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How universities' third mission engagement can support inclusive innovation and sustainable development: addressing some open questions

Introduction to the special issue

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Introduction to the special issue

Guest editorial

Introduction

Innovation and knowledge are increasingly acknowledged to drive economic development (Erdil et al., 2018) and societal wellbeing (Bayuo et al., 2020). As key producers of knowledge and sources of innovation, universities have taken on a central role within the policy discourse. They are expected not only to provide crucial knowledge inputs for business innovation, but also to lead resource mobilisation and entrepreneurial experimentation (Fayolle and Redford, 2014), to tackle societal grand challenges (Abbott et al., 2015) and to foster inclusive innovation and sustainable development (Arocena et al., 2018; Brudenius et al., 2016). These expectations are aligned with the increased societal responsibility that universities are expected to take on in the context of their so-called 'third mission' (Kruss and Gastrow, 2017), as well as with the university's traditional 'civic' responsibility to contribute to the public good (Goddard et al., 2016).

Universities are in a privileged position for contributing to inclusive innovation and sustainable development (Abbott et al., 2015; Beynaghi et al., 2016) through the whole gamut of their activities – research, education and third mission engagement (Sedlacek, 2013; von Hauff and Nguyen, 2014; Dziminska et al., 2020). First, they are a main hub for knowledge production and diffusion, which means that they have the capabilities and resources to set up high level initiatives aimed at addressing inclusive innovation and sustainable development challenges (Ferrer-Balas et al., 2010). Second, they can deliver sustainable development-related teaching courses, in order to raise the awareness of these topics with students who will become future workers (Lozano et al., 2013; Gregersen, 2017). Finally, universities are active in third mission activities, and they can contribute to sustainable development goals through their interactions with external stakeholders, whether in industry, government, charities, civil society and so on (e.g. Purcell et al., 2019).

The academic literature has only recently started to link higher education institutions with inclusive innovation or sustainable development, mainly from the higher education, management and sustainability studies perspectives (Karatzoglu, 2013). The extant literature recognises that we need a systemic approach in order to comprehend and eventually derive policy implications from the contribution that universities can deliver to these societal objectives (Grobbelaar et al., 2016). However, most available studies focus on identifying examples and best practices emerging from specific activities of universities, such as research projects (e.g. Clarks, 2007; Priyadarshini and Abhilash, 2020) or teaching programmes (e.g. Lidgren et al., 2006; Farinha et al., 2018). Other studies focus on the institutional setting of the university, and highlight challenges and barriers to the promotion of sustainable development encountered at different levels of university governance (e.g. Lozano, 2006; Disterheft

et al., 2015; Ramos et al., 2015; Vagnoni and Cavicchi, 2015; Leal Filho et al., 2017; Avila et al., 2019).

As a consequence, our knowledge of universities' efforts to promote sustainable development tends to be mostly confined to studies that take a perspective internal to the university (e.g. Ferrer-Balas et al., 2010). Instead, the contribution of universities toward sustainable development by means of third mission activities (see e.g. Bayuo et al., 2020), remains largely unexplored. Here we use the term 'third mission' in a broad sense, as all those engagement activities that universities undertake with the external environment (some exceptions are present, such as Radinger-Peer and Pflitsch, 2017).

Nevertheless, the institutionalisation of third mission activities has led universities to experience a large increase in the number and variety of interactions with external stakeholders, such as university-industry collaborations (UICs). Thanks to these activities, universities are at the centre of many interaction networks, which can be exploited to increase the reach of their inclusive innovation and sustainable development initiatives. UICs and other kinds of universities' third mission activities can generate a range of outcomes—such as fostering regional growth (Carree et al., 2014), spurring entrepreneurship (Audretsch et al., 2005; Padilla-Meléndez et al., 2020), creating new jobs and employment opportunities (Rizzo et al., 2015), upskilling business employees and educating highly skilled graduates (Berbegal-Mirabent et al., 2019), and improving living conditions (Kesting et al., 2018)—that are aligned with sustainable development goals such as those promoted by the United Nations' 2030 Agenda for Sustainable Development, which provides a shared blueprint to achieve a better and more sustainable future for all. However, while universities' third mission activities in general, and UICs in particular, have been extensively studied in relation to their effects on business innovation (Bozeman et al., 2013; Perkmann et al., 2013; Mascarenhas et al., 2018), there is limited evidence about their contribution to the achievement of sustainable development goals (Orecchini et al., 2012). This special issue intends to increase our comprehension about the role of universities as boundary spanning organizations that not only disseminate knowledge and awareness about sustainable development, but are directly engaged in contributing to such an objective when interacting with their economic and social context. In turn, it is not by chance that most of the extant works, like most of the studies in this special issue, are in the form of qualitative case studies. The infancy of the topic at hand requires important explorative efforts that tackle how-type of research questions, in order to open the way for further research.

