



Needs and constraints analysis of the three dimensions of third mission activities



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Introduction

There is a growing recognition around the world of the role universities (meaning all higher education institutions) can play towards economic growth and social development in the modern "knowledge society". In the last decades, universities have moved from focusing exclusively on two missions: teaching and research, to be considered as key actors of economic and cultural growth, transforming themselves into engaged institutions with industry and society at large (Etzkowitz, 2000; Vorley & Nelles, 2008). However, the notion of universities engaging with industry and society is not a new one. Relationships between universities and industry are almost as old as universities themselves. Just to cite an example, the Royal Charter of the University San Marcos de Lima (1551) already stressed the relevance of collaborating with different sectors of society in order to improve regional development. These activities not included as first or second mission have been regarded as third mission activities. Generally, third mission activities comprise three dimensions performed by universities in relation to external environments: technology transfer and innovation, continuing education and social engagement.

However, while several ranking systems exist for the first and second missions, the third mission lacks any cohesive methodology for describing what universities actually do that can be regarded as third mission activities (Montesinos *et al*, 2008). These rankings, as the Academic Ranking of World Universities compiled by Shanghai Jiao Tong University or the Times Higher Education World University Ranking, are mainly based on research, and also, although to a lesser extent, the teaching and training activities, or the prestige measured, for example, in terms of alumni and staff winning Nobel Prizes. The Shanghai ranking compares higher education institutions taking into account alumni and staff winning Nobel Prizes, highly-cited researchers, or articles published in *Nature* and *Science*, the *Science Citation Index* or the *Social*

Sciences Citation Index, amongst other indicators. Although rankings have drawn criticisms, they undoubtedly have an impact on the media, policy makers and universities themselves. As Sheil (2010) concludes in opposition to world university rankings, means of assessing the performance of universities that include profiling and trend analysis should be able to provide an answer on, for example, “what expectations should be placed on institutions at various stages of development in their research performance, learning experiences and outcomes, community engagement activity, commercialisation and internationalisation?”.

This project addresses this need by defining and validating a set of indicators for the three dimensions of the Third Mission: Technology Transfer & Innovation, Continuing Education and Social Engagement, that will allow for a proper positioning and portrait of universities. Furthermore, in the context of the Lisbon Agenda, it's necessary to have indicators that make visible what universities actually do considering the diversity of institutional missions.

Third mission activities at higher education institutions

Universities have been asked to abandon their long-established ivory tower status for more relevant and deeper interactions with society. The term “ivory tower” has been used from the 19th century to designate an atmosphere where intellectuals engage in teaching and research activities that are disconnected from the practical concerns of everyday life and society. Nowadays, universities are reconsidering their role in society and their relationships with their various constituencies, stakeholders and communities. This relationship between higher education and society is generally considered as the third mission of universities. The term “third mission” has attracted the attention of many authors in the last decade:

- Frequently, third mission is understood as the relationship between higher education and society beyond the first (education) and second

(research) missions of universities (Görason, Maharajh & Schmoch, 2009; Jongbloed, Enders & Salerno 2008).

- The third mission has typically been conceived as a set of functions that are held to be distinct from the teaching and research roles of higher education (Vorley and Nelles, 2008).
- The third mission encompasses a wide range of activities involving the generation, use, application and exploitation of knowledge and other university capabilities outside academic environments (Tuunainen, 2005).

Most authors agree that these definitions regard “the third mission” as a residual term, encompassing all university activities not covered by the first two missions: teaching and research. Not surprisingly, the third mission is in general rather vaguely defined and it is regarded as a problematic concept. Furthermore, it can not simply be described as a residual term in contrast to teaching and research, on the contrary, *the basic problem of analysing the third mission is that it entails a good deal of mission overlap [...]. When engagement is high on a university’s agenda, the challenge for those in charge of the university is to achieve a situation where community engagement is realised through the core activities of teaching and research and not have it regarded as a residual activity* (Jongbloed, Enders & Salerno, 2008).

