



A framework for assessing the performance of universities: The case of Cyprus



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ABSTRACT

The teaching and research missions of universities have been broadened to include third-mission activities. While the traditional missions of teaching and research have been thoroughly examined, third-mission activities are yet to be fully understood. A one-size-fits-all model of university assessment cannot be applied to all countries. Each university operates within a national and institutional context, which defines its role and performance. This paper adopts a refined version of the triple helix model to support the argument that business, government and university contexts determine the performance of the third role of universities. Evaluation of the performance of universities should be based on the overall experience and expectations of a variety of agents operating within academia, business and government. The results of this research indicate that the government should play a constructive role in creating operating conditions and institutional structures to improve the performance of universities in small economies.

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1. Introduction

Universities are considered to be key agents of economic and social progress. Their current role has added interactions with industry and society to the traditional missions of teaching (knowledge transmission) and research (knowledge generation) (Etzkowitz et al., 2000; Vorley and Nelles, 2008). During recent decades, in which industry–academia relationships have been intensified, universities have been required to abandon their ivory tower and address social needs and industry objectives. This “third mission” is concerned with the “generation, use, application and exploitation of knowledge and other university capabilities outside the academic environment” (Molas-Gallart et al., 2002:2). Although teaching and research are important objectives, the scope of universities is much wider (Paloma Sánchez et al., 2009). Universities should create the networks necessary to foster innovation, which is central to competitiveness and growth.

The third mission of universities is a major issue within higher education, but it has still not been fully examined. A number of studies have evaluated universities using different systems of indicators (Douglas Williams, 1995; Aghion et al., 2007), but the third mission of universities still lacks a cohesive methodology for measurement of its performance. A major problem is that the third mission is vaguely defined. Göransson et al. (2009) emphasise that it is still not clear which functions should be included in the third mission, which itself remains

problematic as a concept. Moreover, the idea of the third mission differs greatly depending on the national context (Laredo, 2007). There is growing interest in the use of Intellectual Capital (IC) for the evaluation of universities (Paloma Sánchez et al., 2009). IC is composed of human capital, structural capital and relational capital (e.g., Stewart, 1997). A strong relational capital provides an environment which promotes knowledge sharing and growth. However, relational capital is strongly dependent on the national context. A general framework of performance, which would evaluate the third mission of universities in different countries, may therefore be unnecessary.

The growing importance of both interactions and knowledge implies a systemic approach to understanding, explaining and improving wealth creation. The first discussions of innovation systems concentrated on the National Innovation System (Freeman, 1987; Lundvall, 1992; Nelson, 1993). With the arrival of the knowledge-based economy and the growing importance of universities, research on the NIS began to focus on the relationships between industry, academia and government. Leydesdorff and Etzkowitz (2001:1) argue that the triple helix thesis assumes “that the university can play an enhanced role in innovation in increasingly knowledge-based societies”. The triple helix framework has, so far, largely been used to examine universities and their interaction with industry and government (Mowery and Sampat, 2004).

The triple helix model is a useful framework with which to understand the third mission of universities. According to Lazzaretti and Tavolletti (2006:21), “Universities are so linked to their countries that the examination of their governance structures cannot leave aside the governance structures of national higher education systems”. Government intervention is required to ensure that knowledge is both

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produced and transferred (Rosli and Rossi, 2015). In addition, industry influences the third-mission activities of universities. The interactions of business with universities are subject to many different factors including dynamic markets and internal knowledge (e.g., Laursen and Salter, 2006; Drechsler and Natter, 2012). The organisational context of universities also influences the individual behaviour of academics and affects the interactions of scientists with the private sector (Ponomariov, 2008). As a result, third-mission activities are shaped by the national and institutional contexts of a country.

The current role of universities in the knowledge-based economy can be analysed using the triple helix model. This analytical framework, which emphasises the critical role of interactions between universities and other actors, can conceptualise the current role of universities within the innovation process. This paper uses the triple helix framework to evaluate the performance of universities in the small economy of Cyprus. The features of small economies justify research into the role and performance of universities within the context of small countries. These features include inadequate technological and policy infrastructures, an urgent need to import knowledge and expertise, limited markets, the central role of government and the overwhelming power of SMEs in the economy (e.g., Argenti et al., 1990; Sengenberger, 1993; Hadjimanolis and Dickson, 2001; Meyer, 2008).

There have been various empirical studies using the triple helix model, but they have provided limited insight into ways in which the role of the university could be shaped by the trilateral relationship of university–industry–government. Most universities are a long way from performing third mission activities because of various barriers. Identifying and overcoming these barriers could transform these universities into learning organisations. Moreover, the indicators of these studies are based on quantitative measures. However, evaluation of the third-mission activities of universities also requires the collection of interviewees' perceptions of the role and performance of universities. Knowledge generation and distribution is dynamic and cannot be summarised using a single rating at one point in time, while the perceptions of agents are key to the consideration of process.

