The State of University-Business Cooperation in Turkey

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

December 18th, 2013

Supported by the

European Commission

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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
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, 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 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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ISBN: 978-90-820668-9-0

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This document has been prepared by the authors using data that had been collected in the framework of a study prepared for the European Commission. It reflects the views only of the authors, and the Commission cannot be held responsible for any use that may be made of the information contained therein.

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Executive summary

There is significant room for improvement in Turkish university-business cooperation especially in relation to cooperation with SMEs

In a study of European university-business cooperation (UBC), the results from Turkey show that there is a moderate level of UBC development with entrepreneurship the most developed. With an average level of *Barriers* and below average perception of *Drivers*, Turkey offers a slightly negative environment for UBC. This lower perception of *Drivers* together with the lesser Benefits offered to academics for UBC help to explain the moderate level of UBC (below EU average) in Turkey. So too does the moderate level of development of *Supporting mechanisms* for UBC in Turkey. These results imply that academics need to receive (or perceive) greater personal *Benefits* from their HEI in terms of chances of promotion in order to increase UBC activity

With 77.3% of all employees working for SMEs (compared with the European average of 67.5%) and nearly 7,000,000[1] SMEs in Turkey, Turkish UBC will invariably involve working together with SMEs. As reflected in the response to *Barriers*, Turkey has a specific UBC issue relating to their SMEs. This is an area requiring immediate attention in Turkey: how can the large cultural differences be overcome and bring universities together with SMEs? With HEI manager and academics agreeing that relationships *Drive* UBC, the ability to bridge this difference can bring about even more profound results.

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 Turkey, 203 responses from academics (152) and HEI management (51) were received. The study measured the perceptions of these two groups in respect to their own cooperation efforts and those of their university respectively.

Entrepreneurship is comparatively well developed in Turkey

The most developed types on UBC in Turkey are *(1) Entrepreneurship (2), Collaboration in R&D, and (3) Mobility of Students, with* the least developed type being *Commercialisation of R&D results*. In respect to the European average, HEI managers have assessed that Turkey performs below the European average. Turkish academics have a slightly more positive view, rating themselves as at least medium in all types of UBC.

Turkey is one of the few countries that have higher development of *Entrepreneurship* than *Collaboration in R&D*, together with Poland, Bulgaria, Lithuania and Portugal, however it is the only European country that rates *Entrepreneurship* as their most developed form of UBC. Turkey also has another unique claim: they are also one of only a handful of countries including again Poland, Bulgaria, Lithuania and Portugal rating *Commercialisation of R&D results* their lowest developed type of UBC: Putting the results together, an explanation could be that the respondents have understand a spin-out (a form of *R&D commercialisation*) as *Entrepreneurship* so therefore have given it a higher rating. It could also be that there is a much lesser focus on commercialisation of R&D in Turkish HEIs, a factor recently addressed in a new Turkish funding initiative. In February 2013, the Turkish Government announced a funding programme that will fund 75% of the cost of collaborative R&D between universities and businesses in order to stimulate *Collaboration* in, as well as *Commercialisation of, R&D*.

The ability of business to use results of UBC is a major Barrier to UBC

The primary *Barriers* to UBC in Turkey are *Barriers* relating to '*usability of results*' such as 'the focus on producing practical results by business' followed by '*relational Barriers*' related to the difference in culture between universities and businesses. Of particular note are the high rating of the following *Barriers*, which were well above the EU average: 'a lack of contact people with scientific knowledge within business' (7.3, the highest UBC Barrier in Turkey), limited absorption capacity of 'SMEs to take on internships and projects' (7,0) as well as 'business to absorb research findings' (6.8). Overall HEI managers and academics rated *Barriers* to UBC in Turkey as about average compared to their European counterparts.

[1] European Commission (2013), *SBA Fact Sheet 2013 – Turkey*, <http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/files/countries-sheets/2013/turkey_en.pdf> accessed on 13.11.2013.

Relationships drive cooperation in Turkey

Turkish HEI management and academics alike name 'relationship *Drivers*' as the primary *Drivers* of UBC. As in Europe generally, '*relationships Drivers*' such as (1) 'existence of mutual trust' and (2) 'employment by business of university staff and students' 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.

Both Turkish HEI managers and academics perceived generally moderate UBC *Drivers*, an extent considerably below the European average. In analysis of the data collected in this study, it has been found that the perceived level of *Drivers* has a significant influence on the extent of UBC undertaken. In other words, those academics/universities that perceive moderate *Drivers* for UBC, undertake significantly lower UBC that those that perceive high UBC *Drivers*. This lower than average perception of UBC Drivers could therefore explain the lower than average UBC results in Turkey.

Considering the *Barriers* and *Drivers* together, the effects of an average amount of *Barriers* in Turkey are turned negative by the below-average perception of *Drivers*, and as such, contributes to an environment that is slightly negative for UBC in Turkey.

Academics perceive lesser personal benefits from UBC

Turkish academics perceive the primary winners from UBC to be: (1) students, (2) business (about the same as the EU average), (3) B*enefits* to the HEI (above EU average) and lastly (4) personal B*enefits* (both higher than the EU average). A moderate amount of academics state that UBC 'improves their standing within the university' or 'increases their chances of promotion'. 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. HEI management state that (1) students, (2) business and society (above the EU average) are the biggest winners from UBC, in front of (3) *Benefits* for the HEIs (lower than the EU average).

Turkey needs greater development of UBC supporting mechanisms

HEI managers in Turkey perceive that UBC *Strategies* are generally moderately developed in Turkish HEIs. All '*documented UBC Strategies*' including '*Strategy* for UBC' and 'a documented mission/vision embracing UBC' were rated as some of the most developed *Strategies*. There is a quite a lot of room for improvement in respect to '*implementation Strategies*' especially in the 'inclusion of UBC as part of the work assessment of academics' and 'providing incentives to academics for UBC'. Both HEI managers and academics rated the development of UBC *Strategies* at about the EU average.

'*Internal/External agencies dedicated to UBC*' and '*Role-based Approaches*' in Turkey are more or less developed to the same level, but are less developed in Turkish HEIs than in Europe. 'Alumni networks', 'Career offices within the university' and 'board member or vice rector positions for UBC' were the most developed *Structures and Approaches* in Turkey, however were below the EU average. 'Agencies external to the university dedicated to UBC' and 'the presence of academics on company boards' are the least developed *Structures and Approaches* and are slightly below the EU average.

The least-cost and easiest to implement mechanisms for UBC are *Activities*. Turkey has a moderate level of development of UBC *Activities*, slightly less than the European average, though 'the featuring of UBC prominently on the university's website', 'workshops, information sessions and forums for UBC targeting academics', and 'networking sessions or meetings for academics to meet people from business' are developed above the EU average. *Activities* focussed on academics are some of the lowest developed *Activities* in Turkey, particularly 'entrepreneurship education offered to academics', with both well below the EU average, which is surprising considering that the respondents rated '*Entrepreneurship*' as the highest developed type of UBC in Turkey.

Introduction

Background

With the creation of the Europe 2020 programme, 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[2]. 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. UBC helps universities to face the problem of decreasing public funds[3], 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[4] as well as meet the demands of the labour market to provide more relevant knowledge and skills and greater job prospects of students[5]. Additionally, there are substantial indirect outcomes of UBC including support in the creation of a knowledge economy[6], support for local business[7], creation of jobs[8], stimulation of economic growth and increased living standards whilst reducing hindrances to good living[9]. 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[10]. 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.

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

Objective

The objective of this report is to evaluate the current status of UBC in Turkey 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.

General Situation in Turkey

According to high inter-regional disparity in Turkey places of location of universities, major research organisations (like TÜBITAK Marmara Research Center) and Technoparks are more or less limited to only few regions in Turkey, like Istanbul, the Marmara Region, Ankara and Izmir.

The fact of allocating 60 Percent of all funding of R&D managed by the funding institutions and authorities (as TÜBITAK, TIDEB, KOSGEB, TTGV) to projects of the Marmara-Region around the city of Istanbul, indicates the regional focus of the national innovation policy clearly (European Commission 2005, p. 8).

As other Mediterranean cultures the Turkish higher education landscape is characterized by an emphasis on knowledge-transfer applying a theoretical teaching approach rather than by an emphasis on work-based and labour market-oriented learning methods. However, in recent years a clear progress could be observed with an increasing number of universities designing their curricula according to the needs of the labour market and focusing on the increase of their students' employability.

The *Higher Education Council* of Turkey (YÖK) sets out that the universities' contemporary functions are classified under four categories: education, basic scientific research, community service and training a qualified workforce.[11] More concretely, the main responsibilities of the universities are to conduct scientific research, to develop solutions for national and international problems, to train the labour force the country needs, to spread the knowledge, skills and insights it has gained to other people, publishing and to set an example in all fields.

[11] Gürüz K., Şuhubi, E,A.M., Şengör, C.,Türker, K., Yurtsever, E., 1994.Türkiye'de ve dünyada yükseköğretim, bilim ve teknoloji. İstanbul: Türkiye Sanayicileri ve İşadamları Derneği (Association of Turkish Industrialists and Businesmen TÜSİAD).