In general, the concept of the third mission encapsulates many of the rising demands on the university to take a more visible role in stimulating and guiding the utilization of knowledge for social, cultural and economic development. As Görason, Maharajh & Schmoch (2009) remark, *the interpretation of what type of functions should be included in the definition of the third mission varies considerably* amongst countries and different contexts (from German focus on technology transfer from universities to enterprises, to the Latin American broader concept of extension of the university to serve community needs).

Considering the uncertainties on what activities are parts of the third mission, many projects have been devoted to their identification, delineation and management. Some of them are the following:

- The *Russell Group* of Universities in the United Kingdom commissioned a report to provide an analytical framework and a comprehensive set of indicators that may assist in the tracking and management of university Third Stream activities (Molas-Gallart *et al.*, 2002). *Third Stream activities* are defined as knowledge exchange and productive interactions with business, public sector organisations and the wider community, for the benefit of the economy and society. The research report came up with more than 30 indicators representing measures of knowledge transfer to the wider community. The indicators were placed in a framework diagram that distinguishes between the capabilities of a university and the activities it carries out. All these activities can be considered Third Stream when they engage or target non-academic communities.
- There are active associations of universities and their knowledge transfer offices to develop common framework and share good practice (e.g. ProTon Europe, the European Knowledge Transfer Association, was created in 2003 by the European Commission and is self supporting since 2007, www.protoneurope.org).
- In the context of the PRIME Network of Excellence a project going under the title of the *Observatory of European University* (OEU) was carried out (Schoen *et al.*, 2007) to characterise the strategic positioning of European universities using measures of their various activities. Apart from the two classic missions of universities – teaching and research – the project distinguishes a *third mission*, encompassing the university's relationships with the non-academic outside world: industry, public authorities and society. The third

mission does not only cover the economic dimension of the third mission (e.g. the commercialization of academic knowledge through collaboration with industry, patenting and licensing, creation of spin-off companies) but also includes participation in policy-making, and involvement in social and cultural life. The project gathers third mission activities around 8 dimensions, 4 economic and 4 societal.

- The *higher education-business and community interaction survey* (HE-BCI, <http://www.hefce.ac.uk/econsoc/buscom/hebci/>) is managed by the Higher Education Funding Council for England (HEFCE). The first survey published in 2001 provided data on academic year 1999-2000. The ninth survey for academic year 2008-09 was published in 2010. It is an annual survey used as a source of information on knowledge exchange in the UK as well as to inform funding allocations awarded to UK universities to reward their third stream activities. The knowledge exchange covered in the survey takes place not only between higher education institutions and the wider world of business and the community but also between universities and colleges themselves. Data are gathered on a wide range of third stream activities. These range from commercial and strategic interaction with businesses and public sector organisations to working with the local community.
- The GOODUEP (Good University-Enterprise Partnerships) project was financed with support from the European Commission and developed between 2007 and 2009 (Mora *et al.*, 2010). The aim of the project is to contribute to the analysis and development of efficient UEPs governance structures and practices aligned with the stakeholders' strategic plans. The types of activities considered as university-enterprise partnerships relate to research and innovation, teaching/education and cultural and social engagement. The project analyses university-enterprise interaction at three levels of action:

national level, focusing on particular governmental policies affecting UEPs; institutional level, observing the development of such relations and the institutional support structures put in place to promote them; and partnership level, identifying good practices and analysing the key variables which affect the successful development of UEPs. The three levels have been analysed through case studies involving in total six countries, 18 universities and 10 partnerships.

As can be concluded from these projects, in general, third mission activities are generally gathered around three dimensions very much related to teaching and research, that is, implying a great deal of mission overlap. These dimensions can be defined as technology transfer and innovation, continuing education and social engagement.

Technology transfer & innovation

This dimension of third mission is closely linked to research. It can be defined as the movement of an idea, practice, object, tacit knowledge, know-how, technical knowledge, intellectual property, discovery or invention resulting from research conducted at universities (in cooperation with external partners or not) into a non-academic environment where it can lead to social and commercial benefits at local, regional, national or global levels.

