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Inside the University Technology Transfer Office: Mission Statement Analysis

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ABSTRACT

The focus of our paper is to qualitatively test the mission statements components of university TTOs using Pearce and David's (1987) eight components. Mission statements are the organization's central defining purpose and focus. In essence an organisations' *raison d'etre*. Given the growing importance and the role university TTO now play, understanding components of mission statements is timely, particularly during the first phase of TTO developments. To provide insights concerning these issues our study is set in the Republic of Ireland, which has one of the top performing university and public research organization technology transfer system within the European Union. Using Pearce and David (1987) well established eight mission statement components, we analysed seven Irish university TTO mission statements. We also conducted limited quantitative analysis on the number of mission statement components and selected variables. We found that university TTO mission statements focused primarily on two mission components – target customers and markets and principal services. From our quantitative analysis we found moderate positive correlations between patents granted and number of mission statement components. Furthermore we found there was a positive correlation between grants granted outside Ireland and number of mission components. Our results, albeit that they are tempered by a small sample of data have implications for TTOs.

Key Words: Mission; Mission Statements; Mission Components; Key Drivers; Technology Transfer Office; Entrepreneurial University

JEL Codes: L2, O38, O39

UNIVERSITY TECHNOLOGY TRANSFER OFFICE MISSION STATEMENT COMPONENTS

I. Introduction

The services of a university Technology Transfer Office (TTO) are being demanded, as well as being scrutinized, by myriad stakeholders. Understanding and defining the purpose and intent of a TTO is not a simple task; it requires a multi-linear if not a multi-typological approach (Montesinos et al, 2008). At the early stages of establishing TTOs defining a clear purpose is critical to establish legitimacy and credibility. Yet, it is a critical task as universities pursue technology transfer activities and seek to acknowledge it through carefully articulated mission statements. Through mission statements, TTOs send signals to a multitude of stakeholders such as academic entrepreneurs, industry partners, and government agencies (Siegel et al., 2003).

The mission statements of TTOs have gained limited attention in the academic literature as a vehicle to explore the strategic objectives of the office. For example, Markman et al. (2005) explored TTO mission statements to understand their strategic focus. They found a dominant emphasis of the office to be on licensing technologies. The focus that TTOs take impact on all stakeholders.

The remainder of this paper is structured as follows. In Section II, we briefly overview the academic literature on mission statements, their components, and value. Then, in Section III, we describe our methodology for studying the extent that mission statements are developed and used in the population of publicly supported university TTOs in the Republic of Ireland. In Section IV, we present heuristic findings as well as some quantitative data from our study. Our paper concludes in Section V with a discussion of our interpretation of our findings and our recommendations for further study of TTO mission statements for the purpose of increasing their efficiency and effectiveness.

II. Mission Statements: Purpose and Content

This section of the paper overviews academic literature with an eye toward three particular areas of emphasis. Drawing on literature from strategic management for all areas, our first area of emphasis is examining what a mission statement is. Our second area of emphasis is understanding the components of mission statements, and our final area of emphasis is scrutinizing the value of mission statements

II.1 What is a Mission Statement?

Mission statements are, in concept, a clear articulation to internal and external stakeholders of the long-term intent of an organization. They are seen as an important indicator of the goals of an organisation, the organisation's central defining purpose and its *raison d'etre* (O'Gorman and Doran, 1999; Leuthesser and Kohlie, 1997), or as David and David (2003: 11) describe, mission statements are

enduring statements of purpose that distinguish one organization from

other similar organization.

The academic literature on mission statements is limited, but a careful reading identifies three core purposes of mission statements; as a guide to decision making, as a communications tool, and as a tool in directing the formulation and implementation of strategic planning. Thus, mission statements are appropriately credited with providing a roadmap through which to interpret behaviours and decisions (Ledford et al, 1995; Falsey, 1989) as well as to assist firms shape their "identity, purpose and direction" (Leuthesser and Kohli, 1997: x). Mission statements also influence the behaviour of organisations, which in turn influences their performance (Bart, 1995 and 1996), as well as articulating the philosophy of the organisation to its internal and external stakeholders (Byars and Neil, 1987).

