Editorial

Special issue on: Universities in the Innovation Triad

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Introduction

Universities have increasingly been recognized as the key institutional setting where innovation capacity of the nation is nurtured and developed. The idea that universities lie at the heart of a nation's innovation ecosystem germinated in the first half of the twentieth century, gathered pace during its second half and has become almost axiomatic in the early years of the twenty-first century. It is also worthwhile to note that this acceptance of the primacy of universities has paralleled the growth in globalization of trade and commerce. Somewhat paradoxically, as the barriers to trade have come down, the importance of some national organizational forms, such as universities, has gone up. Conceptual frameworks such as the Diamond Model (Porter 1991), the National Innovation System (Freeman 1995) and Triple Helix (Etzkowitz and Leydesdroff 2000) alert us to the fact that national entities (state and non-state actors) do not lose relevance in a globalized world; in some cases they become even more critical to the economic development of the nation. Recently, though, globalization has faced a backlash. Events in the United States (election of President Trump, who won the contest on the back of promises to raise trade tariffs and break existing free trade agreements) and the United Kingdom (the EU Referendum vote and United Kingdom's

decision to exit from the largest free trade area of the world) have challenged the accepted narrative on globalization: that there is a secular trend of the world becoming ever more globalized. If nothing else, the recent developments have made the external environment much more uncertain.

Against this backdrop, it is worthwhile revisiting the nature and the role of the university within the broader society. To understand the implications of the turbulence in the macro environment on universities, an academic conference, *COSINUS 2018*, was organized in Oxford, UK, in January 2018.[1] Conference delegates were then invited to submit articles to be considered for this Special Issue. The articles selected for this volume illustrate the diverse roles that universities play in the innovation ecosystem.

Several efforts have been made in the past to conceptualize the nature of the university and its function. Conceptual frameworks such as the National Innovation System (Freeman 1995), Mode 2 Knowledge Transfer (Gibbons et al. 1994), Triple Helix (Etzkowitz and Leydesdroff 2000) and National Innovative Capacity (Porter and Stern 2001) are illustrative of such efforts. In this article, we put forward a conceptual framework of the innovation ecosystem, which we call the 'Innovation Triad' (Table 1), that is similar in some respects to the earlier efforts but different from them in others.

Similar to the above-mentioned frameworks, the Innovation Triad recognizes that there are key actors within the system who have an inordinate impact on the innovative capacity of the

nation, and that this is mainly due to the way in which they relate to each other. Unlike those frameworks, the Innovation Triad explicitly directs our attention to the institutional environment that governs the behaviour of key actors. The Innovation Triad comprises of three main classes of actors – rule-makers (PMs), knowledge entrepreneurs (KEs), and knowledge incubators (KIs) that specialize in the production of original knowledge.

One of the main critiques of National Innovation System is its claim that innovation occurs within a 'system', which suggests that it comprises of fixed elements that interact with each other in a pre-determined way. In reality, the innovation ecosystem is quite fluid, with relationships amongst the key players evolving and changing over time. Triple Helix theory, the other key theory, specifies three key actors, the government, industry and university, but misses a host of other actors (think tanks, learned societies, autonomous regulatory bodies, etc) who play a critical role in the nation's innovation ecosystem. The Triple Helix theory advocates that the roles of the three actors should be interchangeable as this overlapping of functions leads to the creation of the 'entrepreneurial university'. The Triple Helix Theory has been critiqued because it is more of a normative framework than a positive theory; it tells how the situation should be, rather than helping us to understand and analyse the current situation.

Contra-distinct to these frameworks, the Innovation Triad looks at that part of the macro environment that focuses on creation and exploitation of new ideas as an institutional game with its own players and regulators. The institutional or 'rules of the game' approach to

understanding the innovation ecosystem has several benefits. First, it enables identification of different classes of players and explication of their roles in the 'innovation game'. Second, it alerts us to the fact that players' behaviour is guided both by constraints and incentives that pervade the system, and this knowledge facilitates our search for these variables. Third, an understanding of the rules, players, constraints and incentives that are prevalent within the system allows for informed policy-making. The institutional perspective is useful for policy-making that seeks to change the behaviour of actors as it focuses on rules, incentives and constraints.

[insert Figure 1 The Innovation Triad here]

PMs take on a leading role in setting up the 'rules of the game' (North 1991). Typically, but not always, they are government bodies that set out policies that act as constraints and enablers for the players. The players themselves can be classified into two broad groups: Entrepreneurs and KIs.