Methodology

The survey

The survey was created during a project completed with the European Commission 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:

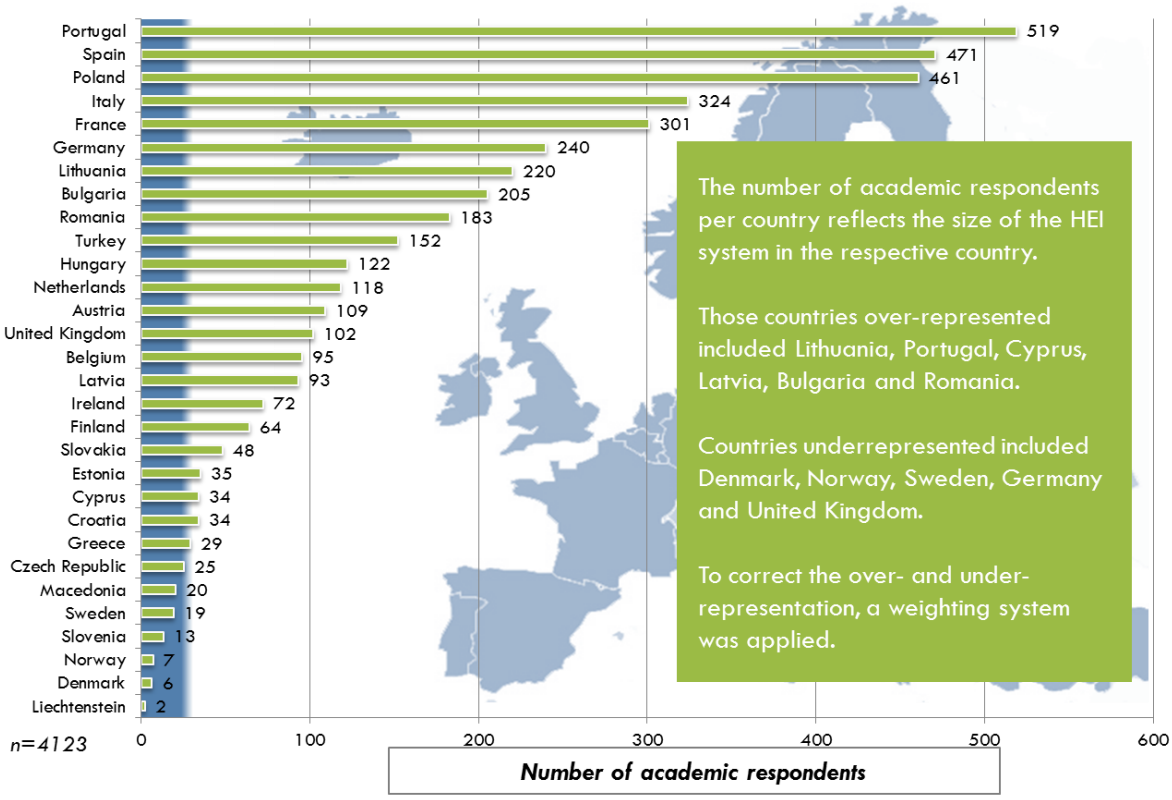
1. Individual academics were asked to respond on behalf of themselves.
2. HEI management (HEI managers and university professionals working with industry) were asked to respond on behalf of their HEI.

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

Respondents (academic)

Country



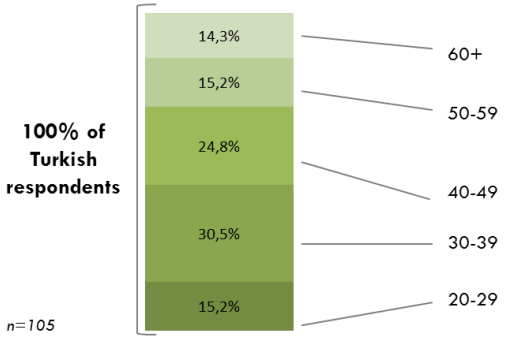
The number of academic respondents per country reflects the size of the HEI system in the respective country.

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

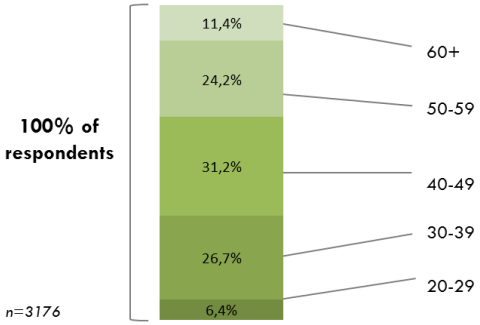
Countries underrepresented included Denmark, Norway, Sweden, Germany and United Kingdom.

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

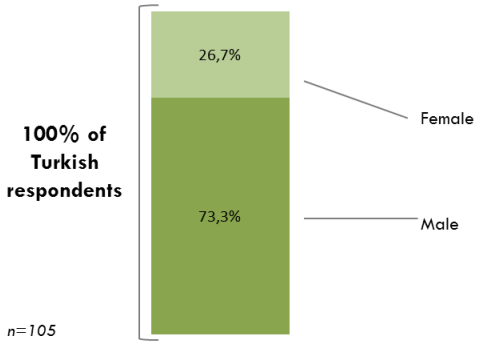
Age of respondents in Turkey



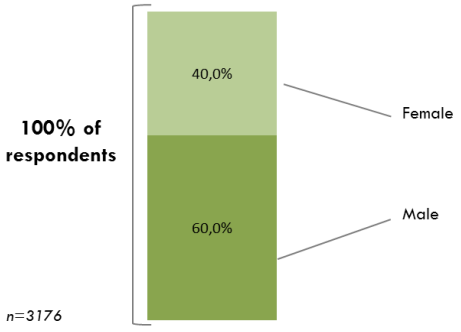
Age of respondents in Europe



Gender of respondents in Turkey

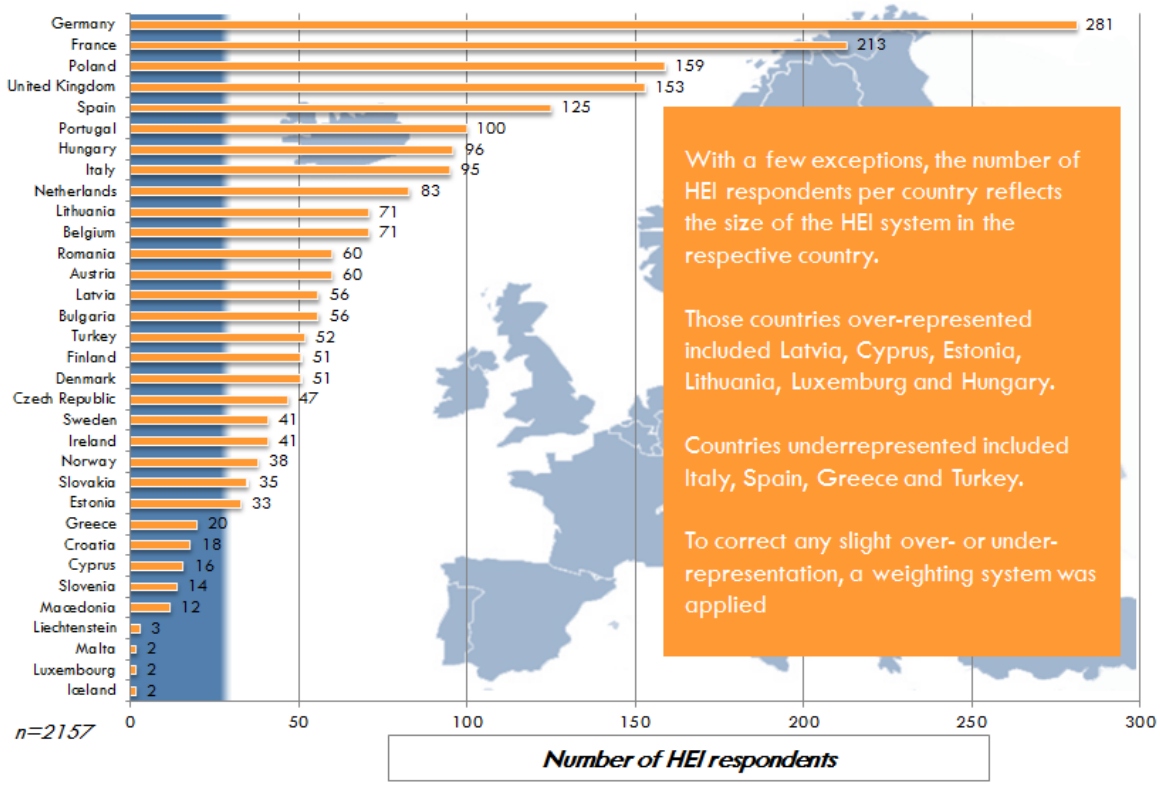


Gender of respondents in Europe

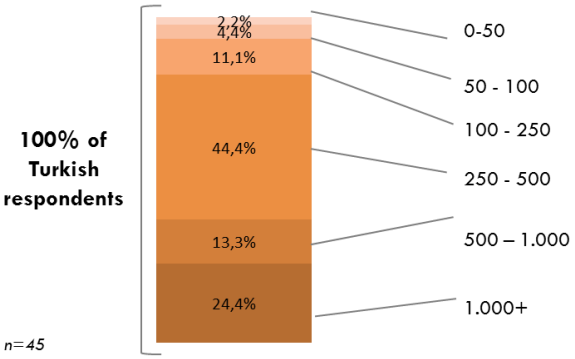


Respondents (HEIs)