An understanding of mission statements is especially important for TTOs. As Friedman and Silberman (2003: x) echo the performance benefit of mission statements; they argue that university TTOs that have a clear mission statement and that have well defined organisational leadership enjoy:

> the positive impact of having a focused mission on producing licenses and royalty income means that universities having multiple objectives with technology transfer will not perform as well as universities with a clear focus, measured here by a readily available comprehensive statistical report on TTO activities.

Some drivers of mission statements for industrial firms, as identified by Bart (1997), include:

> a common purpose,
> a definition of business scope,
> a direction for CEOs to exert control,
> a guideline for setting behavior standards,
> statement of shared values,
> an emphases on the interests of external stakeholders,
> an inspirational dimension for employees,
> a criterion for resource allocation, and
> a map for how the organization will refocus in a financial crisis.

TTOs core drivers center on the knowledge economy, levels of public funding, and industry pressures. However, the challenge that remains for TTOs is understanding that there is overlap in between the three core purposes of mission statements—a tool for decision making, communications, and strategic planning—and therefore giving careful consideration to points of differentiation (Jongbloed et al., 2008), which thus define the unique characteristics of the TTO and hence its ability for efficiency and effectiveness. Cunningham and Harney (2006, p.178) posit that a TTO mission statement "quite simply, should communicate what the TTO is and what it does."

II.2 Mission Statement Components

Our second area examines what are the key components of a mission statement. There have been limited studies of mission statement components. In their seminal research on mission statements, Pearce and David (1987, p.109) address content, and they suggest that mission statements should be made up of eight components, namely:

1. The specific of target customers and markets
2. The identification of principal products/services
3. The specification of geographic domain
4. The identification of core technologies
5. The expression of commitment to survival, growth and profitability
6. The specification of key elements in the philosophy
7. The identification of self-concept
8. The identification of desired public image

Want (1986) identified mission components as indicators of purpose, principal business aims, corporate identity, company policies, and overall values. Furthermore, financial targets and quantitative targets, as well as location of business, definition of technology, and concern for survival were not mission statement components (Bart, 1997).

Studies conducted of mission statements in various setting would indicate significant variation in mission components. Key components used by Leuthesser and Kohli (1997) in their study of 393 annual reports from randomly selected publicly listed companies in the US include: benefits, values, self-image, and focus. A study of mission statement of 408 AACSB Business Schools by Palmer and Short (2008) found they 'generally lacked comprehensiveness'. Capart and Sandelin (2004) suggest that TTO mission statements for public research organisations should include the following eight components:

1. To facilitate the transfer of university created discoveries
   into new products and services for public use and benefits.
2. To promote regional economic growth and job creation
3. To reward, retain and recruit faculty and graduates students
4. To create (new) relationships with industry
5. To generate net royalty income for the TTO, inventors,
   and the university.
6. To generate new funding support for the university and/or
   faculty from sponsored research funding, consulting opportunities for faculty,
   and donation of money or equipment
7. To serve as a service centre for to the university, faculty,
   students, and staff on all areas related to intellectual property, including
   providing seminars and consulting assistance when requested.
8. To actively facilitate formation of university connected start-up (spinout)
   companies.

From previous studies on mission statements, and from what Capart and Sandelin (2004) posit, there are commonality of components within the academic literature particularly around customers, geographic markets, and distinctive competences.

II.3 Mission Statement Value
Our final area of focus is with respect to mission statement value. A debate within the strategy literature centers on the *per se* value of mission statements, particularly regarding the credibility and relevance of mission statements (Denton, 2000). A central question that permeates the academic literature is: do mission statements reflect the organization reality and experiences, and as such are they genuine? A study carried out by Baetz and Bart (1996) on Canadian companies found the main

rationales for having mission statements include: to guide the strategic planning system; to define the organisations scope of business operations/activities; to provide a common purpose/direction transcending individual and department needs; to promote a sense of shared expectations among all levels of employees, thereby building a strategy corporate culture (i.e., shared values); and to guide leadership styles. Leuthesser and Kohli (1997) found that the core messages of mission statements for customers in their study focused on benefits (quality, value, customer services) and focus. For employees the core message of mission statements was orientated around values. While the empirical studies of the value mission statements limited they would suggest they have a value in setting direction and in communicating purpose with customers.

III. Methodology Used in the Study

Our study seeks to qualitatively test the mission statements components of university TTOs using Pearce and David's (1987) eight components. To accomplish this, we reflected on the academic literature in Section II and accordingly adopted a qualitative approach that employed a multiple case study method.

