



Extending the university mission and business model: Influences and Implications

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Abstract

Over the past 20 years, universities have been faced with sustained change, driven by external factors. This has led to the evolution of the teaching and research mission and the creation and rise of third mission. Such mission extension has led to emergence of entrepreneurial universities which has seen a move from traditional research and teaching business models, to business models which incorporate a much wider range of activities, to meet stakeholder demands as well as sustaining and growing universities in the era of intense national and international competition. This special issue extends knowledge by providing novel insights into the multidimensional antecedent contextual influences, consequences and implications of university mission expansion. We also provide a foundational research agenda which will help guide future research exploring the changing and expanding university missions and business models.

Keywords: Entrepreneurial Universities; Third Mission; Universities; University Business Models; University Mission Expansion; Technology Transfer

1. Introduction

Universities have traditionally been renowned to have two core missions, to teach and to conduct research; both of which are core to economic development and innovation within regions (Hayter et al. 2018; Zhou and Tang 2020). However, in the past 20 years, universities have been faced with sustained change driven by multifaceted exogenous environmental factors which include changes to traditional funding structures (Lehmann et al. 2020), increased competition (Lehmann and Stockinger 2019) and internationalization of higher education (Soliman et al. 2018). In responding to these drivers, universities also have to consider their own local economic, societal and geographical contexts and their immediate and

long-term needs in relation to their core missions. In responding to such environmental factors, universities have had to expand their mission in order to more fully contribute to the impacts of their stakeholder communities that are locally, nationally and internationally based and as a means of supplementing their revenue (Valero and Van Reenan 2019; Lehmann and Menter 2016). This has resulted in the emergence of the ‘entrepreneurial university’ (Etzkowitz 2016) which has been characterised as a university which strives to increase their tangible impacts but is also entrepreneurial in the manner it pursues its expanded mission (Cunningham et al. 2019).

In order to extend their mission and be ‘entrepreneurial’, universities are required to embed new activities into their traditional business models (Miller et al. 2014; McAdam et al. 2017). This includes not only the pursuit of third mission activities such as licences, spin-outs and knowledge transfer (Fuller et al. 2017) but will also require fundamental changes to their core value creation activities of teaching and research. Indeed many universities have attempted to enact their mission extension through the development of new teaching programmes (Arias-Coello et al. 2018), investment in facilities, internationalization (Soliman et al. 2019), widening of academic remit to include knowledge transfer and technology commercialisation (Fuller et al. 2017), and more open university-industry collaboration during both pure research and commercialisation (Miller et al. 2018). Furthermore, universities are increasingly expected to play a key role in helping shape the future of environmental sustainability through activities such as educating students on global challenges and encouraging social entrepreneurship (Reimers 2020). Ralph and Stubbs (2014) refer to the need for universities to foster a ‘learning for sustainability’ approach through all their institutional operations which not only demonstrates best practices but helps shaped future leaders’ mindsets which may have multiplier effects throughout society. However, not all universities have pursued such strategies in equal measure as reflected by Guerrero et al’s (2015) UK study of the economic impact of

entrepreneurial universities. Furthermore, universities in less developed and emerging markets may have unique constraints preventing their ability to pursue particular mission extension activities (Fischer et al. 2019; Eun et al. 2006). Therefore increasing pressures of university mission extension will lead to further differentiation and disparity among universities within and across different educational systems (see Bagchi-Sen et al., 2020) and national contexts.

An extended mission may have implications at multiple levels, for example, at the micro level, it has questioned academics identity and core focus (O’Kane et al. 2020), at the meso level, it can result in strategic challenges in co-ordinating and allocating resources to a wider range of activities (Alexander et al. 2018) and at the macro level, it has questioned universities core values, goals, revenue models and overarching design of their business model (Cunningham and Miller 2021). Much remains unknown on the wide-ranging impact mission extension has for universities (Morphew et al. 2018; Lehmann et al. 2020). This special issue aims to fill this gap by providing novel insights into the multidimensional influences, consequences and implications of university mission expansion. To provide context to this special issue, we first provide an analysis of the most prominent drivers within current literature which are having consequential impacts upon and implications for the university mission and their business models. We then present an overview of the key contributions of the articles within this special issue. Finally, we reflect on the issues discussed and identify themes which provide future research directions that are much needed within this field.