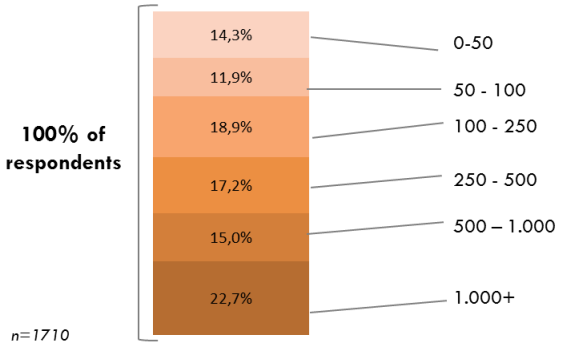
Country



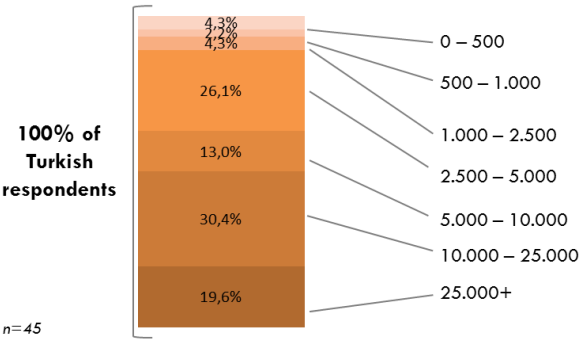
Number of academics per HEI in Turkey



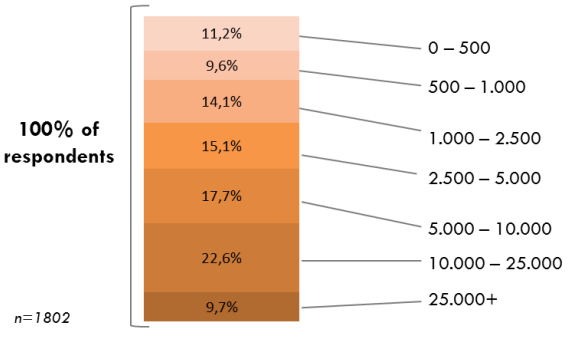
Number of academics per HEI in Europe



Number of students per HEI in Turkey



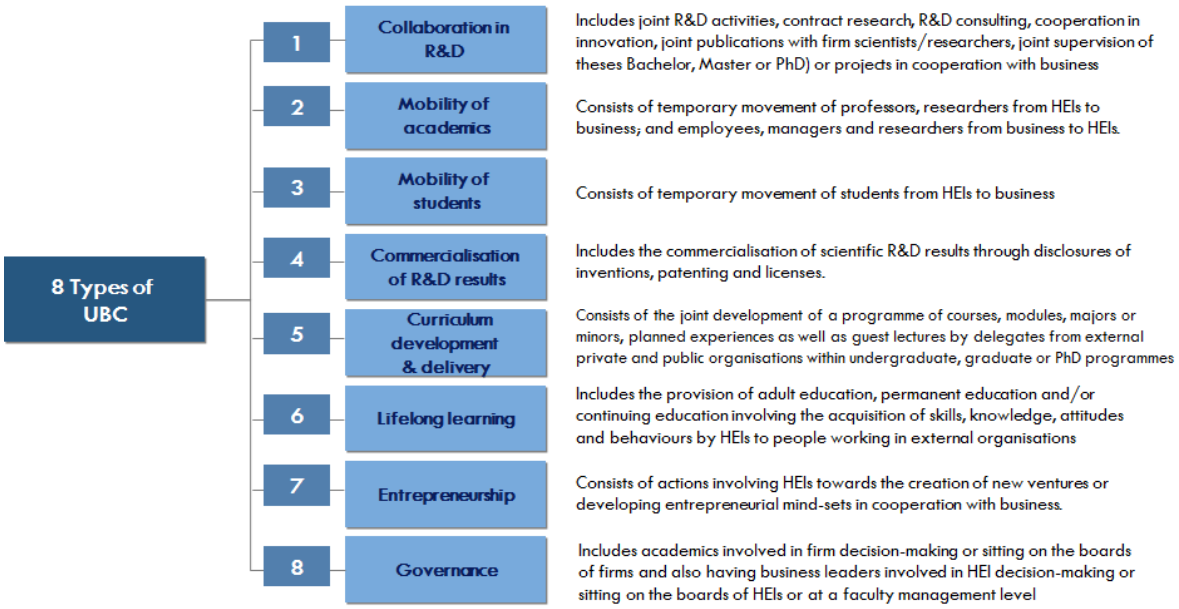
Number of students per HEI in Europe



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.

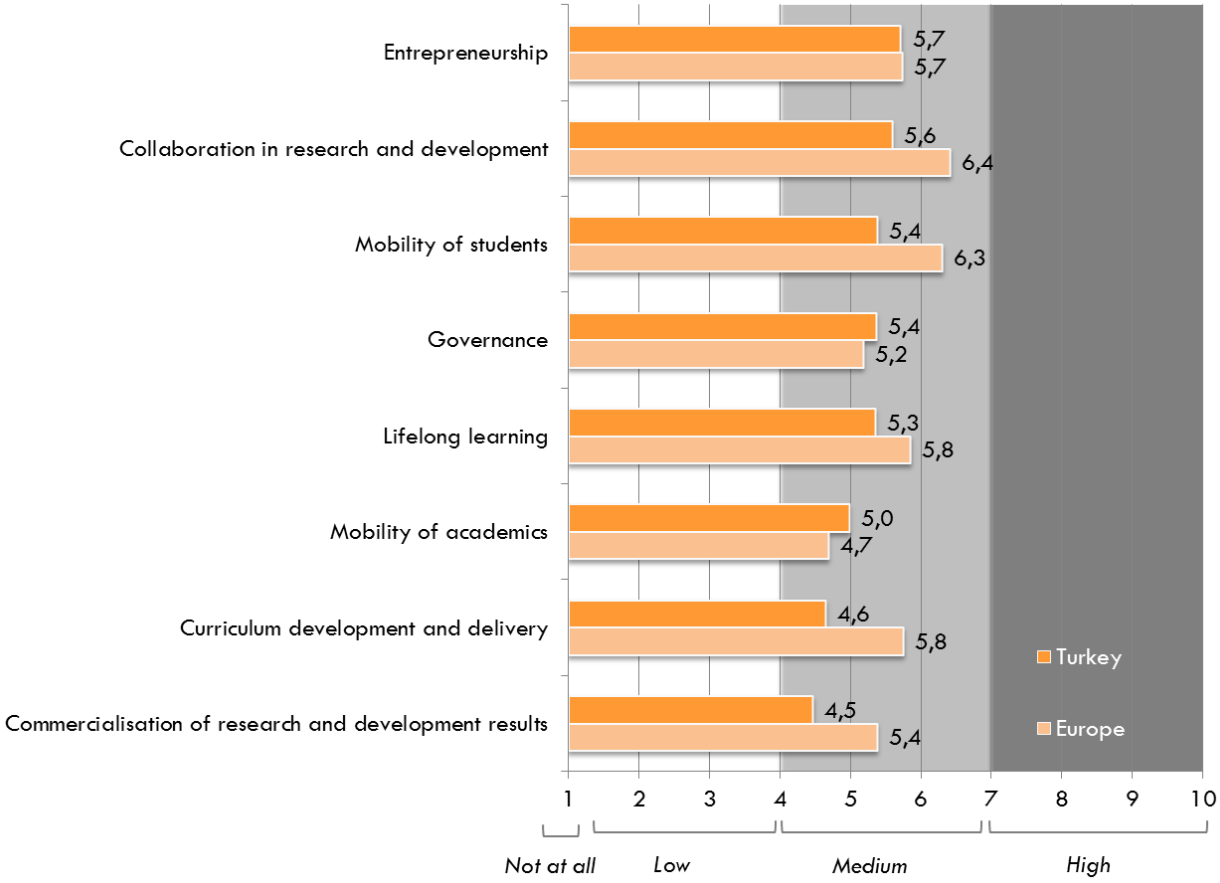
Key finding from the *State of European UBC* report

(relating to the entire European data)

Those types of UBC offering: (i) more direct, (ii) measurable, and (iii) promotable benefits are the most developed ones.

Extent of University-Business Cooperation in Turkey

As answered by HEI management



Turkish academics

Responses from Turkish academics about their own level of UBC show that they perceive that '*Student mobility*' is the highest developed type of UBC and an extent consistent with the EU average (in brackets).

	Collaborat -ion in R&D	Academic Mobility	Student Mobility	Commercialis- ation of R&D results	Curriculum development & delivery	Lifelong learning	Entrepreneur- ship	Governance
Turkish Academics	4,8 (5.0)	4,1 (3,2)	5,0 (4,3)	4,3 (4,1)	4,2 (4,3)	4,6 (4,3)	4,5 (3,4)	4,1 (3,1)

Extent of cooperation in Turkey

There is a low degree of diversity in the development of the different types of UBC in Turkey, with surprisingly *Entrepreneurship* (5.7) as the highest developed type, followed by *Collaboration in R&D* (5.6), *Mobility of students* (5.4) and *Governance* (5.4).

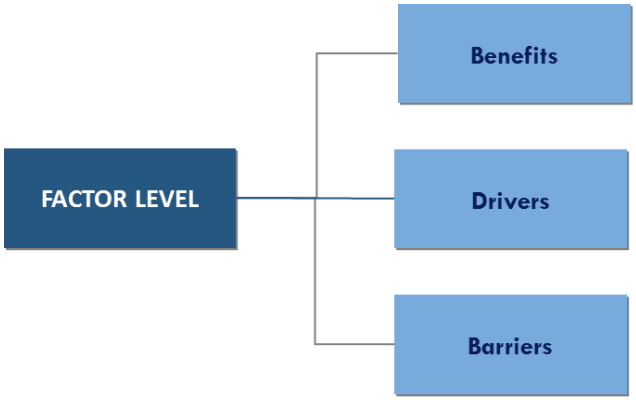
Benchmarking Turkey

According to the results, Turkish HEI management report the extent of UBC being below the European average, with a lower or similar performance on all the types of UBC except for *Governance* and *Mobility of academics*. In comparison with the European average, the extent of development of UBC types is as follows:

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

Findings from the State of European UBC report *(relating to the entire European data)*

The following were findings from the *State of European UBC* report published in 2011 relating to the factors influencing the extent of UBC:

- All European academics and HEI representatives see the same *Barriers* to UBC no matter their extent of cooperation,
- Those academics or HEIs perceiving higher *Drivers* for UBC are more engaged in UBC than those perceiving low drivers for UBC,
- The higher the perceived personal *Benefits* of UBC, the higher the extent of UBC carried out.

Barriers hindering UBC in Turkey

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 Turkey compared to the EU average. The *Barriers* have been factored into 'meta-groups' in order to provide a more strategic understanding.