The focus of our study was the full population of seven public university TTOs in Ireland. Our focus on Ireland is pragmatic in terms of us being juxtaposed to a national population of TTOs. Our focus is also intentional because the lessons learned from Ireland, as an embryonic research and technology transfer system might well serve as an international benchmark for university TTOs throughout the European Union given its performance.

Table 1 shows the approximate number of students, staff, research income as well as the age of TTO and the number of Full Time Equivalent staff in each TTO.[2] The creation of TTOs in Ireland has been supported through public investment as part of the implementation of national government policy. Within this context the Strategy for Science, Technology and Innovation (SSTI) (2006 – 2013) represented the governments comprehensive plan to guide Ireland into becoming the most competitive and dynamic, knowledge-driven economy. The overarching vision of the SSTI was to ensure that:

> Ireland by 2013 will be internationally renowned for the excellence of
> its research and will be to the forefront in generating and using new
> knowledge for economic and social progress within an innovation
> driven culture

As a result of this strategy, research commercialisation and technology transfer emerged as new missions for Irish universities and TTOs. The commercialization aims within SSTI (2006) focus on:

- Increase outputs of economically relevant knowledge, know-how and patents from third-level institutions; and
- Strengthen the Intellectual Property/ Commercialisation functions within Higher Education Institutes and provide them with expertise to translate research into applications.

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[2] Income for a TTO includes ....

As part of the SSTI, the Technology Transfer Strengthening Initiative I (TTSI1) was put in place from 2007 to 2012 to support TTOs, develop skills, funding for management of IP and building relationships with industry. This represented a €30 million investment programme. TTSI1 Enterprise Ireland (2014, p.4) noted:

> Under TTSI1, licensing activity increased seven-fold from the baseline
> prior to introduction of the programme and spin-out creation increased
> by well in excess of 400%. Of 374 different licensees who benefitted
> from licences, option or assignment from the HEI sector
> during the TTSI1 programme, 84 % were Irish based companies (316).

[Insert Table 1 here]

Prior to the establishment of TTOs, the initial organizational units in Irish universities responsible for technology transfer mission activities were Industrial Liaison Offices (ILO). These were set up in four of the Irish universities and they were one-man-shops, where one person was responsible for a multitude of activities related to industry engagement, student placements, and organizational contracts. ILOs had a wide ranging institutional roles and remits (see Cunningham and Harney, 2006; Geoghegan and Pontikakis, 2008). Prior to TTSI1 universities primarily transferred technology by way of licenses, options or assignment agreements (Enterprise Ireland, 2014, p.3). The public research funding grew to expand Ireland's scientific base through such initiatives as Programme for Research in Third Level Institutions, the establishment of Science Foundation Ireland and the development of HEI commercialization funding programmes by Enterprise Ireland. This resulted in increasing the pressure to effectively support university and industry engagement for technology and knowledge transfer activities (see Cunningham and Golden, 2010).

To secure financial support under TTSI1 TTO directors has to development a business plan which outlined a proposed budget including details of the costs associated with the recruitment and employment of additional TT staff; costs associated with essential administrative staff; and costs associated with purchase/development of procedures software and training costs for staff. Once funding was allocated by Enterprise Ireland, the TTO directors put their plans into action in order to deliver the associated metrics.

A EU Knowledge Transfer Report 2010-2012 ranked Ireland number one in Europe using a range of knowledge transfer indicators and the European Union (2013, p.172) described "the practice of PROs [Public Research Organisation] in Ireland follows the CoP [Code of Practice] nearly perfectly." The objective of the report was to assess the level of implementation of the European Commission's 2008 recommendations on the management of intellectual property in knowledge and CoP for universities and other public research organizations. The overall level of implementation among member states was on average 53 per cent with Ireland implementation level at 70 per cent see Figure 1.

[Insert Figure 1 here]

III.1 Data Collection and Analysis

We used publicly available secondary data sources for our cases studies. The data we collated included archival information from various sources, including university documentation on strategic planning, government policies on the technology transfer ecosystem in Ireland, public news articles about the TTOs, and TTO pamphlets. Taken together, these secondary sources of data provided a richer context for understanding TTO activities and sparked new questions for interview protocols that could be addressed in subsequent interviews with TTO professionals.