Continuing Education

This dimension of third mission is closely linked to education and training. The term Continuing Education/Lifelong Learning refers to “all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competences within a personal, civic, social and/or employment related perspective” (European Commission, 2001).

Social Engagement

Partnership of university knowledge and resources with those of the public and private sectors to enrich scholarship, research and creative activity; enhance curriculum, teaching and learning; prepare educated, engaged citizens; strengthen democratic values and civic responsibility; address critical societal issues; and contribute to the public good (Committee on Institutional Cooperation (CIC) Committee on Engagement, 2005).

Considering the vague definitions of third mission and the wide variety of activities that can be considered under this umbrella term, we might also agree with Frost (2008) when she comes to the conclusion that, *perhaps, the 'third stream' maybe has the merit of ambiguity for now – and that taxonomies need to be created not by national or central dictate, but by every HEI exploring and describing its own relationships in the world.*

However, HEIs need a common tool and a set of indicators that allow them to explore and assess their third mission activities. Universities need shared methodologies in order to analyse, explore and describe its engagement with different stakeholders.

Needs of analysing third mission activities

In Europe, until a decade ago, universities were still perceived as institutions with two dominant social roles: research –i.e. non-utilitarian basic knowledge production, and teaching. In 2000, this formally changed in Europe when the European Council introduced the Lisbon Agenda (2000), putting utilitarian knowledge production and university knowledge transfer high on the political agenda. Since the Lisbon Agenda, universities are now perceived as key players in the debate about policy measures to meet the target as proposed by the Lisbon agenda 2010 to turn the European economy into 'the most dynamic knowledge-based economy in the world'.

The European Commission sets the need of connecting universities and society in several communications since 2000, almost as a mechanism to contribute to the Lisbon Agenda. The most relevant communications from the Commission in relation to the development of third mission activities are the following:

- **2003 – "The role of the universities in the Europe of knowledge"**
- **2005 – "Mobilising the brainpower of Europe: enabling universities to make their full contribution to the Lisbon Strategy"**
- **2006 – Delivering on the Modernisation Agenda for Universities: education, research and innovation**

In 2003, the communication *The role of the universities in the Europe of knowledge* seeks to start a debate on the role of Universities within the knowledge society and economy in Europe and on the conditions under which they will be able to effectively play that role. The knowledge society depends for its growth on the production of new knowledge, its transmission through education and training, its dissemination through information and communication technologies, and on its use through new industrial processes or services. Universities are unique, in that they take part in all these processes, at their core, due to the key role they play in the three fields of **research** and exploitation of its results, thanks to industrial cooperation and spin-off; **education and training**, in particular training of researchers; and **regional and local development**, to which they can contribute significantly.

This Communication makes a number of points which reflect the profound changes taking place in the European university world. European universities have for long modelled themselves along the lines of some major models, particularly the ideal model of university envisaged nearly two centuries ago by Wilhelm von Humboldt in his reform of the German university, which sets research at the heart of university activity and indeed makes it the basis of teaching. **Today the trend is away from these models, and towards greater**

differentiation. This results in the emergence of more specialised institutions concentrating on a core of specific competences when it comes to research and teaching and/or on certain dimensions of their activities, e.g. their integration within a strategy of regional development through adult education/training.

Although **little data is currently available** in Member States on the extent to which universities are commercialising their research, so that it is difficult to say how well universities across the European Union are exploiting research results with the enterprise sector, some data are available through the “Community Innovation Survey” (CIS) [...]. **Evaluation criteria for the performance of universities’ could take account of this challenge.**

Two years later, in 2005, the communication *Mobilising the brainpower of Europe: enabling universities to make their full contribution to the Lisbon Strategy* builds on the previous communication and emphasises that European universities, motors of the new, knowledge-based paradigm, are not in a position to deliver their full potential contribution to the re-launched Lisbon Strategy. In this respect, Europe must strengthen the three poles of its knowledge triangle: **education, research and innovation**. Universities are essential in all three. Investing more and better in the modernisation and quality of universities is a direct investment in the future of Europe and Europeans.