Three groups of UBC *Barriers*

Resulting from a factor 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 – Turkey 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.	**Turkey**		**Europe**	
	ACAD	**6.6**	**ACAD**	**6.1**
	HEI	**6.6**	**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.	**Turkey**		**Europe**	
	ACAD	**6.0**	**ACAD**	**6.5**
	HEI	**6.2**	**HEI**	**6.8**

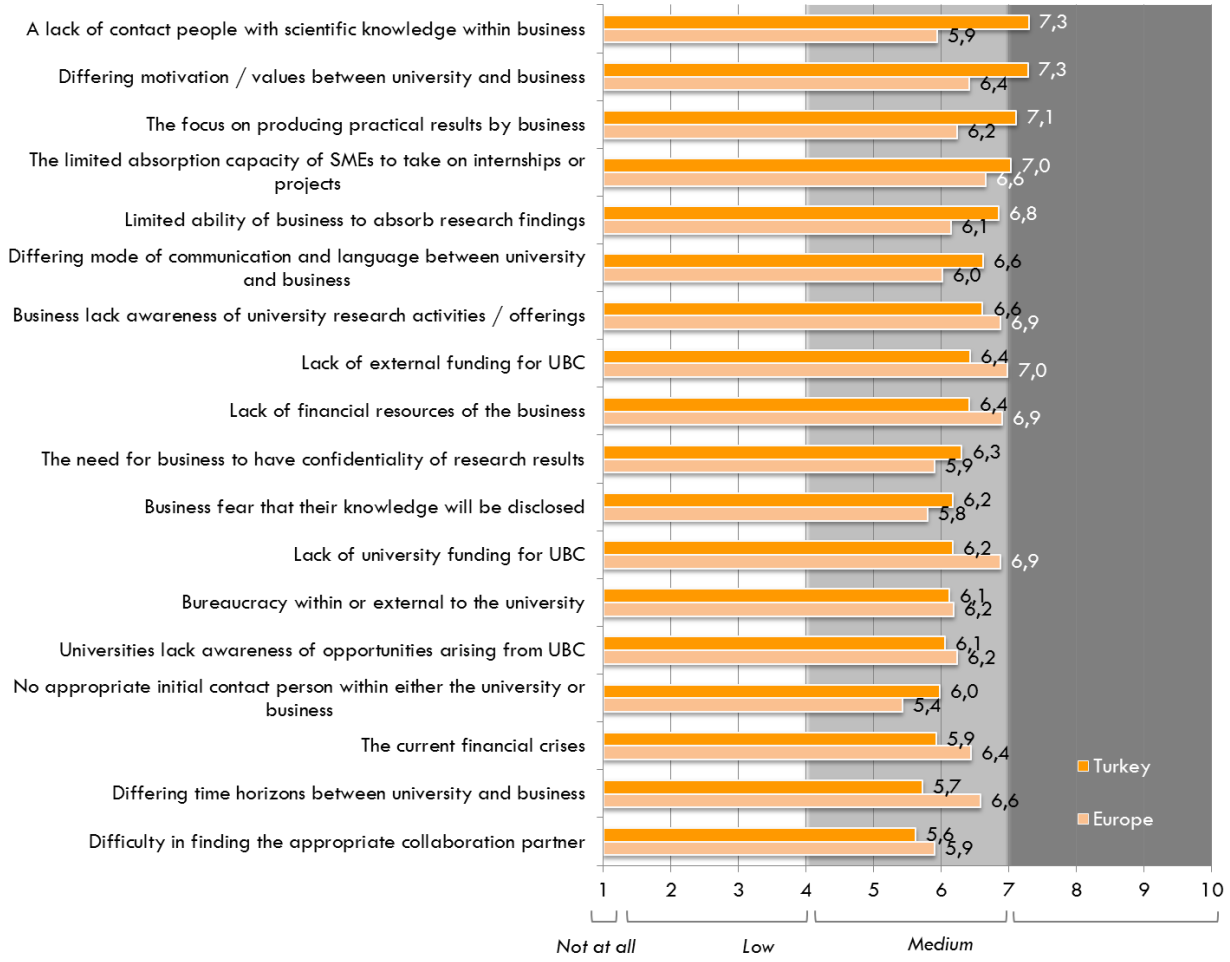
Relational barriers	**Extent of relevance (1-10)**		**Extent of relevance (1-10)**	
• Business lack awareness of HEI research activities / offerings, • The limited absorption capacity of SMEs to take on internships or projects, • Differing time horizons between HEI and business, • Differing motivation / 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.	**Turkey**		**Europe**	
	ACAD	**6.4**	**ACAD**	**6.4**
	HEI	**6.5**	**HEI**	**6.2**

Comparing Turkish HEI representative with Turkish academic responses (see table above)

Turkish HEI management and academics assess '*usability of results*' and to a lesser degree '*relational Barriers*' higher than the EU average. Whereas '*funding Barriers*' are seen as a lower *Barrier* in Turkey in comparison to the EU average.

Main *Barriers* to cooperation – Turkey v Europe

As answered by HEI management



<u>*Relational barriers and usability of results are the biggest barriers to UBC in Turkey*</u> *(see graph above)*

The most prominent *Barriers* named by the Turkish HEI management are those related to the '*relational barriers*' between the HEI and business including 'a lack of contact people with scientific knowledge within the business' (7.3), 'differing motivation / values between university and business' (7.3), 'the focus on producing practical results by business' (7.1) and 'the limited absorption capacity of SMEs to take on internships or projects' (7.0)

<u>*Usability of results seems to be a larger problem in Turkey compared to Europe*</u> *(see graph above and previous page)*

Where the European average shows that '*funding barriers*' are the largest *Barrier*, the Turkish HEI management assess those as the lowest (6.2) and perceive the '*usability of results*' as the largest *Barrier* in undertaking UBC. This is also shown through the difference between the largest *Barriers* in Turkey, and those of the EU average. In addition, the difference between the '*funding barriers*' is also evident, with 'lack of external funding' (7.0 v 6.4), 'lack of financial resources of the business' (6.9 v 6.4) and 'lack of university funding' (6.9 v 6.2) showing large differences between the EU average and Turkey.

Overall, where '*relational barriers*' seem to be perceived similar on both a European level as well as in Turkey, the '*funding barriers*' seem to be less important in Turkey when compared to the European average. This could be influenced by the minor influence of the financial crisis in Turkey. On the other hand, relationships seem to have a higher importance in Turkey than in the rest of Europe.

Main *Barriers* to UBC in Turkey	
1.	A lack of contact people with scientific knowledge within business
2.	Differing motivation / values between university and business
3.	The focus on producing practical results by business
4.	The limited absorption capacity of SMEs to take on internships or projects
5.	Limited ability of business to absorb research findings

Drivers stimulating UBC in Turkey

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 Turkey compared to the EU average. The *Drivers* have been factored into 'meta-groups' to provide a more strategic understanding.

Two groups of UBC *Drivers*

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

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

Drivers (grouped) of cooperation – Turkey v Europe

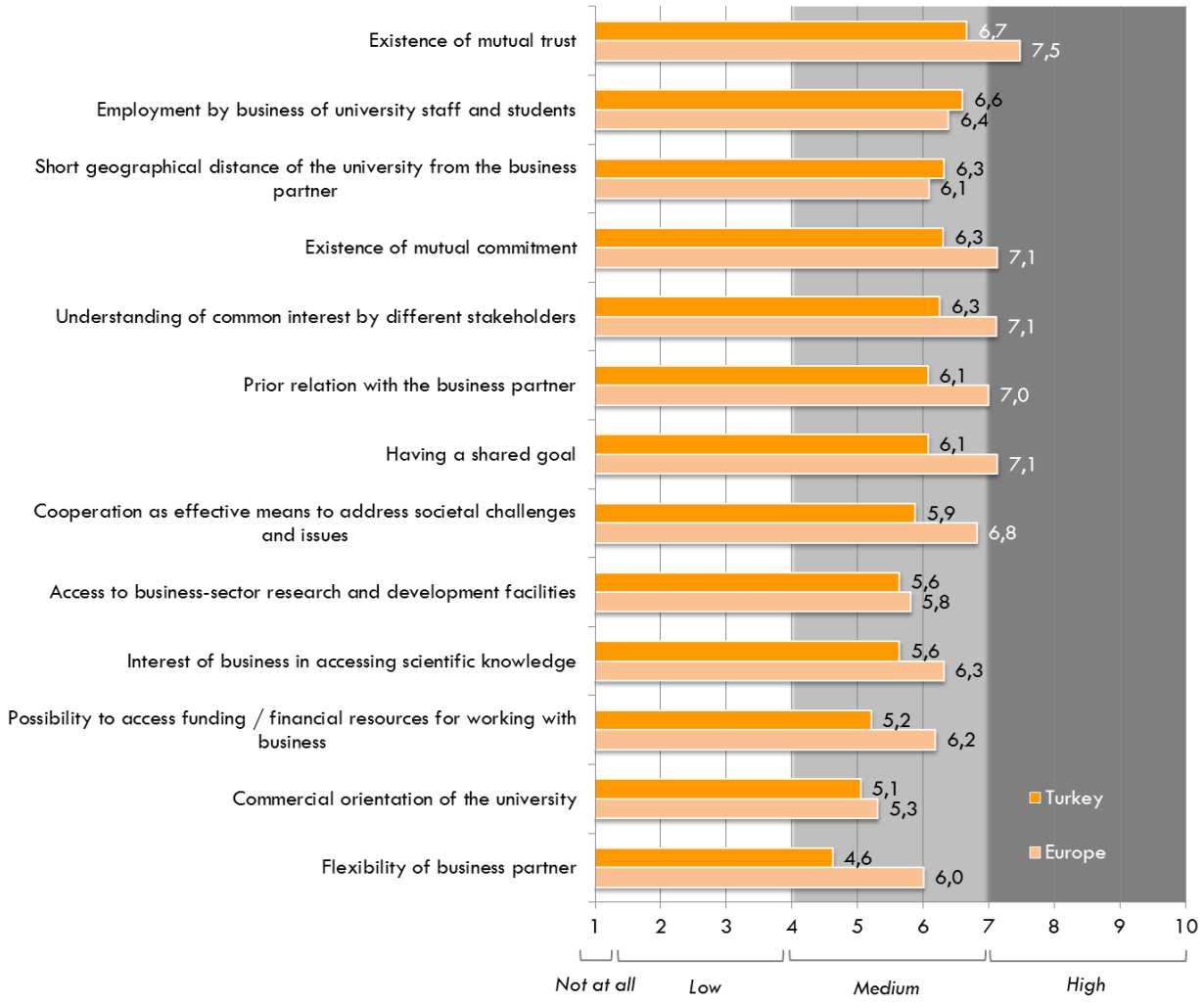
As answered by academics and HEI management