This editorial is structured as follows. First we outline several key gaps in current research regarding universities' contribution to inclusive innovation and sustainable development through their engagement in UICs and other third mission activities. We then describe how the papers in the special issue address each of those gaps, and we conclude by summarizing the overall contribution of the special issue and outlining key implications for research and practice.

Three key research questions about universities' contribution to inclusive innovation and sustainable development through UICs

The papers in this special issue contribute to filling three key gaps in the academic and policy discourse around how universities' engagement in UICs and other third mission activities contributes to inclusive innovation and sustainable development.

First, the organizational implications for universities of focusing on inclusive innovation and sustainable development objectives have not yet been investigated extensively. It is well known that, in order to embrace third mission activities alongside the more traditional teaching and research functions, universities have had to evolve their organizational structures, evaluation and performance measurements systems. This is evidenced by changes that have taken place systematically, starting from the 1980s in the US and spreading across the globe in the following decades, which have included, among others: the creation of university technology transfer offices; the implementation of incentives for academics to undertake activities in collaboration with industry, and to further develop their research output closer to market needs; the inclusion of performance in a variety of third mission outputs as part of universities' evaluation systems; the growing focus on socioeconomic impact as a criterion for research evaluation. In the same vein, we can expect that, if universities were to place inclusivity and sustainability objectives at the heart of their third mission activities – as they are increasingly required to do—they would have to implement further organizational changes and adaptations. The first important research gap that this special issue aims to address, therefore, is the investigation of the processes by which universities align their structures and behaviours toward making inclusive innovation and sustainable development a central focus in their third mission engagement.

Second, it is not yet clear how universities engage with external actors for inclusive innovation and sustainable development objectives. In contributing to local development and in delivering societal benefits, universities do not act as isolated producers of knowledge (de la Torre et al., 2019) but operate in a networked and open space, interacting and cooperating with the different stakeholders of the innovation system (Benneworth and Jongbloed, 2010; Geuna and Rossi, 2015). Conducting these interactions with the external environment with the purpose to provide societal benefits at large requires to comprehend the mechanisms and modes by which universities can help to overcome some of the major problems affecting today's society. While third mission activities are mainly directed toward financial collaborations with the private sector, inclusivity and sustainability objectives are broader in scope and may require different approaches. Indeed, several emerging movements related to inclusive and sustainable innovation at large are starting to gain momentum. Most of those are based on bottom-up approaches and advocate for the adoption of open innovation practices (Huggins et al., 2020; Perkmann and Walsh, 2007; Striukova and Rayna, 2015) and co-creation strategies (Rinaldi et al., 2018; Huhtelin and Nenonen, 2015). Not surprisingly, innovation platforms and hubs have emerged (Grobbelaar et al., 2017; Purcell et al., 2019), where research efforts and business initiatives are aligned with local needs. Hence, the second aspect that this special issue intends to address regards how—through which mechanisms—universities can engage with external actors to achieve inclusive innovation and sustainable development objectives.

Third, among the external actors that universities can engage with in order to better contribute to inclusive innovation and sustainable development, we find not only their networks developed through direct contacts with industry, but also students, who are universities' main channel of knowledge exchange with the external world. It is well known that the first and most important knowledge exchange channel between university and industry takes place by educating students that will enter the labour market bringing to industry the knowledge gained inside universities (Rosenberg and Nelson, 1994; Nelson and Romer, 1996). Similarly, we can assume that if universities are to contribute to societal benefits, the education of students needs to be taken into consideration. Again, this point has not yet been investigated extensively, and it represents the third main research gap this special issue intends to focus on.