This Communication is largely based on converging messages from the consultation process, which identified three main challenges for European higher education: achieving world-class quality, improving governance, and increasing and diversifying funding. Action suggested in these areas takes full account of the **principle of subsidiarity** whereby Member States are responsible for the organisation of their higher education.

In 2006, the European Commission identified nine key challenges for higher education modernisation in its *Delivering on the Modernisation Agenda for*

Universities: Education, Research and Innovation Communication.

The main areas for reform identified in the agenda are:

- **Curricular:** the three-cycle system (Bachelor-Master-Doctorate), competence-based learning, flexible learning paths, recognition, mobility;
- **Governance:** university autonomy, strategic partnerships, including with enterprises, quality assurance;
- **Funding:** diversified sources of university income better linked to performance, promoting equity, access and efficiency, including the possible role of tuition fees, grants and loans.

In relation to third mission activities, two messages are particularly relevant in this Communication: providing incentives for structured partnerships with the business community and activating knowledge through interaction with society.

a. PROVIDE INCENTIVES FOR STRUCTURED PARTNERSHIPS WITH THE BUSINESS COMMUNITY

While the public mission and overall social and cultural remit of European universities must be preserved, they should **increasingly become significant players in the economy**, able to respond better to the demands of the market and to develop partnerships which harness scientific and technological knowledge. This implies recognising that their relationship with the business community is of strategic importance and forms part of their commitment to serving the public interest.

Structured partnerships with the business community (including SMEs) bring opportunities for universities to improve the **sharing of research results**, intellectual property rights, patents and licences (for example through on-campus start-ups or the creation of science parks). They can

also increase the **relevance of education and training programmes** through placements of students and researchers in business, and can improve the career prospects of researchers at all stages of their career by adding entrepreneurial skills to scientific expertise. To secure these benefits, most universities will need external support to make the necessary organisational changes and build up **entrepreneurial attitudes and management skills** [...].

b. ACTIVATE KNOWLEDGE THROUGH INTERACTION WITH SOCIETY

Communication between scientific specialists and non-specialists is much needed but often absent. This requires a much clearer commitment by universities to lifelong learning opportunities, but also to a **broad communication strategy** based on conferences, open door operations, placements, discussion forums, structured dialogues with alumni and citizens in general and with local/regional players. Working together with earlier formal and non-formal education and with business (including SMEs and other small entities) will also play a role in this respect.

Such interaction with the outside world will gradually make universities' activities in general, and their education, training and research agendas in particular, **more relevant to the needs of citizens and society at large**. It will help universities to promote their different activities and to convince society, governments and the private sector that they are worth investing in.

Finally, in 2009, the communication *A new partnership for the modernisation of universities: the EU Forum for University Business Dialogue*, establishes a platform that involves higher education institutions, companies, business associations, intermediaries and public authorities, enabling them to exchange good practice, discuss common problems and build closer working

relationships. The Commission proposed to expand the role of the **university-business forum**, which has met regularly since 2008, to cover a wider range of issues that are in line with the Communication "Delivering on the modernisation agenda for universities", such as curriculum development, continuing education, mobility, modernising governance structures within universities, innovation or regional development.

Having reached 2010, the date by which the EU's Lisbon strategy was due to have made it 'the most competitive and dynamic knowledge-based in the world', most objectives have not been met. Economic crisis and difficult times have been an obstacle to boost universities as key players in the knowledge economy. The '**EU2020**' **Strategy**, the successor to the Lisbon Strategy, highlights education as a key policy area where collaboration between the EU and Member States can deliver positive results for jobs and growth. At the same time, the strategic framework for European co-operation in education and training ('**ET 2020**'), adopted by the Council in May 2009, underlines the need to promote the modernisation agenda for higher education to improve the quality and efficiency of education and training.

