



Entrepreneurial University as a Driver of University Transformation Towards Sustainable Innovation

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ABSTRACT

This article examines the function of Entrepreneurial Universities as catalysts for transforming higher education institutions towards sustainable innovation. As social and environmental challenges become more intricate, universities are anticipated to serve as educational entities and proactive agents of change. In light of increasing demands to contribute to national innovation efforts, this exploratory case study analyzes the application of the entrepreneurial university concept within the State Islamic University UIN Bukittinggi. Semi-structured interviews were conducted with senior faculty members from diverse fields to gather insights on the third mission of entrepreneurship and the complexities involved in fostering a cohesive entrepreneurial identity within these institutions. The research reveals an expanding divide among academic disciplines within the university. Such differing perspectives may create discord within the academic community and impede progress towards fulfilling the third mission. Findings indicate that strong support from senior management for the entrepreneurial university ideals may, paradoxically, diminish overall entrepreneurial activities within the institution. This study contributes to understanding the entrepreneurial process and identifies several significant obstacles to achieving entrepreneurial aspirations. Ultimately, it challenges the claim by Etzkowitz et al. (2000) that the entrepreneurial university concept represents a global phenomenon with uniform developmental paths.

Keywords: *Entrepreneurial University, University Transformation, Sustainable Innovation*

INTRODUCTION

"Innovation has emerged as a crucial factor for competitiveness, growth, and the development of sustainable employment" (Etzkowitz, H., Germain-Alamartine, E., Keel, J., Kumar, C., Smith, K.N., Albats, 2018; European, 2008). It plays a vital role in improving efficiency in production factors (Rinne, R. & Koivula, 2005; Svensson, P., Klofsten, M., Etzkowitz, 2012). Moreover, innovation now acts as a key catalyst in the knowledge economy. Nevertheless, as Reale (2021) highlighted, our comprehension of the innovation process is evolving. The formerly accepted 'linear' model has been supplanted by a more prevalent modern perspective that views innovation as a systemic and interconnected phenomenon (Deakins & Freel, 2003; Etzkowitz et al., 2018; Bezanilla et al., 2020). Consistent with this updated understanding, numerous academic studies have acknowledged that collaboration among the three institutional sectors—industry, academia, and government—is vital for strengthening innovation systems at both regional and national levels (Klofsten et al., 2019; Pugh et al., 2021). The cooperation among these three areas is fundamental to the Triple Helix model introduced by Etzkowitz and Leydesdorff (2000). Nowadays, more than ever, universities are positioned at the heart of societal knowledge.

Universities contribute to the research and development (R&D) capabilities of an economy in various ways, including: producing skilled human resources, transferring technology from academia to industry, creating foundational knowledge that transcends existing boundaries, and forming spin-out companies in their

surrounding areas (Clauss et al., 2018). Although the interaction between the industrial sector and academia is not a new phenomenon (Etzkowitz, H., Germain-Alamartine, E., Keel, J., Kumar, C., Smith, K.N., Albats, 2018; Bezanilla et al., 2020; Klofsten et al., 2019), the nature of this interaction is currently changing. Since the 1990s, collaboration between universities and industry has become more focused, with more systematic efforts to leverage academic research for economic benefit, as well as to cooperate with government and industry to create beneficial synergies (Etzkowitz, H., Germain-Alamartine, E., Keel, J., Kumar, C., Smith, K.N., Albats, 2018).

In this context, the author undertook a study on the concept of the 'Entrepreneurial University' within a traditional State Islamic university in Indonesia, where diverse disciplines, including sciences and humanities, coexist equally. This study aims to gain a deeper insight into the academic community's perceptions of the entrepreneurial university ideal and to explore how this concept is implemented within the State Islamic University framework. The analysis is organized into four distinct sections. First, it provides a brief overview of the evolution of entrepreneurship in the case study. Next, it examines the general attitudes of the informants toward the entrepreneurial university ideal as outlined by Etzkowitz et al. (2000), along with their perspectives on managing academic entrepreneurship through both top-down and bottom-up methods. The third section identifies the key challenges encountered in entrepreneurial activities at the chosen universities. Finally, the discussion focuses on the development trajectory of the entrepreneurial university based on the comprehensive case analysis.