2. Drivers to university mission extension

Within current literature, several core exogenous drivers can be identified which are shaping the evolution of university mission and requiring them to be entrepreneurial in order to remain sustainable. At the centre of these is their changing financial models which are intertwined

within the other core drivers; the need to demonstrate impact, increased internationalisation, corporatism and managerialism and the changing nature of academic work.

Changing financial models: It is widely acknowledged that universities rely on a variety of incomes sources such as student tuition, research and ancillary services; however, their main source of income still remains student tuition. In many countries the large majority of student tuition fees are paid in part or fully through direct government funding (Garritzmann 2016), which leads to universities being in a dependency relationship with their government stakeholders which can restrain their strategic actions (Miller et al. 2014). Universities have been seeking alternative revenue sources to reduce this dependency and also in response to public sector research funding diminishing (Lehmann et al. 2020).

Need to demonstrate economic and social impact: Governments have a responsibility to ensure that the funding they provide (either through direct public funding or through funding publicly funded research) yields an impact (Audretsch et al. 2016). This has been reflected at the institutional and the micro (individual) level as a key driver to undertake activities which demonstrate both economic value (Valero and Van Reenen 2019) and also illustrate their impact on societal development within the locality they inhabit (Ralph and Stubbs, 2014). Consequently, knowledge and technology transfer has become a core element of mission expansion to demonstrate economic and social value (Miller et al. 2018). This has resulted in many universities creating new internal centralised departments, new processes and procedures to encourage and support individual academics pursuing academic entrepreneurship in whatever form (see Lehmann et al. 2020; Dolan et al. 2019). A key consideration is the attribution of impact between different stakeholders and environmental context; local, regional, national and international.

Increased competition: In recent years, there has been an increase in the level and intensity of competition between universities in relation to attracting undergraduate and

graduate students in not only home local but international markets, where they can accrue higher fees (Bamberger et al. 2020; Lehmann and Stockinger 2019). The attraction of students is reliant upon demonstration of institutional international research excellence as well as mission competence in teaching (Wedlin 2020). This is evaluated using a variety of criteria and mechanisms, one being international ranking systems and national research evaluation systems such as REF in the UK (Torrance 2020) and the Quacquarelli Symonds (QS) World Global University Rankings (QS Top Universities 2021). In responding to this, universities have had to deploy an array of approaches such as investing in the student teaching experiences, buildings and estates and institutional branding (Audretsch et al. 2016) to achieve competitive differentiation in local, national and international markets. It has also resulted in many universities setting up operations in international markets (Wilkins and Huisman, 2012). Such university differentiation has impacted both the university mission and their business model, where they need to re-evaluate how they can strategically align teaching, research and commercialisation activities so that they can effectively deliver and demonstrate their economic and social value to both home and international markets (Cunningham et al. 2020).

Corporatism and managerialism: Universities are large complex organisations that possess varieties of administrative, IT systems and management structures in order fulfil their mission and objectives. Davis et al. (2016) note that universities have made a move to managerialism in order to become more efficient, effective and responsive to their growing number of missions. As a result, universities have begun to adopt private sector organisational structures, work practices and approaches such as strategic planning and performance management (Van den Brink et al. 2013). Within the micro and macro levels of universities, this has brought many tensions to the fore particularly with respect to individual academic autonomy (Watt 2017). This also has implications for university research and teaching mission quality (Tapanila et al. 2020) and how university adapt to continuous change. This has led to

the creation of more centralised organisational structures, less decision-making autonomy at faculty and departmental levels and the creation of multiple workflow, control and reporting processes and systems.

Changing nature of academic work: In response to and as a result of, all of the above drivers, the responsibilities and workloads of academics has fundamentally changed in the past 20 years (Kenny 2018). Academics at an individual level are increasingly expected to take on additional responsibilities beyond teaching and traditional research for example, engage in outreach activities and collaborations with industry, undertake the role of a principal investigator for publicly funded research projects, take on institutional leadership responsibilities (Cunningham et al. 2020) or engage in commercialisation activities. This extending academic role is reflective of the mission extension however, questions the traditional identity of the academic and opens up the need for a much wider range of ‘types’ of academics who have a diverse skill set in order for universities to be able to successfully expand their mission (Miller et al. 2018).