Summarizing, the papers in this special issue address three underlying, broad research questions, which can be formulated as follows:

1. How do universities need to change in order to support sustainable development objectives and societal challenges through their third mission activities?
2. Which external engagement channels do universities adopt to meet societal objectives?
3. How can universities engage students in interactions with external stakeholders to achieve social objectives?

How the papers in the special issue address the three research questions

The first question deals with **organizational changes** and specifically with the changes universities need to embrace in order to foster inclusive innovation and sustainable development in their local communities and elsewhere through their UICs and third mission activities. Two papers in this special issue investigate how the achievement of sustainable development objectives requires organizational effort and an appropriate alignment of the organizational mission. These papers are grounded on longitudinal case studies and, overall, they show that organizational changes of this kind are slow to be implemented and need to overcome important challenges.

In the first paper, *Göransson, Chaminade and Bayou* examine the role a university should play in its outreach to society. Through a case study of Lund University in Sweden, the article provides evidence on the tensions that emerge—at the institutional and organizational level—when universities' innovation systems are broadened in scope, and they are expected to serve both commercial and non-commercial interests. In the specific case of Lund University, the predominance of a narrow interpretation of third mission activities made the various attempts to address social needs difficult to articulate. The authors conclude that although universities' strategic plans are progressively acknowledging the importance of establishing cross-boundary collaborations with the different agents of the society, there is a lack of steering mechanisms to ensure that social innovations permeate across the different strata of the university's hierarchical structure.

The second paper dealing with the issue of organizational challenges to universities' achievement of inclusivity and sustainability objectives, is authored by *Mascarenhas, Malvezzi, Machado, Peyerl and Meneghini*. Here the authors adopt a triple helix perspective in order to provide new insights into the capabilities of a university research centre to promote Sustainable Development Goals (SDGs) by embarking on a cooperative partnership with industry and government. The overreaching conclusions is that although research most often requires many years to achieve results and outputs tend to be rather uncertain, working closely with the other agents of the ecosystem helps both to reduce the time lag between discovery and application, and to increase the efficiency of the collaboration. In particular, by working closely with industry and government, researchers can more easily identify unsolved needs and apply their knowledge to develop cutting edge solutions that are not only commercially valuable but at the same time, contribute to the improvement of social wellbeing. In this regard, it is necessary to adopt top-down approaches to nail down how SDGs should be prioritised nationally—or regionally—and align research activities accordingly.

The second question deals with the **channels** through which universities can contribute to sustainable development when interacting with local communities: in fact, in order to achieve social objectives, universities need to be able to engage with different types of external actors productively, and different actors require different interaction approaches. Three papers within this special issue fall within this category.

Particularly *Rosli and Cacciolatti* discuss the role of universities in the knowledge-based economy and how they can support regional innovation systems through skills development and entrepreneurship. To illustrate this, two cases in England are reported based on the principles of the Triple and Quadruple Helix models. In both cases knowledge centres act as anchor institutions, yet they have different roles. More specifically, in the first case, the Northern Powerhouse, knowledge centres play a supportive coordination role as partners to the initiative but subordinated to a consultative and directive multi-stakeholders' council; whereas in the second case, the Midlands Engine, centres of knowledge play a directive role as leaders. All in all, both cases provide evidence for the successful implementation of policies that support the creation of local systems of innovation. Moreover this paper also sheds lights on the variety of approaches and channels throughout which universities can contribute to the objectives of sustainable development at large.

A different, yet related approach is the one adopted by *Sutz and Arocena*. In this case the authors also stress the paramount role of universities in fostering inclusive innovation; however, they adopt a less explored perspective in the literature and focus on universities' collaborations with actors that are weak in terms of knowledge provision (i.e., SMEs, co-operatives, trade unions), which require the development of policies that are specifically tailored for them. Two policy experiences are reported involving the University of the Republic, in Uruguay. The authors conclude that collaborations of universities with weak-knowledge actors should be prioritised alongside with collaborations with stronger actors; yet they acknowledge that they are intrinsically different and more complicated, as working with weak knowledge actors

requires widening the institutional tools and the designing of new policies that adjust to their requirements and allow them to articulate their needs.