We took each university TTO mission statement and these mission statements were analyzed using Pearce and David's (1987) eight mission statement components. Although developed three decades ago, their scheme continues to be an established framework to analyse the content of organisational missions (O'Gorman and Doran, 1999; Palmer and Short, 2008). A coding of "1" was allocated to all the statements for each mission component that was judged as being present in the mission statement, and a coding of "0" was assigned if not present. In an iterative fashion, we analyzed the qualitative data by traveling back and forth between the data (Miles and Huberman, 1994).

We also conducted quantitative analysis in relation to the correlations between number of mission statement components and selected variables including patent applications, patents granted, license agreements, spinouts created, research income, number of academic and TTO staff.

IV. Findings from the Case Studies
IV.1 Mission Statement Components
In Table 2 we present our analysis of mission statement components using Pearce and David (1987) eight components. We found that all of the TTOs in our study clearly identified their principal products or services, and six out of seven of the TTO mission statements articulated target customers and markets. In describing their principal services, TTOs mission statements used words such as "managing technology transfer," "commercialisation," "transfrom knowledge," "successful exploitation of new ideas," and "exploited created intellectual property."

For target customers and markets these were described by words such as "local," "national," "industry," "start-up companies," "economy," and "society." We found none of the TTO mission statements articulated any elements of company philosophy such as core values and beliefs. Only two out of the seven TTOs in our study had mission components with respect to identification of desired public image, identification of self-concept, expression of commitment to survival, growth and profitability and geographical domain. Langauge such as being an "international leader," "building partnerships," and the "critical link" between university and business was used in the mission statements.

Only, two of the mission statements described developing a culture within and outside their institution focused on innovation and commercialisation. This was described in one mission statement as "promoting a culture of innovation and entrepreneurship' and in another 'to foster a culture of innovation and entrepreneurship." These two TTOs were the longest established TTOs.

[insert Table 2 here]

IV.2 Mission Statements Components and Performance
To test for the correlations between number of mission statement components and selected variables we used Pearson and Spearman correlations. Table 3 presents our results and we found moderate positive correction between patents grants and number of mission statement compements. There was a strong positive correlations between patents granted outside Ireland and the number of misson components possesed by each university's mission statement. However, we found no significant correlations, positive or negative, between number of components of a university's mission statement possessed and number of spin-outs created, license agreements, patent applications applications granted. We found a relatively strong positive correlation between the number of TTO staff and research income obtained by universities. We also found that there was no significant correlation between the number of components and research income.

[insert Table 3 here]

V. Discussion
Our study found a variety of mission statement components and many lacked the comprehensiveness of the eight mission statement components as per Pearce and David (1987). The business plan that each university had to put forward in order to received funding under TTSI1 meant that each institution had to articulate its core services, customers and markets and how the TTO would interact and engagement effectively with internal and external stakeholders. This focus is reflected in the two dominant mission components that we found in our study—specification of target customer and markets and the identification of principal products/services. The commonality to these two mission components is striking and mirrors the findings of Palmer and Short (2008) in their study of US business schools. For TTOs it has meant that they had to identify their core activities. The dominant mission statement components focus on core strategy questions – of who we are and what businesses we are in.

Given the early evolution of the establishment of TTOs in our study, through reconfiguration of ILOs the identification of self-concept was not addressed in any mission statement in our study. Self-concept is centered around how an organizations views itself and its strength. An explanation for this could be the embryonic nature of TTO as an organizational unit within the universities in our study. It also suggests that TTOs at an early stage of development are reluctant to define self-concept until they have established their legitimacy and creditability among key stakeholders internally and externally. However language of the mission statements emphasized the exploitation of intellectual property and the maximization of a return on investment from a national and regional perspective. This suggests that TTOs used language, terminology and metrics that reflected international norms and experiences. This also supported their legitimacy with the funding agency to support appropriation of financial support. Moreover, the strong positive correlation between patents granted outside of Ireland and number mission components further reinforces the exploitation of IP. All of the mission statements emphasized the 'transfer of university created discoveries' as posited by Capart and Sandelin (2004). That said, two mission

statements do not reflect such a myopic view. Rather, they are looking forward to foster a culture of entrepreneurship.