In summary, we conclude that the European Commission has made clear the need of changing the role of universities, from teaching and research institutions, to transforming themselves into key players of the knowledge economy in relation to society at large. It is also clear that this relation with the "outside world" should be focused in three interrelated areas: research (technology transfer and innovation), teaching (lifelong learning/continuing education) and a social engagement function in line with regional/national development. In this respect, third mission can not be considered as an isolated (or residual) function but complementary to the other two missions of universities. In this context, the European Commission emphasises the need of promoting diversified universities, that is, not every university "has to be excellent" in the three missions but, on the contrary, should be able to find their

role in society. However, the Commission regrets that little data is currently available that helps institutions and policymakers in their decision and positioning process. For that purpose, evaluation criteria for the performance of universities' in a knowledge society are still needed.

Limitations in the analysis of third mission activities

As previously said, several projects have dealt with the definition and assessment of third mission activities. In this section, we remark the findings of two of these projects: the report of the *Russel Group* (Molas-Gallart *et al.*, 2002) and the *Gooduep project* (Mora *et al.*, 2010). Limitations found in these studies on the analysis of third mission activities are similar to constraints shown in similar projects (see Görason, Maharajh & Schmoch, 2009; Molas-Gallart & Castro-Martínez, 2007):

- The definition of the term “third mission” becomes problematic in most studies. Defined in opposition to first and second missions, but at the same time very much related to them, third mission activities leave **ample room to any activity that universities perform in relation to “external environments”**.
- Knowledge transferred from universities to other environments (industry, society, regional settings, etc) can be categorised as **tacit or explicit knowledge**. Formal and explicit interactions are easier to quantify but the importance of informal channels and tacit knowledge should not be underestimated. This “tacit” knowledge is difficult to measure and, frequently, entails data limitations in the analysis of third mission activities.
- Additionally, most studies on third mission have focused on **sub-sets of activities in which quantitative indicators are available**, mainly on activities related to the **commercial exploitation** of research

results or to the provision of lifelong learning programmes, on which universities keep records for administrative purposes.

- Linked to the previous limitation, third Mission activities related to areas on which information tends to exist are not necessarily the most important, and also, the importance of different activities **varies across disciplines**. As Molas-Gallart and Castro-Martínez (2007) exemplify, data on commercialisation activities is relevant for biotechnology but it is not adequate for disciplines, such as philosophy where partnerships may have a more philanthropic purpose. Consequently, any approach to data collection and analysis that focuses purely on university commercial activities is likely to be largely incomplete.
- The variety of third mission activities is wide and comprises different types of actors, many constituent parts at universities, different structures and mechanisms that make these activities to become a reality. Due to their **complex and mixed structure**, which involves different interests and stakeholders, third mission activities are difficult to identify and to follow at universities. Furthermore, some third mission activities are carried out outside the university system – either informally or through department-level arrangements that are not necessarily recorded by central university management. Such **informal and invisible activities are therefore hard to track**.

The analysis of University-Enterprise Partnerships (Mora et al., 2010) leads to the identification of some research and analysis considerations, some of them, previously mentioned. The following considerations are reported in relation to the availability and communication of information on third mission activities:

1. **Visibility of third mission activities.** For several reasons, university-enterprise partnerships (UEPs) are not always visible from a country,

institution or even faculty perspective. Several reasons for this lack of information have been found:

- Cultural scepticism. Given that UEPs are not always well regarded within universities, academics collaborating with enterprises are reluctant to give information about these activities.
- Lack of appropriate information systems. Given that in European universities generally, UEPs have been relatively recently developed, promoted and regarded as something desirable, accountability systems on them are also incipient. There is no (explicit) agreement yet on standard indicators for evaluating UEPs as there is for evaluating research activities, for instance. This problem is seen within universities but also in national HE public agencies. Although many countries are fostering UEPs through national level policies, not much accountability at the national level is observed.
- Non-financial involvement. Many types of third mission activities do not involve considerable flow of funding, for instance, involving enterprises' representatives in curricula design or offering internships and jobs. Because a limited flow of funds is present, universities' central administrations are less likely to compile such information in their annual reports.
- Informal financial involvement. Informal linkages between individual academics and enterprises, involving extra payments or not, are also frequent. These types of interactions are also hard to assess on a formal basis. Often, UEPs are developed on an individual basis (e.g. consultancy activities). The information about these activities does not always flow to upper or more aggregated levels. As a consequence, many relevant UEPs may be invisible and difficult to assess when the direct implementer of the UEPs is not approached.