Overall, it can be identified that these five core drivers will have wide ranging and multidimensional impacts on universities missions and business models. Some universities are better positioned to effectively manage these particularly as a result for example of their established financial strength, international prestigious reputation. Other universities may struggle managing these drivers given contextual constraint considerations and not being endowed with resources and competences necessary to manage these drivers effectively.

3 Articles within this special issue

For this special issue we sought both empirical and conceptual papers in order to enhance knowledge and allow for theory development. The seven papers selected explore varying

aspects of university remits and their mission expansion and provide insights into the multidimensional consequences and implications for universities.

Our first paper undertakes a macro level perspective to analyse the changing mission and financial model of Italian universities. Civera, Meoli and Paleri (2021) explores whether a higher education policy can induce transformative change among universities. In particular, they focus on the intended and unintended consequences of the Gelmini reform, which was implemented in Italy in 2010, just after a period of austerity. Civera et al. (2021) identify that the reforms led to a sharp reduction in academic jobs, the speed of academic career development and the remuneration available of staff, which they term the 3Ls; ‘less staff, later careers, lower salaries’. Their study provides important insights on adverse effects of government reforms for universities and how they can have a long-lasting impact on the Italian higher education sector attractiveness, their mission and business models.

Our second paper explored the key driver of international competition which has led universities to incorporate internationalization activities. Otto, Zarrin, Wilhelm and Brunner (2021) examine how internationalization, which has now become a core aspect of German universities expanded mission, impacts their university business model. In line with a long tradition of measuring efficiency in universities, they explore whether internationalisation investments are efficient and in turn, if being efficient at internationalization also leads to efficiencies across other aspects of the university business model. They contribute to new knowledge by proposing a three-stage, mathematical evaluation tool which can investigate the relationship between relative internationalization efficiency and relative overall efficiency within the university business model. They find that German universities are relatively efficient in their internationalization activities but that there is not a direct relationship between internationalization efficiency and overall efficiency across all university business model activities.

In order to contribute to economic and social impact demonstration, universities have begun to integrate external stakeholders into their business model. Our third article by McAdam, Miller and McAdam (2021) explores this topic by taking a micro level perspective to explore two university case studies who have attempted to integrate external stakeholders into their university technology transfer business model (UTTBM). They explore how ecosystem stakeholder motives have impacted value creation and value capture processes within the UTTBM over time. They advance understanding on the challenges universities face in becoming more engaged with government, industry and end users in order to be more entrepreneurial and achieve their third mission as part of the expanded university mission. They also contribute to new knowledge on the value of portfolio models within the UTTBM design in order to allow for flexibility when engaging with a diverse range of stakeholders with varying motives.

There is increasing pressure on universities to demonstrate social impact as part of their extended mission. Our next article by Carl and Mentor (2021) presents a novel perspective of universities social value by exploring whether and how universities teaching, research and third mission activities contribute to firms social engagement. Using a survey of 7,000 German firms, they provide new knowledge demonstrating that universities teaching activities can have a positive impact on the social engagement of firms. In contrast, research and third mission activities were not found to strongly influence firm's social engagement. Their research highlights the wider implications of mission expansion and questions whether a focus on demonstrating economic impact and new financial models will limit the ability of all university missions to contribution to social engagement and impact.

Our fifth article by Audretsch and Belitski (2021) conceptually explores and presents the implications of an extended mission by developing a framework to understand the business model of entrepreneurial universities. Utilising endogenous growth theory and the knowledge

spillover of entrepreneurship theory, they posit the need for congruence between knowledge and entrepreneurship capital throughout the three university missions. They contribute to new knowledge by illustrating how universities need alignment across stakeholders to enable knowledge spillovers to industry. They develop a framework which contributes to new insights into how knowledge transfer channels within university business models can be aligned to help meet wider entrepreneurial university outcomes.

Academics engagement in entrepreneurial activities is important for universities expanding mission to develop new funding models and demonstrate social and economic impact. In our sixth article, Walsh, Cunningham, Mordue, McLeay, O’Kane and Connolly (2021) present a systematic literature review that synthesizes current understandings on how business schools can contribute to university mission expansion and in particular, support academic entrepreneurship. They contribute to new knowledge through categorising business schools support into three overarching themes, namely entrepreneurship education, provision of entrepreneurial networks and aiding development of entrepreneurial ecosystems. They present a research agenda which will contribute to future knowledge illustrating the value of business schools in supporting university mission expansion.