Universities that engage in the triple helix model and commit to contributing to regional or national development are known as 'entrepreneurial universities.' According to Etzkowitz and Leydesdorff (2000), an entrepreneurial university is an institution that performs entrepreneurial activities "aimed at enhancing regional or national economic performance and generating financial benefits for the university and its faculty." Before adopting the triple helix model, the traditional mission of universities centered on knowledge transfer through education and knowledge advancement via basic research. In addition to their dual roles in teaching and research, entrepreneurial universities embrace a third mission focused on economic development. The entrepreneurial activities these universities can pursue range from 'soft' to 'hard' initiatives. In this context, the soft and hard spectrum reflects the various academic activities' perceived level of entrepreneurial sophistication. Hard activities like securing patents, licensing, and establishing spin-off companies are typically regarded as more concrete outcomes (Suhartanto, 2019; Shane, 2004) of well-established entrepreneurial universities (Holstein, J., Starkey, K., Wright, 2018).

Furthermore, hard activities are often seen as more entrepreneurial because they usually diverge from the traditional roles of academics (Purbasari, R., Muttaqin, Z., Sari, 2021). In contrast, softer initiatives like academic publishing, grant-making, and contract research are more in line with conventional academic culture (Feola et al., 2021). They may sometimes not even be recognized as entrepreneurial activities by the wider academic community.

Numerous examples exist of universities that have engaged in activities contributing to economic development while generating financial benefits for the institution. The array of activities at exemplary entrepreneurial universities, such as Stanford, MIT, the University of California, Columbia, Cambridge, Chalmers, and KU Leuven (Clark, B., 2001; Etzkowitz et al., 2018), tends to lean significantly towards more challenging initiatives compared to other universities. These model institutions have a proven history of pursuing their third mission, and the effectiveness of their processes is typically reflected in the results of these more complex activities.

Likewise, much of the recent research on entrepreneurial universities has concentrated on their capacity to produce outputs at the 'harder' end of the spectrum (Prodanov, 2018; Vassilakopoulou et al., 2020), with less emphasis on the potential economic value of these outputs (Etzkowitz et al., 2019). This focus has led to a prevalent perception among academics that associates the entrepreneurial university concept with technology commercialization and the establishment of spin-offs. European and American universities have significantly intensified their emphasis on research commercialization and the evaluation of patents,

licenses, research collaborations, and spin-off companies (Kolympiris, C., Klein, 207 C.E.).

Academics have expressed concerns regarding the general applicability of promoting universities' production of more complex activities. For instance, Aggarwal (2019) discovered that, even at MIT, patenting constitutes only a minor aspect of technology transfer. Specifically, patents comprise just 10% of knowledge transfer from MIT laboratories, indicating that they are not a primary means of transferring knowledge to industry. Universities' participation in entrepreneurial activities can often lay the groundwork, build capacity, and foster the maturity necessary for developing future entrepreneurial endeavors (Cai & Ahmad, 2021). While acknowledging that various entrepreneurial activities contribute to the third academic mission, governments and universities must understand that the shift towards entrepreneurial ideals will differ based on their specific backgrounds and strengths. In striving for the ideals of the entrepreneurial university, university management should avoid a 'one-size-fits-all' approach (Clark, B., 2001). Higher education is not uniform, as there are considerable variations between higher education systems in different countries and even among institutions within the same system. Thus, their context, capabilities, and resource availability will shape universities' effectiveness in engaging in entrepreneurial activities (Liu, Y., & Shirley, 2021). Universities should remain neutral regarding the forms of entrepreneurial activities they pursue (Feola et al., 2021), opting for those that maximize their impact on economic development. Clark (2001) supports this perspective, noting that fostering a robust entrepreneurial culture is generally more feasible in smaller universities than larger ones, specialized institutions versus comprehensive ones, and universities with a predominantly centralized structure compared to those with autonomous faculties or schools. Therefore, a university's standing on these dimensions will affect its ability to adopt entrepreneurial ideals and select a combination of entrepreneurial activities that can enhance its contribution to the academic mission of the three.

The execution of this third academic mission comes with its own set of risks and challenges. Commonly cited risks include the potential loss of time dedicated to teaching and basic research, heightened confidentiality demands, the possibility of conflicts of interest, increased internal disputes, and even the risk of financial losses (Feola et al., 2021). Nevertheless, despite the ongoing debate surrounding the ideals of the entrepreneurial university, many scholars, both proponents and critics of the model, stress that this trend is unlikely to be reversed shortly (Pugh et al., 2021; Clark, B., 2001). This persistence is attributed to the underlying pressures that are driving the entrepreneurial shift, which include:

1. The growing importance of science and technology in economic development, alongside university laboratories that have cultivated this capability over years of basic research (Etzkowitz et al., 2019; Bezanilla et al., 2020).
2. The recognition of economic development as a key function of higher education (Galvão, A., Ferreira, J.J., Marques, 2018).
3. A reduction in university funding leads to funding gaps (Hayter, C.S., Nelson, A.J., Zayed, S., O'Connor, 2018).

