and commercialisation of a technology assessment handbook (TechAdvance™).

Victoria Galan Muros, Analysis Management

Victoria is a researcher and assistant lecturer in the Business School of the University of Granada, Spain and holds an Adjunct Scientific Researcher position at the Science-to-Business Marketing Centre. With a background in Business Management (BA, UGR) and Marketing (BS, UGR) and a specialisation in Social Research Methods (MSc, LSE) she has academic and research experience in six different universities and is currently doing her PhD on University-Business Collaboration.

David Serbin, Survey Design and Data Management

After having worked at the department of quantitative methods at the Münster University of Applied Sciences, David Serbin joined the Science-to-Business Marketing Research Centre in 2009 where he works in the area of empirical methods where he is involved in the development and undertaking of international empirical studies for multinational companies. He is currently completing his master study.

Michael Deery, Case Study Management

Michael is an undergraduate at the Münster University of Applied Sciences and has been working within the Science-to-Business Marketing Research Centre since 2010. Originally from Ireland, the German native speaker has spent time in Hong Kong working in the finance industry and for his bachelor thesis, completed an international innovation project with a leading Australian company.

Key project contributors (Science-to-Business Research Centre, Germany)

Volker Hölscher	Thorsten Kliewe	Anna Haasler	Nisha Korff	Christian Junker	Kerstin Linnemann
Anne Tijsma	Pilar Osca	Phillip Korzinetzki	Steffi Gosejohann	Tobias Kesting	Yevgeniya Peretyatko

Project partners (Project Technical Excellence Advisory Board)

Dr. Clive Winters, Coventry University, UK	Tomasz Kusio, Cracow University of Economics, Poland
Dr. Peter van der Sijde, Free University, The Netherlands	Silvia Rodríguez Sedano, RedOTRI Universidades, Spain

Key project advisors

Friederike von Hagen, Germany	Dr. Carolin Plewa, Australia
Prof. Dr Miemie Struwig, South Africa	

Science-to-Business Marketing Research Centre

The Research Centre Science-to-Business Marketing Research Centre at the Münster University of Applied Sciences in Germany developed the first strategic approach worldwide for successful commercialisation of research competencies, capacities and results with its concept of Science-to-Business Marketing.

Globally recognised for research in interface between universities and industry

The Science-to-Business Marketing Research Centre (S2BMRC) is world recognised for the project partnership approach to university-business cooperation. Further highlights include:

- Co-developer of the 'Responsible Partnering Handbook'
- Leading centre for the development of approaches to university/industry partnerships, as used by Coventry University
- Development of the "Science Marketing Toolbox" including 58 instruments to assist Science Marketing
- Developer and publisher of the TechAdvance ™ Technology Evaluation Handbook which provides a method for the evaluation of technologies
- Organiser of the international 'Science-to-Business Marketing' Conferences held in Germany, Belgium, China, South Africa, Japan, Australia, France and Russia.
- We are regularly engaged to:
  - Conduct research in university-business cooperation
  - Present at conferences
  - Conduct workshops on this topic
- The S2BMRC team are also regular publishers of journal and news articles on this topic

Contact us

Münster University of Applied Sciences
Science-to-Business Marketing Research Centre
+49 251 208039-80
(Fax) +49 251 208039-90
Johann-Krane-Weg 27
48149 Münster
Germany