While the focus of most of the seven TTO mission statements is on the outcomes and benefits of the TTOs activities to stakeholders (this is somewhat reflective of policy makers agenda to date), there remains a lack of explicit market making ambitions, a lack of an explicit expression of their expertise, and finally a lack of an emphasis on the effectiveness of their own commercialization mechanisms. This finding, albeit qualitatively general, indicates support for Warren et al. (2008) who argue uniform "best practices" may not be appropriate for all universities given that their TTOs are charged with different missions and/or they operate in different environments. Of significance for our conclusions, Warran et al (2008) argues there is a significant gap in the understanding of TTOs towards defining their purpose, missions and operations to match the capabilities of their local innovation systems.

VI Some Practical Implications

Our study has value for TTO Directors when deciphering their role in the TTO. Mission statements do matter for TTOs. Mission statements are important artifacts for TTO Directors and TTOs in communicating effectively who they are and what do they do to any stakeholder and audience. Mission statements that address all of the mission components as outlined by Pearce and David (1987) help in further legitimizing the TTO with internal stakeholders, particularly the academic community and university management teams. Mission statements also further reinforce the core purpose and focus, by addressing the who we are and what businesses we are in, which is fundamentally a question of strategy. TTOs as boundary spanning organizations dealing with multiple internal and external stakeholders, it is imperative that mission statements address TTO philosophy, self-concept and desired public image. As TTOs evolve beyond an embryonic stage and a focus customers and services they should address other these mission components to further enhance their legitimacy, credibility and sustainability.

The value of encompassing the eight components of mission statement as advocated by Pearce and David (1987) is that is clearly communicates many important aspects of the core purpose and focus of TTOs beyond just core activities and customers. Crafting a TTO mission statement can promote a more common shared sense of purpose and direction. The process of by which this is reached is important whereby all stakeholders are involved in shaping the TTO mission and consequently have developed a shared understanding of purpose and focus. Moreover, this process of defining TTO mission can enable internal decision-making around the TTO services to internal and external stakeholders and what types of impact are they attempting to achieve. This needs to be explicitly stated so that all stakeholders have a clear and unambiguous understanding of TTO mission. Our findings suggest at the embryonic stage of TTO development that it is prudent to only emphasize a narrow range of components until more institutional experience is developed and certain threshold levels of performance are achieved to satisfy key funders internally and externally. Focusing on customers and markets allows TTOs to demonstrate success around established hard measure that further building their institutional legitimacy.

As well as the component elements of TTOs, the language used in TTO mission statements should be simple and be powerfully communicated by all in the office on a

consistent basis to all stakeholders. The simplicity of language used in TTOs mission statement in our study has meant they are accessible to specialist and non-specialist audiences. This is an issue that TTOs need to bear in mind in crafting or refining their mission statement. Furthermore, while some of the language used can be future orientated and express a strategic intent it should be countered balanced with the realities of the activities and customers it serves. In essence, the language should further help support and promote the legitimacy of the office but also needs to be credible to all stakeholders that engage regularly with the TTO.

In preparing mission statement TTO Directors need to be aware of the alignment of their mission statement with that of their institution. This alignment at a fundamental level is in relation to the direction setting of the TTO and institution. The follow on in relation to this mission statement alignment in more concrete ways in terms of explicitly stated by way of performance targets and resource allocation to support the core services and activities of TTOs.

Finally, our study illustrates that innovation policy and the role of external funders do matter in shaping TTO purpose and intent. We would suggest policy makers take a system wide perspective in developing mission variety among TTOs in a national system. Only overtime beyond the embryonic stage can TTOs fully express their philosophy, commitment to the future, self concept and desired public image as mission components.

VI Conclusions
Before concluding our study is not without limitations. Our study is based on small national study and only a limited level of quantitative analysis we were able to carry out given the population size. The mission statement components within TTOs in longer established public and private universities maybe qualitatively different. Although as a primarily qualitative study our research lacks statistical generalizability, it can be used for "naturalistic generalization," whereby one recognizes similarities based on experiences with similar "cases" without any statistical inference (Stake, 2000). As a boundary spanning and gatekeeper organisation (Allen, 1983), TTOs offers fairly easy-to-see parallels with other professions. Information technology (IT) teams, for example; typically have technological gatekeepers who communicate with a multitude of stakeholders resembling the processes the TTOs have experienced (see., Whelan et al., 2010). In addition, we assert that our study has "analytical generalizability" in that its purpose is to "expand and generalize theories . . . not to enumerate frequencies" (Yin, 2003: 10).