Universities actively embrace an entrepreneurial approach, integrating the 'third academic mission'—economic development—with traditional teaching and research academic missions (Etzkowitz et al., 2019). This third mission is not meant to diminish the importance of teaching and research; instead, it seeks to enhance the synergistic relationship among them and maximize the university's potential. Establishing a proper alignment between teaching, research, and economic development missions is essential for developing an entrepreneurial university.

One of the primary challenges academics encounter is balancing the desire to boost contributions to economic development with the need to increase financial support for the university. Given the connection between the triple helix model and the principles of the entrepreneurial university, the authors contend that adopting a long-term perspective—prioritizing contributions to economic development over immediate financial benefits—will enhance the university's capacity to create value. In this context, the triple helix model becomes functional and sustainable for all stakeholders.

This transition is an evolutionary process that requires years to foster cultural change within the institution (Feola et al., 2021; Clark, B., 2001). However, to realize the entrepreneurial ideal, a university must persuade its academic community of the importance and relevance of the third mission for its institution.

METHODS

This study investigates how the 'Entrepreneurial University' concept is implemented within a comprehensive State Islamic university, where various disciplines, including sciences and humanities, coexist on equal footing. This research aims to gain a deeper insight into the perspectives of the academic community regarding the notion of the entrepreneurial university. A single research site was chosen to facilitate the observation of attitudes among academics from different disciplines concerning the realization of a cohesive entrepreneurial university. The selected case site features an organizational structure typical of a traditional comprehensive university, specifically the State Islamic University of UIN Sjech M. Djamil Djambek Bukittinggi. Additionally, UIN Sjech M. Djamil Djambek Bukittinggi was selected because it is at an early stage of entrepreneurial development, with institutional policies that have recently acknowledged a third academic mission, reflecting the situation of many universities across Indonesia. As part of the exploratory case study analysis, fifteen senior lecturers from various disciplines at UIN Sjech M. Djamil Djambek Bukittinggi were interviewed to gather their views on the entrepreneurial university ideal as it has emerged within their institution.

For several reasons, the senior lecturer level was selected as the appropriate sample population. All interviewees held positions as heads of faculties or research institutions and possessed extensive experience in university settings. Senior lecturers represent a crucial management tier within the university, responsible for implementing university policies within their units. Consequently, they are ideally positioned to observe the implementation of the third academic mission. They have privileged access to information regarding the institution's evolving strategic plans and possess insight into how their colleagues respond to the shift towards this third mission.

This study aims to capture the diversity of disciplines within the university population. To reflect this diversity adequately, three lecturers from each of the university's five main faculties were chosen to participate. These faculties represent departments with the following academic focuses: (1) Tarbiyah and Teacher Training, (2) Sharia, (3) Islamic Economics and Business, (4) Ushuludin and Dakwah, and (5) Postgraduate Studies. Within each faculty, three unit leaders were selected based on their apparent alignment or misalignment with the entrepreneurial university ideals proposed by Etzkowitz et al. (2000). The expected alignment or misalignment was informed by interviews with two knowledgeable informants within the university administration, as well as other sources such as university documents, research income, patent activity, external funding, and industry relationships. Ten distinct clusters were identified among the thirty academic units (Study Programs) at the university, which produced similar entrepreneurial outcomes. Across the four faculties and one Graduate School, it was possible to classify sections into high, medium, and low levels of entrepreneurial orientation compared to other units. For data collection, one senior lecturer was purposively selected to represent each category. Additionally, heads of entrepreneurial research institutions were included in the interview sample to represent the research dimension of the university. Pseudonyms were assigned to the lecturers to ensure anonymity and promote openness during discussions. Interviews with key informants primarily followed a semi-structured format, supplemented by a brief survey instrument. The interviews were characterized as candid discussions about the entrepreneurial university concept. While interviews were the primary data collection method, information was also gathered from official university documents and quantitative data related to university patents, research, and publications. The final section of the paper outlines the key findings from the case study analysis.