The expanding mission of universities and third remit activities demands universities to deliver strong entrepreneurship education for both staff and students in order to encourage greater entrepreneurship both within and outside the boundaries of the university. Our final article by Nicotra, Del Guidice and Romano (2021) advances knowledge on how entrepreneurship education can be aligned to help universities realise their third mission. Through synthesizing existing entrepreneurial education literature, they present a framework that typifies the different approaches universities can have to entrepreneurship education and the contribution these approaches may have to universities expanding third mission activities. They provide new insights into how an ecosystemic approach can encapsulate the learning and

activities needed for universities expanded mission activities which not only focuses on entrepreneurship knowledge and skills but teaches behaviours and embeds wide stakeholder involvement.

4 Reflections and Future Research Agenda

This special issue has identified the multidimensional influences, consequences and implications of university mission expansion. Common themes emerged across the articles which illustrate the strategic challenges expanding the university mission presents and the conditional factors which are needed at a micro (individual actor, academic entrepreneur), meso (department, faculty) and macro levels (university and wider regional ecosystem) of analysis and across all three missions to support their expansion. However, these articles also raise interesting questions. Reflecting on the research within this special issue, and core drivers to the evolving university mission, important pressing themes can be identified which we put forward as future research agendas. We identify corresponding questions in Figure 1 to help further aid theory development within this field.

4.1 Role of context and implications on universities missions

Whilst there are many similarities between universities across the globe, there are also diverse institutional, environmental and regional differences that all have implications on the capabilities, resources and mission remits of a university. Indeed Welter et al. (2016) identify that entrepreneurship can only be fully understood when considering the context within which it is situated. Therefore, whilst higher education practices are converging globally with the internationalisation of higher education (Soliman et al. 2019), inherent contextual factors may result in an uneven playing field for all. Within literature, there is recognition of the importance of regional endowments as enabling forces to develop the innovation capabilities of not only

industry but universities (expressed by measures like GDP/capita, existence of clusters, the absorptive capacity or industrial dynamics) (Audretsch et al. 2016). Studies have explored how the relationship between the social and political environment can have an impact on the degree of autonomy of universities (centralized vs. decentralized) (Lehmann 2015). Other studies identify differences across developed and developing countries (Fischer et al. 2019; Eun et al. 2006) or political levels which are often reduced to the law and regulation system, like Anglo-Saxon countries compared to Continental Europe or China. Research suggests that individual efforts within the entrepreneurial process are either fostered or suppressed by the institutional and organizational infrastructure and in particular university climate and culture (Fischer et al. 2019; Eun et al. 2006). For example, even in disadvantaged regions, mission extension could prosper if the institutional context is aligned with the support, behaviour and norms needed (Guerrero and Urbano, 2019). However, much remains unknown on how the multi-levels of context universities operate within will impact upon their ability to extend their missions and their engagement in entrepreneurial activities.

While editing this Special Issue, the university landscape worldwide has been exposed to an exogenous shock, the COVID-19 pandemic, which further emphasises the influence the environmental context can have on universities mission and activities. Universities, like all organisations have had to demonstrate their entrepreneurial orientation and mission resilience as a means to respond to the Covid-19 pandemic. This has seen the move to online teaching, resulting in a reduction of the presence of international students on campuses, and constrained and reduced research activities resulting in a reduction in income streams. Covid-19 has brought the financial models and structures of universities into a wider and sharper focus (Thatcher et al., 2020; Ahlburg 2020). This has led to tensions and shifting dynamics between universities and governments, where some universities need short-term government support in order to remain sustainable (Ahlburg 2020). However, Covid-19 has also seen some

universities solidify their mission value and impact through collaborations with industry and government to develop vaccines, medical technologies and medicines, academic experts helping inform policy actions and through their research efforts targeted at alleviating the economic and social impact Covid-19 is having for businesses and communities. There is a lack of research which explores how universities can cope with systemic shocks, such as Covid-19 and the influence this has on their mission focus, strategies and activities. In particular, research is needed on universities responses to COVID-19 and how this will shape the university landscape, their missions and business models both in the short and long term. In particular, it will be interesting to explore if Covid-19 will lead to further mission expansion or retraction.