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.	Turkey		Europe	
	ACAD	6.2	ACAD	6.7
	HEI	6.2	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.	Turkey		Europe	
	ACAD	5.5	ACAD	5.6
	HEI	5.6	HEI	6.7

Main *Drivers* of cooperation – Turkey v Europe

As answered by HEI management



<u>*Relationships are the major driver of UBC in Turkey*</u> *(see graph above and table from previous page)*

The HEI management in Turkey perceive the highest *Drivers* of UBC to be '*relationship drivers*' such as 'existence of mutual trust' (6.7), 'existence of mutual commitment' (6.3), 'understanding of common interest by different stakeholders' (6.3).

In addition to the importance of the '*relationship drivers*', the '*business drivers*' are of a relatively similar importance. With 'employment by business of university staff and students' (6.6) and 'short geographical distance of the university from the business partner' (6.3) appearing in the top five main *Drivers* in Turkey.

<u>*Turkish respondents see the relationship drivers of UBC far lower to EU respondents*</u> *(see table from previous page)*

Whereas the '*business drivers*' of UBC are assessed similarly by both Turkey and Europe HEI management as well as Turkish and European academics, the '*relationship drivers*' are perceived far lower by both the Turkish HEI manager and academic. In addition to the difference on factor level, also the individual *Drivers* show significant differences, with 'flexibility of business partner' (-1.4), 'having a shared goal' (-1) and 'existence of mutual trust' (-1) showing the largest differences. Overall, most *Drivers* are perceived lower in Turkey when compared to the European average.

Main *Drivers* of UBC in Turkey
1. Existence of mutual trust
2. Employment by business of university staff and students
3. Short geographical distance of the university from the business partner
4. Existence of mutual commitment
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 Turkey compared to the EU average. The *Benefits* have been factored into 'meta-groups' to provide a more strategic understanding.

Four groups of UBC benefits for academics

Resulting from a factor 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 – Turkey 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	Turkey		Europe	
	ACAD	8.0	ACAD	7.9

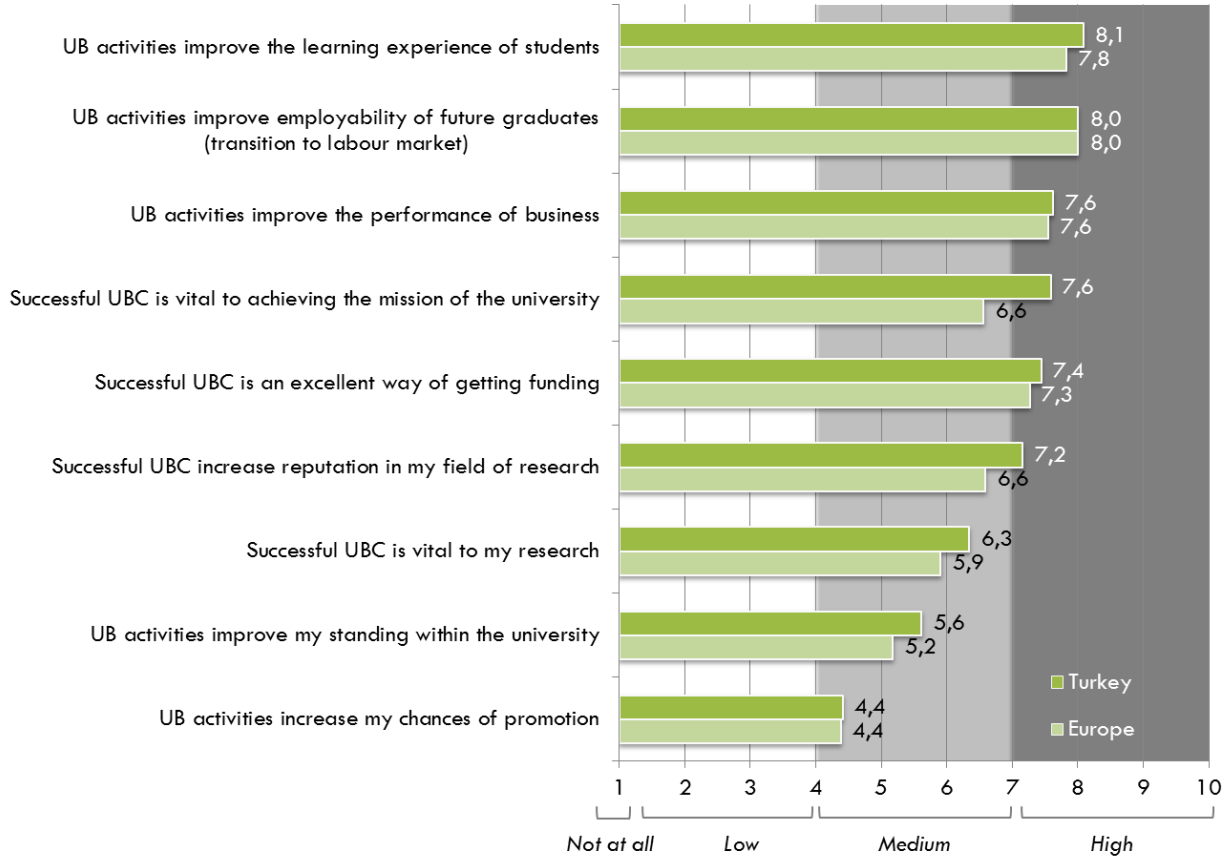
Benefits for business	Extent of importance (1-10)		Extent of importance (1-10)	
• UB activities improve the performance of business	Turkey		Europe	
	ACAD	7.6	ACAD	7.6

Benefits for HEIs	Extent of importance (1-10)		Extent of importance (1-10)	
• Successful UBC is vital to achieving the mission of the HEI	Turkey		Europe	
	ACAD	7.6	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	Turkey		Europe	
	ACAD	6.2	ACAD	5.9

Benefits from cooperation – Turkey v Europe

As answered by academics



Students get the most benefit from UBC say academics

Academics in Turkey 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'), followed by *Benefits* for business ('UB 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 the lowest. Turkish academics are also limited in their cooperation with business to solely scientific collaborations, as private business as an academic is not restricted through governmental regulations.

Turkish academics perceive low self-benefit from UBC activities (see graph above)

Whilst academics report that UBC is an excellent way of getting funding (7.4) and an increase of reputation in their field of research (7.2) they are much more negative in respect to their *Benefits* with respect to the vitality for their research (6.3), their standing in the university (5.6) and especially their increasing chances of promotion (4.4).

These results are in line with the grouped results (see previous page). Compared to these relatively high *Benefits* for all other stakeholders (8.0, 7.6, 7.6), academics perceive their own *Benefits* from UBC much lower (6.2).

Turkish academics perceive slightly higher benefits from UBC than in Europe (see graph above)

In comparison with the EU average, Turkish academics see most *Benefits* slightly more positive. With the largest difference being 'successful UBC is vital to achieving the mission of the university' (7.6 compared to 6.6) and 'successful UBC increases my reputation in my field of research' (7.2 compared to 6.6).

Main benefits of UBC identified by Turkish 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 management (orange) in Turkey compared to the EU average. The *Benefits* have been factored into 'meta-groups' to provide a more strategic understanding.

Three groups of UBC benefits for HEIs

Resulting from a factor 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 – Turkey v Europe

As answered by HEI management

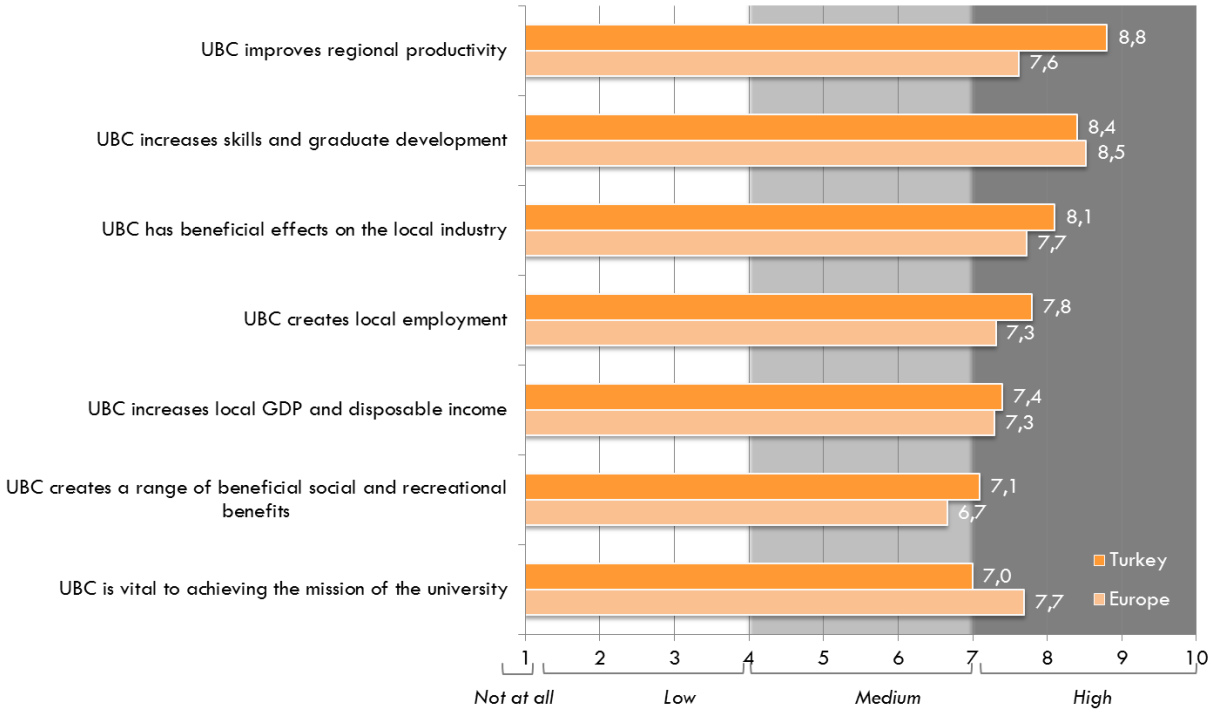
Benefits for the HEI	Extent of importance (1-10)		Extent of importance (1-10)	
• UBC is vital to achieving the mission of the HEI.	Turkey		Europe	
	HEI	7.0	HEI	7.7