KEs convert ideas/ concepts into products, and services that are used in the society. Typically, but not always, they are private, for-profit enterprises. KEs specialize in exploitation of knowledge for financial and/ or social rewards.

KIs deal with knowledge. They create new knowledge, act as repositories of existing knowledge and disseminate knowledge. Typically, but not always, they are universities, research institutes, think tanks and learned societies.

The way in which RMs, KEs and KIs interact with each other is mainly determined by formal institutions and informal norms (North 1991), and both together constitute the 'rules of the game'. The formal institutions are the written rules, while informal norms constitute the unwritten code of conduct, which influences the behaviour of key players. The nation is still the natural boundary for the Innovation Triad as laws, regulations, directives and informal norms continue to differ significantly across national boundaries. However, conceptually there is no reason for the Innovation Triad to transcend national boundaries. Indeed in Europe, one can already see the contours of an emergent EU-wide Innovation Triad, facilitated by a genuine supranational entity (The EU), and shared cultural norms.

The articles featured in this special issue have been selected, in part, because they illustrate the Innovation Triad in action. The first article by Michels titled 'Value-In' partnership: Common ground and difference in university knowledge transfer policy and research' explores how university and industry can build productive partnerships with each other. The context here is the knowledge Transfer Partnership (KTP) Programme in the United Kingdom. It has been in operation since 1976, experiencing tremendous growth over the last 42 years. It is by most accounts a success story (World Economics and Development 2015). Two key actors of the Innovation Triad, the for-profit business firm and the university, feature prominently in the article. However, the KTP programme in the United Kingdom is also illustrative of how policy-makers can facilitate interaction between academia and industry by putting in place appropriate incentives to change the behaviour of the actors. The government benefits through increased graduate employment and economic growth. The business firm, usually a Small and Medium sized Enterprise (SME), benefits by having access

to skilled labour and university research, and the university gains through graduate placement, access to material for research case studies and industry connections.

The article by Kelli et al. titled 'Challenges of transformation of research data into open data: The perspective of social sciences and humanities' points to the same issue but from a different perspective. Here a good idea (open access of research data) cannot be implemented properly as the incentive structure is poorly designed.

The article by Lars et al. provides a rich empirical longitudinal analysis that adds to our understanding of factors that increase the probability for success for university spin-offs. Their article titled 'Are there specific factors that increase the possibility of success for University Spin-Off companies?' illustrates that KEs and KIs can reside within the same organizational setting (which, in this instance, is the university). However, it still makes sense to see the actors separately as the University Spin-Offs that were successful in the study demonstrated entrepreneurial commitment that was absent in the ventures that did not succeed. KEs and KIs have different specialized skill sets, which complement each other.

Increasingly universities are exhorted, often by *PMs*, to act as KEs, but it is important to remember that academia is *the* natural KI, and this makes it a key actor within the Innovation Triad, irrespective of whether they assume the role of KEs or not. The article by Toumi and Smida titled 'Entrepreneurship education: Understanding the failure entrepreneurial act for learners' illustrates how university, as a KI, trains students to become KEs through its

Entrepreneurship Education programmes. The 'failure' of some students to initiate an entrepreneurial venture, thus failing to meet the original expectation, is the focus of this study. The article puts forward a typology of failure of the learner's entrepreneurial act.

The article by Datta and Souleh titled 'Conceptualising university-industry linkages in resource constrained environments' demonstrates that the 'rules of the game' that govern the Innovation Triad in developing countries are significantly different from that in developed countries. One common critique of the National Innovation System and the Triple Helix Theory is that they have been formed through the empirical realities of developed nations. The Innovation Triad in a developing country is likely to operate in a resource-constrained environment, and this reality impacts the nature of the key actors (RMs, KEs and KIs) and the interactions between them in a profound way. The article explains how selected academic institutions in India leverage tacit knowledge to forge partnerships with the industry. In the absence of a portfolio of proprietary codified knowledge (academic articles, patents, etc), the exploitation of tacit knowledge becomes a necessary route for higher education institutions that are keen to develop close linkages with the industry.

Overall, the articles in this Special Issue illustrate the varied roles that universities play within the Innovation Triad. The conceptual framework presented here focuses our attention on three distinct themes: identification and classification of key actors, the formal and informal rules that govern interactions between the actors and the behaviour of the actors operating under various incentives, and constraints. The articles included in this volume explore these three themes in different ways. We feel that this 'game and its rules' approach is a productive

way to investigate creativity and innovation that takes place within a society. The intention is to carry forward this research agenda beyond the publication of this Special Issue.

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Note

[1] Details of the conference can be found at this link https://www.facebook.com/COSINUS2018/.