RESULTS AND DISCUSSION

UIN Sjech M. Djamil Djambek Bukittinggi has gained a reputation for its entrepreneurial activities. Over the last decade, the university has fostered regional entrepreneurship, established multiple bio-incubator

units, and initiated various business ventures on campus. Additionally, it has secured substantial research funding from national and international sources. However, the entrepreneurial achievements at UIN Sjech M. Djamil Djambek Bukittinggi have developed mainly in an organic and unstructured manner, primarily driven by the individual efforts of staff rather than by well-defined institutional policies. In fact, the university's strategy has only recently started to recognize its entrepreneurial mission, a shift that has occurred within the past three years. This is evident in the university's policy documents, which reflect a commitment to building on past entrepreneurial successes and enhancing future contributions to economic development and the institution's financial health. Consequently, despite the university's notable entrepreneurial accomplishments, it can still be viewed as being in the early stages of its journey toward realizing the ideal of an entrepreneurial university.

Informant attitudes towards the entrepreneurial paradigm

Fifteen senior lecturers from five faculties, along with representatives from the university's Research Institute, were chosen as a representative sample of the academic population. The case study revealed that not all academics surveyed viewed the shift toward an entrepreneurial university positively. There was a noticeable divide in attitudes among the respondents. While some informants strongly advocated for the entrepreneurial university ideals, others believed that this emphasis on entrepreneurship was unsuitable and could jeopardize the institution's traditional academic values. To assess these differing attitudes, informants were asked questions to gauge their overall perspectives on the ideals suggested by Etzkowitz et al. (2000).

Each respondent evaluated their attitudes regarding the implementation of entrepreneurial activities intended to enhance economic development, the university's financial position, and the financial well-being of faculty members. These numerical ratings were then aggregated to create an overall attitude score for each participant.

Data analysis indicated that non-supportive informants were primarily located in the lower left quadrant of the sample, while supportive informants clustered in the upper right quadrant. This distribution reflects the general sentiment expressed during the interviews. Those who held unsupportive views (A, B, C, E, I, F, N, and O) were particularly vocal about their concerns regarding the impact of the entrepreneurial shift on the traditional values and goals of their Faculty and the university overall. Many expressed that, although they did not oppose the university contributing to societal economic improvement, they were against the notion of the institution functioning like a business. Conversely, supportive lecturers (D, G, H, J, K, L, and M) encouraged a greater alignment with the entrepreneurial ideal, believing there was no conflict between this mission and the university's traditional focus on teaching and research. Regardless of their views, all informants acknowledged the emerging divisions among disciplines concerning the entrepreneurial university ideal. Lecturer G (Faculty of Economics and Business) noted that "the tension between entrepreneurship and the appreciation of purely academic activity" was increasing within the university. This tension was manifesting in attitudes throughout the institutional structure. If not addressed, universities risk fostering an 'entrepreneurial character', leading to a polarized academic community divided into two conflicting groups regarding the ideals of the entrepreneurial university.

As seen in Figure 1, the supporters of the entrepreneurial paradigm are in Islamic Economics and Business and the Faculty of Tarbiyah and Education, while its opponents are mainly in Sharia and Ushuludin adab and Dakwah.

Table 1. Faculty Attitudes Towards Entrepreneurship Paradigms

	The most traditional faculty at the University		The Most Entrepreneurial Faculty			
Does not support or less supports the Entrepreneurship Paradigm (1- 8)	FUAD	Postgraduate	FSYA	FTIK	FEBI	
Supports the Entrepreneurship Paradigm (9 –10)						
Units supporting entrepreneurship in the same Faculty of the University	Lecturer A Islamic Broadcasting Communication (8)	Lecture D Sharia Economics (10)	Lecture G Constitutional law (10)	Lecture H computer Science (10)	Lecture J Sharia Business Management (10)	
A relatively neutral unit in the same Faculty of the University	Lecture B Science of Hadith (5)	Lecture E Language (7)	Lecture F Family Law (10)	Lecture K Counseling guidance (10)	Lecture L Digital Business (10)	
A traditional unit when compared to other units in the same unit of the University	Lecture C Philosophy (1)	Lecture N Islamic education (4)	Lecture I Islamic Criminal Law (6)	Lecture O Mathematics (6)	Lecture M Sharia Tourism (10)	

This finding is further strengthened by the fact that the most entrepreneurial lecturers from the Faculty of Ushuludin Adab and Dakwah showed lower support for the ideal entrepreneurial university than the most conservative lecturers from the Faculty of Islamic Economics and Business. This division of attitudes may be due to the doctrine of certain disciplines. However, it may also be related to the achievement of a strong Vision and Mission towards the business and technology-based sector, especially in the business and technology fields that are now visible.