Benefits for students	Extent of importance (1-10)		Extent of importance (1-10)	
• UBC increases skills and graduate development	Turkey		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	Turkey		Europe	
	HEI	7.8	HEI	7.3

Benefits from cooperation – Turkey v Europe

As answered by HEI management



The region gets the most benefit from UBC say HEIs (see table previous page and graph above)

HEI management in Turkey perceive most *Benefits* from UBC to be of a high extent, with the 'region' ('UBC improves regional productivity'), 'students' ('UBC increases skills and graduates development'), 'businesses' ('UBC has beneficial effects on the local industry'), 'society' ('UBC creates local employment') and 'HEIs' ('UBC is vital to achieving the mission of the HEI') being perceived to receive a high benefit from UBC.

Higher benefit perceived from UBC for students and the region by Turkish HEI management than in Europe (see table previous page and graph above)

Comparing the results to the European average it can be stated that Turkish HEI management see higher *Benefits* for students and for business and society from UBC than in Europe whilst they assess the benefits of the HEI far lower (7.0 vs 7.7). Furthermore there is a significant difference between the 'improvement of regional productivity' in Turkey and the European average (8.8 v 7.6), in addition to this regional focussed variable, 'UBC has beneficial effects on the local industry' (8.1 v 7.7), 'UBC creates local employment' (7.8 v 7.3) and 'UBC increases local GDP and disposable income' (7.4 v 7.3) also show a higher perceived benefit in Turkey when compared to the European average.

Main benefits of UBC identified by Turkish HEI representatives
1. UBC improves regional productivity
2. UBC increases skills and graduate development
3. UBC has beneficial effect on the local industry
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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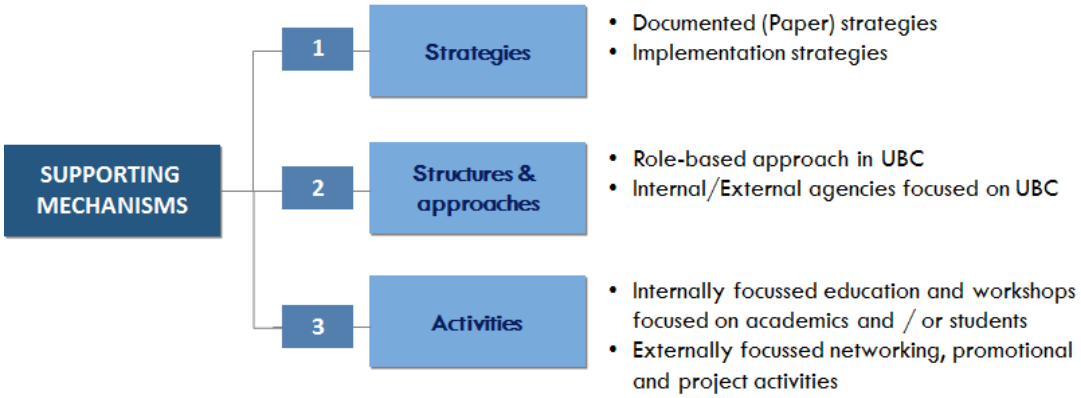
Supporting mechanisms for UBC

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 Turkey. 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).

Key finding from the *State of European UBC* report *(relating to the entire European data)*

The UBC *Supporting mechanisms* that are easier to implement (e.g. activities) are more developed than those (e.g structures) that are more difficult (costly, time-consuming) to implement. It was found that having a dedicated: (i) strategy, (ii) program, (iii) agency, and/or (iv) responsible person, has a substantial effect on stimulating European UBC.

A further finding 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 in Turkey

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 a factor 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) – Turkey v Europe

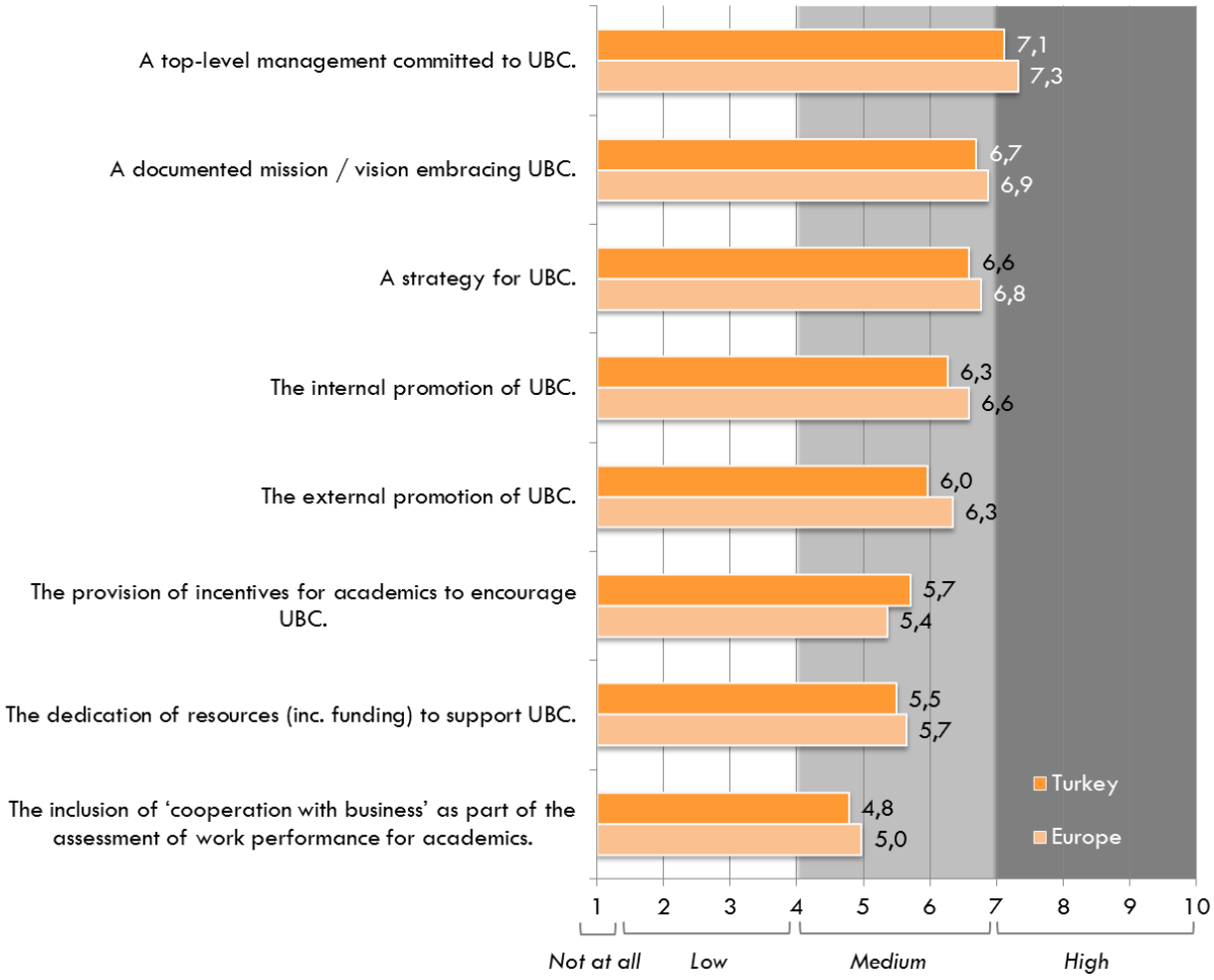
As answered by HEI management

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.	Turkey		Europe	
	HEI	6.5	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.	Turkey		Europe	
	HEI	5.4	HEI	5.4

Development of UBC strategies – Turkey v Europe

As answered by HEI management



<u>*Documented (paper) strategies are the most developed strategies in Turkey*</u> *(see graph above)*

The most developed UBC *Strategies* in Turkey, as reported by Turkish HEI management, are 'a top-level management committed to UBC' (7.1), 'a documented mission / vision embracing UBC' (6.7) and 'a strategy for UBC' (6.6). On the other extreme, 'The inclusion of cooperation with business as part of the assessment of work performance for academics' (4.8), 'the dedication of resources, incl. funding, to support UBC' (5.5) and 'the provision of incentives for academics to encourage UBC' (5.7) are only developed to a lower degree (compared to other *Strategies*).

<u>*Strategies are similarly developed in Turkey as in Europe*</u> *(see graph above)*

When compared to the European average, Turkey shows a similar extend of implementation of UBC *Strategies* with most items showing only an insignificant difference in responses. The largest gap is found in the 'the internal promotion of UBC' (-0.3), 'the external promotion of UBC' (-0.3) and 'the provision of incentives' where Turkey performs slightly better (+0.3) than the European average.