The third paper in this second group deals with the role of intermediary organisations in supporting university-industry collaborations. In this work *Simon* shows that such organisations are found to be a useful tool to reconcile both economic and societal goals, and investigates the drivers of their success—how and why they have been created, and how they produce the expected results. To do so, the article proposes a theoretical integrated approach that brings together elements from transaction costs economics and the resource-based view perspective. The framework is later illustrated with a longitudinal multiple-case study of three intermediaries located in European countries (Spain, the Netherlands and Sweden), all of which are in charge of managing innovation activities with a particular focus on sustainable development goals. With a longitudinal approach this work is able to capture the dynamics of university-industry collaborations over time and allows identifying the different roles and strategies adopted by the different stakeholders in the course of the process.

Finally, the third question addressed in this special issue focuses on the interactions that universities undertake with external stakeholders throughout **engagement with students**. Student mobility from university to the private sector possibly represents the most important channel of knowledge transfer; therefore it deserves particular attention if the purpose is to diffuse social development goals into the economic system. Three papers in this special issue investigate how universities, through their teaching mission, equip future workers to be competent in their professional field, while at the same time they endow them with cognitive and practical tools that allow them to engage with socially-relevant objectives.

The first of these papers is authored by *Leiva, Mora-Esquivel, de la O, Picado and Solis*. Since new venture creation is a powerful strategy to contribute to the sustainable development of regions, this paper looks at the role of specific properties of the university's ecosystem—university environment, entrepreneurship education, learning program, and university entrepreneurial reputation—to foster entrepreneurial activity among university students. The empirical application uses hierarchical linear regression models on a sample of 4,158 Costa Rican university students drawn from the 2018 Global University Entrepreneurial Spirit Students' Survey (GUESSS). The study delineates important policy implications for university managers in terms of how to create a favourable atmosphere for the development of entrepreneurial initiatives. Also, the paper reflects on the curricular offer and the opportunities students are given to develop and/or participate in social and inclusive entrepreneurial projects.

The two remaining papers report the experiences of two teaching innovation initiatives held at Universitat Internacional de Catalunya (Spain) aimed at connecting students with local agents. The paper by *Mas-Machuca and Jordán* analyses a joint project between the students in a course on Human Resources and a social business. Using a challenge-based learning methodology students were asked to help SaóPrat—a non-profit socio-educational entity that supports neglected children, teenagers and young people in a conflicting neighbourhood near Barcelona—in the design and effective organisation of their labour force. With this example the authors elaborate on

the individual benefits that can be obtained by each of the parties involved in this collaboration: students, lecturers and local agents.

The second paper by *Graell* comes from pedagogy research, offering an alternative approach to this topic. By means of a service learning activity, students enrolled in an Early Childhood Teaching Degree are invited to educate themselves as citizen professionals through practical application in social organisations—the Rosa Sensat Teachers' Association and the Catalan Playschool Foundation. What can be concluded from this case is that universities can respond to civic challenges through their learning activities, therefore, it is important for university managers to generate the opportunities and provide academics with the appropriate resources to expand their networks and facilitate interactions with the territory. By collaborating with their local communities, universities not only contribute to social needs but also boost entrepreneurial and critical thinking mind-sets among students.