4.2 Role of individual and stakeholder co-creation

A key important theme emerging from the articles in this special issue and from prior research is the recognition that the ability of universities to expand their mission is reliant upon the interplay of internal stakeholders, the university institutional environments (Fischer et al. 2019) and wider external ecosystem stakeholders (Audretsch et al. 2016; Miller et al. 2018; Cunningham et al. 2019; Lehmann et al. 2020). Consequently, it can be argued that the topic needs a multi-level analysis to holistically evaluate the multifaceted range of factors impacting universities ability to sustain mission evolution. The extended range of activities which university now engage in strongly depend on individual and collective motives, dyadic knowledge exchange and actions (Rajalo and Vadi 2017) to stimulate value co-creation across a wider range of stakeholders. Therefore, it could be argued that a university will not be as effective with their extended mission and activities unless the wider public, science and regional ecosystems' motives, values and incentives are also aligned (see O'Kane et al. 2020). Research is needed to evaluate how missions are developed and whether integration of wider

stakeholders leads to greater acceptance of mission change. Research is also needed on the processes and practices universities and external stakeholders use to engage in value co-creation for mission fulfilment and expansion purposes.

4.3 Mission intent and fulfilment

Whilst the drivers for university mission expansion are clear, universities are large bureaucratic organisations, where mission change requires more than updating mission statements but needs transformation of existing behaviours, processes and norms (Pugh et al. 2018; Siegel and Wright 2015). Indeed, Morphey and Hartley (2006) research raised interesting questions regarding the value and utility of higher education mission statements. They suggest that higher education mission statements can lack strategic direction or vision and instead be a communication tool of their environmental reality rather than setting out aspirations which will be actioned and operationalised. However, this could be due to the complexity of intent versus fulfilment (Morphey and Hartley, 2006; Arias-Coello et al. 2018). There is a need for research on the conditional and antecedent factors that constrain or enable universities abilities to fulfil their different missions. For example, their governance structure both internally and with external stakeholders (Lehmann and Stockinger 2019), the institutional infrastructure such as technology transfer offices (Hülsbeck et al. 2013), incubators, scientific parks, business creation offices, patent and IP consulting, their funding structures (public versus private), their strategic focus (medicine, technical universities, arts and humanities), the university environment and culture (Huyghe and Knockaert 2015) and role models (Hahn et al. 2019; Messina et al. 2020). Furthermore, all universities start their mission and business models at different points and under different contexts (see point 4.1), therefore much remains unknown on the stages, drivers, internal processes and activities universities progress through in order to embed the various extended activities into their missions and the implications for their business

models. Future research should explore universities journey from organisational mission intent to implementation.

4.4 Conceptualisation of university business models

Whilst the business model has become a well regarded management tool, there is still limited studies advancing the conceptualisation of the university business model and its subsequent extension over time (Audretsch and Belitski 2021; McAdam et al. 2021). The university can be considered as a system of interactions and knowledge flows, where they are intertwined within the wider innovation ecosystem comprising of diverse actors (Lehmann et al. 2020). Consequently, we argue that entrepreneurial universities should be conceptualised as a networked business model due to their varying missions, which each have their own value creation and value capture processes but which also need to be interdependent to maximise their potential for economic and social value. However, achieving economic and social value can be seen as both complementary but also can require conflicting dominant logics, leading to hybridity (Jongbloed 2015; McAdam et al. 2017) requiring differentiated activities, skills and resource allocation across their academic remits. Extending university mission results in activities and governance actors which span the boundaries of universities (Miller et al. 2014; McAdam et al. 2021). Further research is needed to understand if existing business model conceptualisations are appropriate to understand the complexity of universities multi-stakeholder business model which comprises of multiple remits, an expanding mission and a need to balance both economic and social value offerings.