On a factored (grouped) level, '*documented strategies*' are higher more developed in Turkey than '*implementation and motivation strategies*' supporting UBC. Overall, no significant differences between Turkey and Europe can be found on a factored level.

	UBC strategies in Turkey
Highly developed	1. A top-level management committed to UBC
Moderately developed	2. A documented mission / vision embracing UBC 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 in Turkey

UBC *Structures and approaches* are mechanisms created as a result of top-level strategic decisions within (or related to) a HEI. They are enablers of UBC and include the creation or development of positions or agencies put in place in order to promote, develop or implement UBC with a mid to long term focus. They can be created within the HEI or externally, 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 a factor 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) – Turkey v Europe

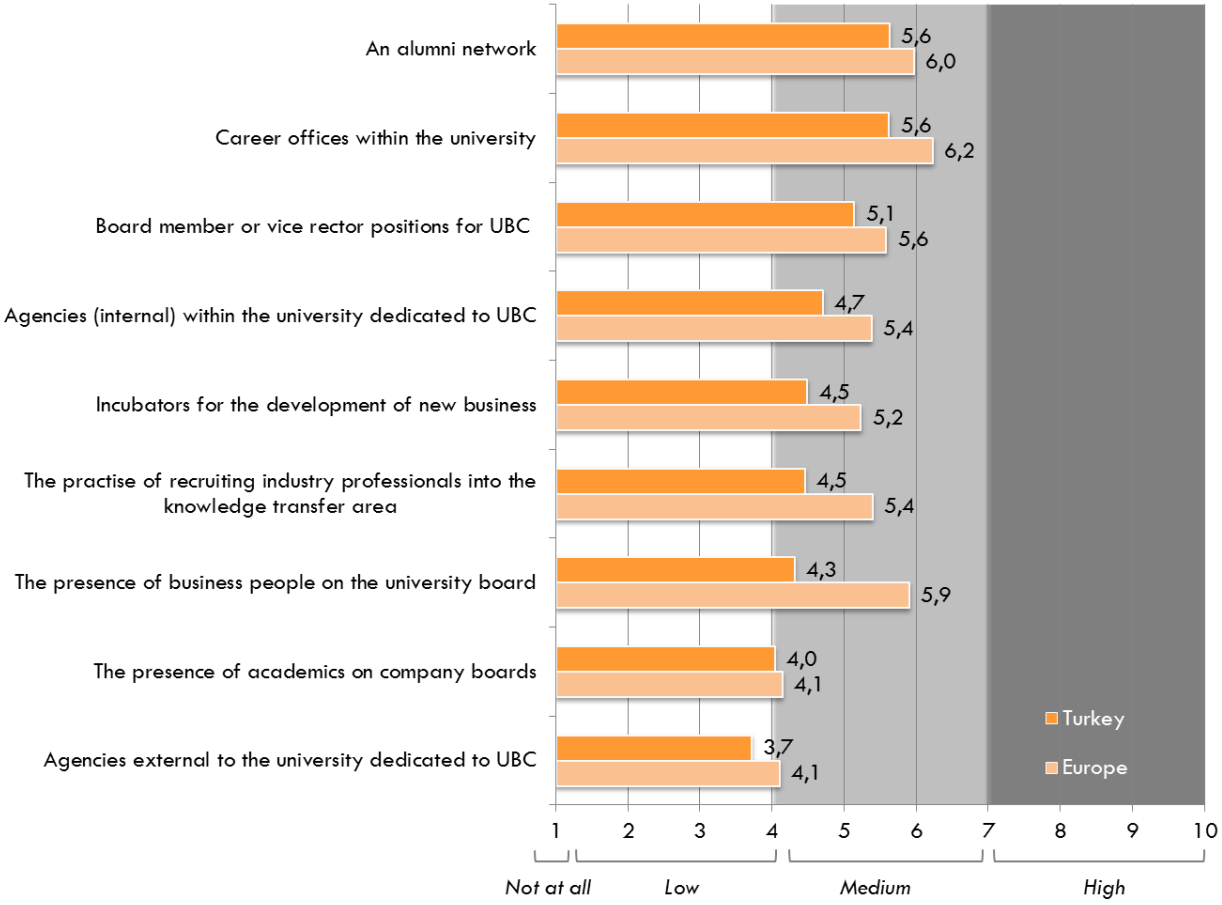
As answered by HEI management

Roles-based approaches in UBC	Extent of development (1-10		Extent of development (1-10	
	Turkey		Europe	
• 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.	HEI	4.6	HEI	5.4

Internal/External agencies focused on UBC	Extent of development (1-10		Extent of development (1-10	
	Turkey		Europe	
• 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.	HEI	4.7	HEI	5.3

Development of UBC structures and approaches –Turkey v Europe

As answered by HEI management



<u>*The appointment of personnel is the most developed approach in Turkey*</u> *(see table previous page)*

The extent of development of the *Structures and approaches* for UBC in Turkey shows that '*role-based approaches in UBC*' are of the same level of development when compared to '*internal/external agencies focused on UBC*' (4.6 compared to 4.7). With the most developed types being 'an alumni network' (5.6), 'career offices within the university' (5.6), 'board member or vice rector positions for UBC' (5.1) and 'agencies within the university dedicated to UBC' (4.7).

<u>*Lower development of structures and approaches compared to European average*</u>

The *structures and approaches* in Turkey are far less developed when compared to the EU average. With 'the presence of business people on the HEI board' (4.3 v 5.9) and 'the practice of recruiting industry professionals into the knowledge area' (4.5 v 5.4) showing the largest differences. However, with any exception, all *structures and approaches* are rated lower by the Turkish HEI managers when compared to their EU counterpart.

	Structures and approaches in Turkey
Moderately developed	1. An alumni network 2. Career offices within the university 3. Board member or vice rector positions for UBC 4. Agencies (internal) within the HEI dedicated to UBC 5. Incubators for the development of new business 6. The practise of recruiting industry professionals into the knowledge transfer area 7. The presence of business people on the HEI board 8. The presence of academics on company boards 9. Agencies external to the university dedicated to UBC
Lowly developed	10. Agencies external to the university dedicated to UBC

Operational activities for UBC in Turkey

Operational activities are actions of a practical and immediate nature undertaken by actors within HEIs, governments, regional agencies and business to create and support UBC. *Operational activities* are usually the *Supporting mechanisms* that require the lowest financial investment and the lowest commitment and whose scope and volume can be more easily described, measured and managed.

Three groups of UBC operational activities

Resulting from a factor 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) – Turkey v Europe

As answered by HEI management

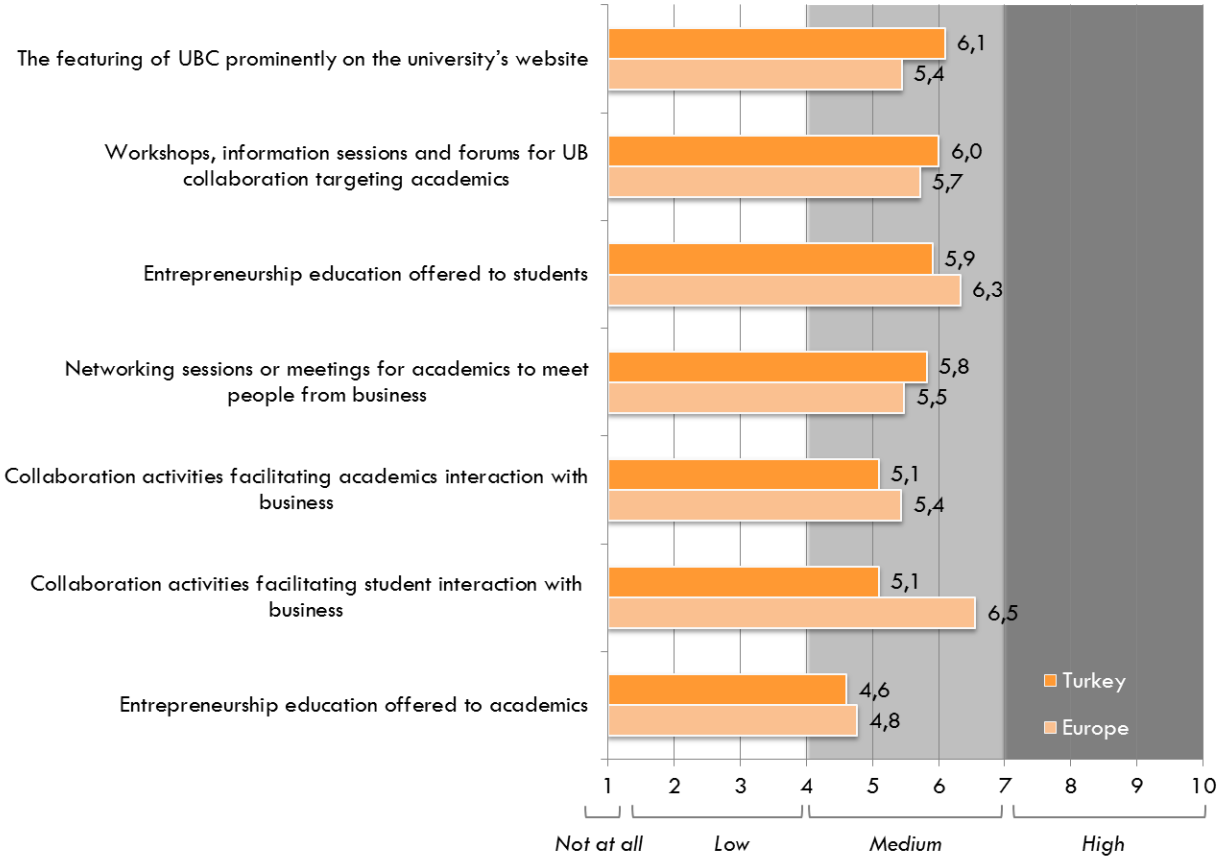
Internally focused education and workshops focused on academics	Extent of development (1-10)		Extent of development (1-10)	
• Workshops, information sessions and forums for University-Business collaboration targeting academics, • Entrepreneurship education offered to academics.	Turkey		Europe	
	HEI	5.3	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.	Turkey		Europe	
	HEI	5.9	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.	Turkey		Europe	
	HEI	5.5	HEI	5.7

Development of UBC operational activities – Turkey v Europe

As answered by HEI management



<u>*Students are the focus of UBC activities in Turkey*</u> *(see table previous page)*

With respect to 'entrepreneurship education offered to students' Turkey is performing on a medium level (5.9). However, when comparing the factored results, the activities focussed on the students (5.9) are ranked the highest, followed by '*externally focussed network, promotion and project activities*' (5.5) and academics (5.3). The most developed types in Turkey are 'the featuring of UBC prominently on the university's website' (6.1), 'workshops, information sessions and forums for UBC targeting academics' (6.0) and 'entrepreneurship education offered to students' (5.9). 'Collaboration activities facilitating student's interaction with business' (5.1) and 'entrepreneurship education offered to academics' (4.6), being ranked the lowest.