We contribute to the limited literature on mission statements as an indicator of the strategic intent TTOs and how they interpret purpose (O'Gorman and Doran, 1999; Leutheseer and Kohlie, 1997). In taking the unique sample of TTO mission statements during the early stages of their development we found that they only focus on two mission components that are critical in establishing their long-term credibility and legitimacy.

In relation to mission statement components and performance we found moderate positive correlation between patents granted and number of mission statement components, as well as strong positive correlation between patents granted outside of

Ireland and number of mission components. These finding should be treated cautiously, however, with a larger sample of longer established TTOs more qualitative analysis could be undertaken on TTO mission components and performance.

Finally, based on our study there is a need to carry out more research into strategy issues in relation to TTOs is necessary drawing on established theoretical perspective from strategic management in particular, in relation to how TTOs formulate strategy, determine direction setting, the role of the TTO directors as chief strategists and business models used by TTOs.

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Table 1: TTO Characteristics

| Case	1	2	3	4	5	6	7
Years TTO in Operation	11	7	13	7	7	7	13
Number of Mission Components	5	2	3	4	2	2	2
% of staff working in TTO	2.7%	1.6%	1.1%	1.4%	1.2%	2.0%	2.3%
Research Income per TTO staff member (average)	€3,808	€5,883	€5,654	€6,394	€8,506	€2,928	€4,585
Research Income per academic staff member (average)	€101	€93	€64	€87	€101	€58	€104
Patent Applications Ireland Only	7	5	20	7	7	9	2
Patent Applications other than Ireland	26	3	61	39	24	48	21
Patents Granted Ireland	0	2	0	4	4	1	2
Patents Granted Outside of Ireland	17	0	11	11	10	8	10
License Agreements	21	15	35	34	62	21	47
Spin-Out Created	10	6	9	6	15	13	9
Research Income	€53m	€23m	€84m	€70m	€42m	€81m	€45m

Table 2: Description of TTO Mission Components

	Mission Component	Number of TTOs Articulating Mission Component	Percentage of TTOs Articulating Mission Component
1	The specification of target customer and markets	6	90%
2	The identification of principal products/services	7	100%
3	The specification of geographic domain	2	20%
4	The identification of core technologies	1	10%
5	The expression of commitment to survival, growth and profitability	2	20%
6	The specification of key elements in the philosophy	0	0
7	The identification of self-concept	2	20%
8	The identification of desired public image	2	20%

Table 3 Correlation Between Number of Missions Statement Components and Selected Variables

Variable	Pearson's Correlation	Spearman Rho Correlation
Patent Applications (Ireland only)	0.15	0.31
Patent Applications (Other than Ireland)	0.19	0.43
All Patents Applications	0.19	0.43
Patents Granted (Ireland only)	-0.26	-0.35
Patents Granted (Other than Ireland)	0.72	0.90
All Patents Granted	0.65	0.71
License Agreements	-0.29	-0.17
Spinouts Created	-0.30	-0.22
Research Income	0.25	0.43
Number of Staff (Academic)	0.03	0.33
Number of Staff (TTO)	0.08	0.37

Figure 1: Implementation of the Knowledge Transfer Recommendation in European Countries in 2012
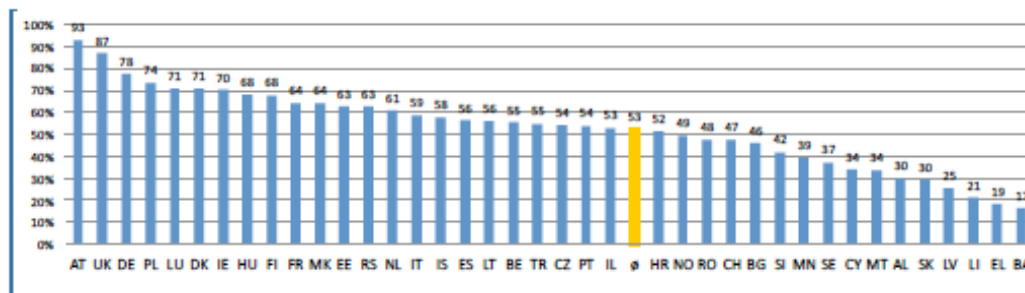
Source: European Commission, (2013) Knowledge Transfer Study 2010-2012, Final Report, Brussels, page 9.