- Many of the activities which have been regarded as UEPs are not immediately seen in universities as UEPs because they are not used to seeing them from that perspective.
2. **Non-linearity of third mission activities development.** Policies and especially institutional support structures do not necessarily follow the same development path as they become more developed. For example, in supporting knowledge exchange activities and specifically for managing IPR, different institutions have followed paths which many not be compared as one being better than the other; they have just followed different approaches which meet different needs. This produces a methodological difficulty for the analysis of the broad group of third mission activities.
3. **Contextual diversity.** There is no universal or generic one-size-fits-all approach to how the third mission can be best performed, applicable to all countries or even to countries at the same level of economic activity and with similar social and cultural structures.
- Each country operates in contexts which define its own good practices. A global best practice for third mission therefore does not exist. Each country –and each university- finds its own solutions.
 - Both national and institutional features shape the culture and needs of third mission activities developers, which vary considerably among the European actors. Thus, there is no one-size-fits-all UEPs policy mix, appropriate or desirable for all contexts. Rather, the policy and governance mixes are very much dependent on local idiosyncrasies and university, business and governmental contexts. However, the relationship between the contextual characteristics and the development of third mission activities is only visible to some extent at first sight.

4. Differences in third mission approaches and aims. The fact that similar institutions may have differences in their UEPs-related aims (e.g. the relevance of attracting external funds), limits comparability because the same indicators cannot describe the different institutional aims. Academics in some disciplines are more inclined to develop UEPs than in others. The most active ones could be more visible. However, the least active ones may be part of socially-relevant partnerships, important from a social perspective. The indicators for analysing both types of activities cannot be similar.

In summary, as shown in previous studies, comprehensive third mission data is extremely complex to collect for several reasons. On the one hand, the broad definition of what activities can be included under the term “third mission” leads also to differences at institutional level on what are their approaches and aims in this respect. Additionally, this institutional diversification is influenced by national and regional contexts and policies, and noticeably, across disciplines. Consequently, data collection needs to be related to the context, to national and regional policies, to institutional views on third mission and, in many cases, to individual initiatives by some entrepreneurs at universities that constitute the main explanation of the success in implementing university-enterprise partnerships.

On the other hand, as explained before, the nature of relevant data needed to track third mission activities is considered as invisible, tacit, unquantifiable, informal, and in most cases, not collected by administrators. As Molas-Gallart and Castro-Martínez (2007) conclude, these are the main reasons why, given their high level of ambiguity, third mission indicators are subject of constant debate and redefinition. Therefore, there are to expect further fragmented initiatives for the measurement of third mission activities.

Conclusions

Third mission activities are concerned with the generation, use, application and exploitation of knowledge and other university capabilities outside academic environments. That is, third mission activities focus on the interactions between universities and the rest of society that add, and to some extent overlap, to the traditional first (teaching) and second (research) university missions, instead of being considered as residual activities. Consequently, third mission activities are related to research (technology transfer and innovation), teaching (lifelong learning/continuing education) and social engagement in line with regional/national development.

Recently, third mission activities have received substantial policy attention. In an era of knowledge economy, universities are asked to transform themselves into key players and to contribute to the Lisbon Agenda. However, the European Commission emphasises that this transformation should be diversified, that is, not every university has to excel in the three missions but, on the contrary, should be able to find their way to best contribute to society. This emphasis on third mission activities should be accompanied by appropriate data and indicators to support the management of third mission activities. However, despite several initiatives, the development of third mission indicators remains problematic.

Main reasons for such limitations on identifying and collecting comprehensive third mission data are based on two complex considerations: the dependence on contextual factors for the development of third mission activities (national, regional, institutional, disciplinary, and also at individual level), and the nature of data needed to track third mission activities (regarded in some cases as invisible, unquantifiable, informal, and not available in university units). Therefore, there still remains the challenge of defining and validating comprehensive indicators for the sub-dimensions of Third Mission activities.

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