<u>*Lower developed of UBC activities compared Europe*</u>
(see table previous page)

On a factored (grouped) level, it can be summarised that Turkey is slightly lower developed than the European average with respect to '*externally focused networking, promotional and project activities*' (5.5 compared to 5.7) as well as '*internally focused education and workshops focused on students*' (5.9 compared to 6.3). With respect to '*internal activities focused on academics*', however, Turkey is on exactly the same level as the European average (5.3 compared to 5.3).

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

Science-to-Business Marketing Research Centre

www.science-marketing.com

Model validation partners

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

1 **Indirect outcome** (society)

2 **Direct outcome** (actors)

3 **University-Business Cooperation (UBC) types**

4 **Influencing factors**

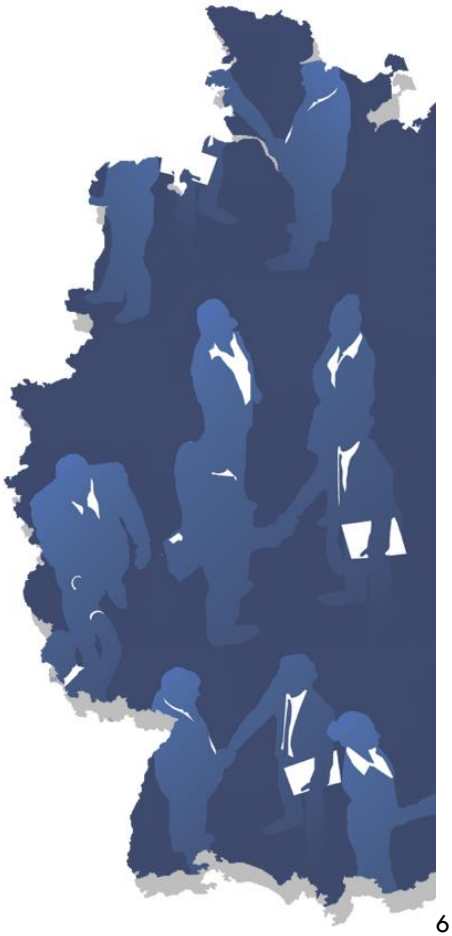
5 **Supporting mechanisms**

6 **Key stakeholders**

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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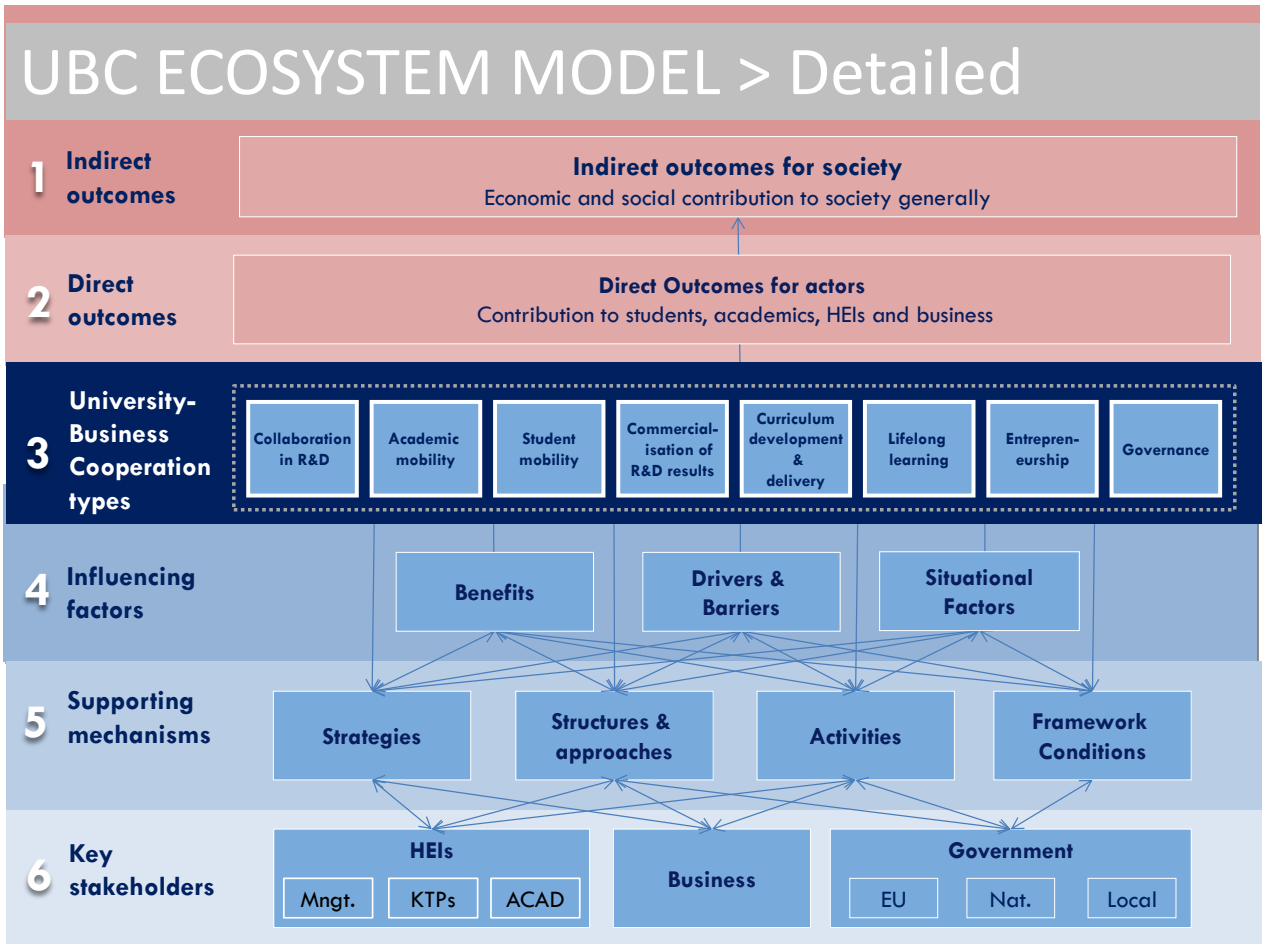

6 Ecosystem Elements (and their key findings)

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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References

Baaken, T., Gökduman, S. (2007). Customer Satisfaction and Brand Positioning – Results of a Customer Satisfaction Survey in Research Markets of Turkey and Universities' Brand Positioning", Paper on the "2. Markentag Istanbul" Marmara University, 07.09.2007 in Istanbul, Turkey.

Bozeman, B., Boardman, C. (2013). Academic Faculty in University Research Centers: Neither Capitalism's Slaves nor Teaching Fugitives. The Journal of Higher Education, 84(1), 88-120.

Carayol, N. (2003). Objectives, Agreements and Matching in Science–Industry Collaborations: Reassembling the Pieces of the Puzzle. Research Policy, 32(6), 887-908.

Davey, T., Baaken, T., Galán-Muros, V., Meerman, A. (2011). Study on the cooperation between Higher Education Institutions and Public and Private Organisations in Europe. European Commission, DG Education and Culture, Brussels, Belgium, ISBN 978-92-79-23167-4.

Etzkowitz, H., Leydesdorff, L. (2000). The dynamics of innovation: From National Systems and "Mode 2" to a Triple Helix of university-industry-government relations. Research Policy, 29(2), 109–123

European Commission (2005): European Trend Chart on Innovation: Annual Innovation Policy Trends and Appraisal Report Turkey, http://trendchart.cordis.lu/reports/documents/Country_Report_Turkey_2005.pdf

European Commission (2011). Council conclusions on the role of education and training in the implementation of the 'Europe 2020 strategy. Official Journal of the European Union (2011/C 70/01)

Gürüz K., Şuhubi, E.A.M., Şengör, C., Türker, K., Yurtsever, E. (1994). 'Türkiye'de ve dünyada yükseköğretim, bilim ve teknoloji. İstanbul: Türkiye Sanayicileri ve İşadamları Derneği (Association of Turkish Industrialists and Businesmen TÜSİAD).'

Kliewe, T., Davey, T., Baaken, T. (2009). A model for the assessment of value-adding new venture opportunities coming from university research, in: Koçak, A., Abimbola, T., Özer, A., Watkins-Mathys, L. (eds.): Marketing and Entrepreneurship, Ankara, pp. 940-954.

OECD, Organisation for Economic Cooperation and Development (2002). Benchmarking science-industry relationships. Accessed from <http://ep2010.salzburgresearch.at/knowledge_base/oecd_2002.pdf>, [25 August 2013].

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