4.5 Universities role in promoting sustainability

A theme that has been accelerated somewhat due to the Covid-19 pandemic, is how universities contribute to environmental sustainability and responsible business practices (Sa and Serpa

2020). This pervades all missions and activities of a university, where universities are beginning to responding to this driver in different ways such as adopting UN sustainable development goals (SDGs) to creating more sustainable campuses, to being active participants in PRME (Principles for Responsible Management Education) (Kurz, 2020; Priyadarshini and Abhilash 2020). Much remains unknown on universities role in aiding sustainability. Future research is needed to understand if, when and how universities can lead the development of a more sustainable society. Furthermore, research should explore universities mission evolution to incorporate sustainability, where there is a need to understand how universities can embed sustainability into all aspects of their business model.

5. Conclusion

This special issue has contributed to new knowledge on the multidimensional influences, consequences and implications of university mission expansion. Through the collection of articles and the extensive future research agenda presented in figure 1, it is clear that universities are in a state of flux, where a mission expansion will have implications for academic staff, university managers, policy makers and wider societal stakeholders alike. Research on the wide-ranging impacts of university mission expansion is still at an embryonic stage. There is a pressing need to pursue this research agenda using different methodological approaches, units of analysis, theoretical lens while taking account of the contextual differences. We conclude by strongly encouraging more research which addresses all the themes outlined in this special issue and in particular how mission expansion impacts mission statements, changes core remits and leads to new or extended business models. This research can generate insights that are relevant beyond the university organisational setting to other organisations that are managing mission expansion and the creation or extension of business models in dynamic and competitive industry environments.

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Table 1: Future Research Directions

Theme	Research Questions
Role of context and implications on universities missions	<ul style="list-style-type: none"> - How does operating under different policy regimes, within post conflict and/or emerging markets and within less developed countries, impact universities ability to engage in entrepreneurial and third mission activities? - How does university type impact universities engagement in entrepreneurial and third mission activities? - How do universities cope with systemic shocks, such as Covid-19 and what influence does this have on their strategies, missions and activities? - How will universities respond (retrench or grow) to the challenges Covid-19 presents to their core missions? - How will Covid-19 impact the university landscape and business models both in the short and long term? How will it influence competition (national and international)? - Will the increase in digitalisation due to Covid-19 impact operational and delivery processes and practices of universities in the long term across all missions? - Will universities, industry and government collaborations differ post Covid-19? - Covid-19 will lead to further mission expansion or retraction?
Role of individual and stakeholder co-creation	<ul style="list-style-type: none"> - What factors aid convergence of individual and collective motives and actions of stakeholders within and beyond the boundaries of the university, to stimulate the co-creation of innovation? - What influence do external ecosystem actors have on universities ability to engage in third mission activities for profit and social innovation purposes? - What processes and practices do universities and external stakeholders use to engage in value co-creation? - What challenges do external ecosystem stakeholders face in engaging and contributing to university third mission activities?
Mission intent and fulfilment	<ul style="list-style-type: none"> - Will university mission expansions that are created in consultation with wider stakeholders leads to greater acceptance and ease implementation? - What are the core conditional antecedents and success factors which aid universities to align their mission and entrepreneurial intent with the implementation of entrepreneurial actions and activities needed to fulfil their third mission? - How do universities progress from traditional to entrepreneurial business models? What are the stages, drivers, internal processes, and activities required to embed entrepreneurial mission intent and third mission activities throughout the varying aspects of their business models? - What institutional conditions (strategy, structure, culture, behaviours, processes) are optimal to achieve university third mission activities?

	<ul style="list-style-type: none"> - How can universities effectively align teaching, research and commercialisation in order to develop holistic systems which interdependently work together to achieve third mission activities? What good practice models exist?
<p>University Business Model Conceptualisation</p>	<ul style="list-style-type: none"> - To what extent are existing business model conceptualisations appropriate to understand the complexity of universities business models comprising of multiple stakeholders, remits and differentiated economic and social value offerings? - How can universities increasingly networked business models be visualised and designed? - How can external stakeholders be embedded within the university business model and individual mission business models? - How does business model conceptualisation and design differentiate across different remits and missions? - What are the appropriate evaluation mechanisms to assess the performance of university business models?
<p>Universities role in promoting sustainability</p>	<ul style="list-style-type: none"> - Should universities lead the development of a more sustainable society? - How can they achieve sustainability through their core missions? - How can their third mission activities be mobilised to support sustainable societies? - How can universities embed sustainability into all aspects of their business model?