Figure 1. A quick guide to the special issue: summary of key questions and, themes addressed by the articles in this Special Issue.
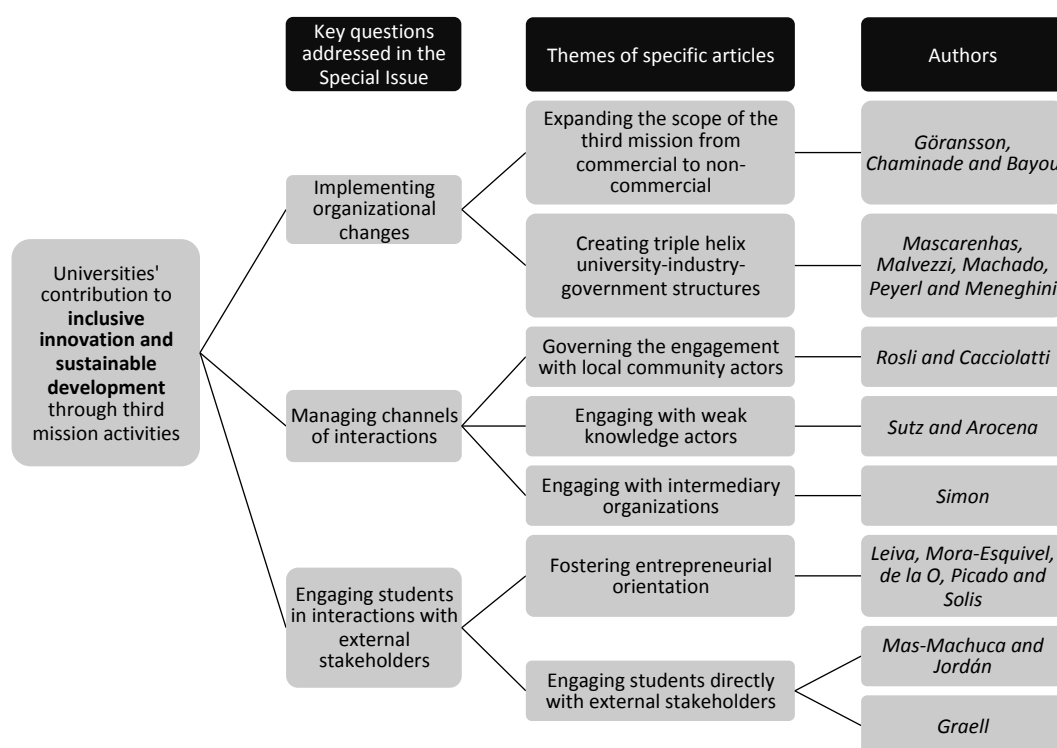
Conclusion

The eight papers selected for this special issue underline the importance of universities as key drivers for addressing inclusive innovation and sustainable development goals. At the same time, they highlight how complex and heterogeneous are the mechanisms, the challenges and the dynamics that universities have to engage with in order to embrace and address these goals. Institutional support is needed and new structures, incentives and policies need to be put into place in order to ease knowledge flows

between universities and various kinds of external agents including businesses and their local communities.

The various papers provide new knowledge and frameworks that can be useful both to researchers intending to further investigate these issues, and to practitioners, such as university managers being confronted with new expectations of social engagement from funders and from society at large. Readers of the special issue therefore might benefit from acquiring greater knowledge in relation to, among others:

– the kind of organizational changes that have been successfully implemented by organizations that seek to achieve sustainable development objectives through collaboration between university, industry and government;
– how universities need to engage with weaker-knowledge actors in the innovation system if they are to achieve such objectives, and how this can be done;
– the different approaches that universities can adopt when engaging with external stakeholders in order to achieve sustainable development, including different forms of governance of the collaboration with external stakeholders, and the involvement of intermediaries;
– how universities can endow students with cognitive and practical tools that enable them to engage with socially-relevant objectives, through specific projects and learning activities that promote interactions with external organizations;
– how the broader university ecosystem affects entrepreneurial activity among university students.

UICs and other third mission activities continue to mainly be studied in relation to a relatively narrow range of channels (such as patent-based exchanges, spin-offs and research contracts) and outcomes (mainly linked to innovation and economic performance). The contributions to this special issue highlight that this narrow interpretation of the third mission leaves out many contributions of university-industry collaborations to societal development goals. They also suggest that these contributions are potentially very important but remain still largely understudied and undervalued. Hence, we hope that this special issue can pave the way for more work aimed at putting university-industry collaborations aimed at inclusive innovation and sustainable development on the map of research into universities' third mission engagement.

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