This paper uses the case of Cyprus to illustrate that a common framework to evaluate the performance of universities is both unnecessary and undesirable. This research offers pragmatic suggestions for further improvement of the role of universities and for the successful application of knowledge distribution in a small economy. The paper is organised as follows. Section 2 explores the literature, while Section 3 examines the Cyprus Innovation Union Scoreboard, to give a broad picture of the innovation system in Cyprus. Section 4 explains the research method used while Section 5 presents the empirical findings and discusses them. Finally, Section 6 provides conclusions and implications for future research.

2. Theoretical background

In recent decades, universities have undergone in-depth change. In the late 1990s, Etzkowitz (1998) and Clark (1998) alerted the world to the arrival of the 'entrepreneurial university', in which the creation, transmission and exploitation of knowledge comprise the institutional objectives of academia. The emergence of the third mission of universities, their contribution to economic growth and social progress, has expanded the traditional roles of teaching and basic research. These transformations have increased the number of functions that universities now need to fulfil. Alongside teaching and research, they are expected to help companies improve their innovative capacities and to provide solutions to a variety of social problems (Bonaccorsi and Daraio, 2007; Laredo, 2007).

The emergence of knowledge-based innovation has led to the transformation of universities (Etzkowitz et al., 2000). Universities are central players within a country, as they develop technology-based programmes for economic development. Such programmes may be undertaken to "improve regional or national economic performance as well as the university's financial advantage and that of its faculty" (Etzkowitz et al., 2000:313). Higher education and science should be linked to quality

and excellence (Federkeil, 2008). "Evaluation, assessment and assurance of academic quality is intrinsic to higher education" (Brown, 2004:x).

A high degree of freedom and self-governance within universities has created a need for accountability, to allow its administration and partners to assess the performance of institutions. To fulfil their duties of accountability, universities need to improve their reporting mechanisms. According to Chatterton and Goddard (2003:19), "responding to the new demands requires new kinds of resources and new forms of management that enable universities as institutions to make a dynamic contribution to the development process". Universities compete not only for academic staff and students but also for funds. For this reason, they need to produce reports that allow other bodies to evaluate their performance (Paloma Sánchez et al., 2009).

Several ranking systems exist for the first and second missions, including the Academic Ranking of World Universities and the Times Higher Education World University Ranking. These rankings are based on research, teaching, or even the award of Nobel Prizes to staff members. While rankings allow universities to understand their performance and improve their practices, third-mission activities are still not included in such rankings. Universities undertake a wide range of activities and engage in various economic, social and political relationships. Assessment indicators should present a balanced picture of their performance across all the main activities: teaching, research and innovation. Measuring the third stream activities of universities "needs a holistic approach that examines the main channels that bind universities to the rest of society" (Molas-Gallart et al., 2002:iv). The development of indicators for third-mission activities will enable universities to improve their contribution to industry, policy and society. The improvement of rankings could lead to positive policy changes at the systemic level and initiate university reforms (Hazelkorn, 2011; Rauhvargers, 2011).

The uncertainty about which activities can be regarded as "third-mission" reveals the lack of a methodology with which to explore and assess the engagement of universities with different stakeholders (Montesinos et al., 2008). Some projects have been undertaken to measure the third role of universities. For example, the Russell Group of Universities has developed a set of indicators which help to track third-mission activities. However, many of the measures/initiatives are very recent, and in many ways it is too soon to judge their impact thoroughly. Moreover, as Sheil (2010) argues, assessing the performance of universities should involve describing the expectations that are placed on institutions. Therefore, assessing the performance of universities requires not only quantitative indicators but also qualitative data. Göransson et al. (2009) emphasise that the types of functions included in the third mission should be varied depending on the national context.

There is a growing interest in extending IC analysis from private organisations to public ones, such as universities. It is argued that this framework could be used as a heuristic tool with which to measure third-mission activities (Leitner et al., 2005; Mouritsen et al., 2005). IC could be used as "a communication device about how the public sector institution works to create value" (Mouritsen et al., 2005:285). In particular, IC is divided into three categories: human capital, which includes the talents and skills of individuals and groups; structural capital, which incorporates organisational structures, processes and culture; and relational capital, which incorporates the relations developed and maintained between the university and its partners (Bezhani, 2010; Secundo et al., 2010). Good structural capital provides an environment which encourages knowledge (Stewart, 2000). Structural capital can therefore increase relational capital. Piber and Pietsch (2006) argue that IC analysis cannot be applied to complex organisations such as universities. The evaluation of performance should be linked to institutional objectives, which are highly influenced by the national context.

Indicators are important as they reflect the performance of universities and ways in which it can be improved. There is no generic one-size-fits-all approach to the measurement of different universities' third-mission activities. Each university operates within a distinct national

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