Business and technology-focused disciplines have convinced respondents of the benefits of engaging with industry and government in stimulating economic development. In addition, scholarship in the Faculty of Ushuludin and Sharia may have contributed to the widening gap between the two sides. If this imbalance is seen as worsening with the move towards entrepreneurial ideals, it is understandable that purely religious-based faculties within the university community would resist such a change.

Bottom-up versus top-down academic entrepreneurship

Despite notable differences in how institutions align with the ideals of an entrepreneurial university, a deeper analysis of the informants’ feedback showed that lecturers in the sample generally favored entrepreneurial ideals promoted by university management through a bottom-up approach rather than top-down directives. The sole lecturer who opposed entrepreneurial initiatives in his faculty was Lecturer C (Philosophy), and that opposition was only applicable when the initiatives were a personal choice. Additionally, two senior lecturers from the Faculty of Ushuludin Adab and Dakwah expressed reservations about the long-term suitability of their faculty participating in entrepreneurial activities. However, they have consented to continue those practices. While the primary concerns regarding academic entrepreneurship were more centered on traditional units within the university, a majority of informants (ten out of fifteen) supported the university’s entrepreneurial ideals when they were allowed to develop organically through a bottom-up approach.

In contrast, all informants showed considerably less support for the ideal of an entrepreneurial university when it was promoted through structured initiatives from university management. While they all endorsed the entrepreneurial movement within their respective academic units, none believed that the institution's management should pursue a unified approach for the third mission if it meant exacerbating the divide between disciplines. Moreover, the sample indicated that academic support for such efforts would diminish if the university implemented a structured, top-down system to stimulate entrepreneurial activities. The preference for a bottom-up approach became clear during the semi-structured interviews. Senior lecturer D (Islamic Economics) remarked, "Entrepreneurship is driven individually. You cannot force people to become entrepreneurs." Similarly, senior lecturer M (Research Institute) highlighted that the more active and successful entrepreneurial initiatives in his research institute originated from "individuals' eager efforts to do it," rather than from encouragement from management. This implies that strong top-down support is unlikely to promote academic entrepreneurship effectively.

The lack of support for top-down encouragement may be related to the perception that emphasizing more difficult activities is often associated with entrepreneurial ideals. This bias may be discouraging for humanities-based sectors for several reasons. First, these sectors may feel disadvantaged because patenting and licensing activities are typically more relevant outside of software and the biosciences (Mowery et al., 2004). A recent study by Fini et al. (2010) also showed that academics were more likely to start patent-based businesses in the biosciences, while academics in behavioral and social sciences were more likely to engage in non-patented business activities, such as consulting or collaboration with industry. As a result, some academics may feel that their disciplines are less suited to producing more difficult outputs from the start.

Top-down pressures can compel academics to engage in more challenging activities that may not yield the desired results. Additionally, Mansfield (1998) discovered that the relevance of academic research to the private sector varies significantly across different industries. Some academic fields may function in areas where their research outputs lack direct applicability to industry needs. In such cases, these disciplines might be less equipped to contribute directly to economic objectives within the entrepreneurial framework. This does not imply that their outputs lack value; rather, it indicates that some disciplines may not be well-positioned to pursue the third academic mission effectively.

Furthermore, religious and social science disciplines may believe they can contribute more effectively to economic development by engaging in less significant activities. As mentioned in Section 2, 'soft' activities can be just as important to economic development as 'hard' activities. If universities pressure academics to produce 'harder' forms of academic entrepreneurship within the framework of entrepreneurial ideals, they risk forcing academics to reduce the value they add.

Conversely, a bottom-up approach that allows academics to engage solely in activities they consider most suitable for maximizing their contributions to economic development may more effectively support the realization of the third academic mission throughout the university. This observation aligns with Burgelman's (1983) perspective on corporate entrepreneurship development, which views management as an obstacle to emerging entrepreneurial initiatives and a proactive enabler of entrepreneurship through established mechanisms. University administrations aiming to facilitate progress toward the ideal of an entrepreneurial university are likely to be more successful if they concentrate on eliminating existing barriers to entrepreneurial activity within their institutional frameworks, rather than merely establishing policies and metrics to boost entrepreneurial engagement among academics. Without a cohesive entrepreneurial character throughout the institution, achieving a unified and integrated movement toward the entrepreneurial university becomes challenging.

Barriers to the ideals of entrepreneurial universities

For university management to effectively promote entrepreneurial ideals, it is crucial to recognize the existing institutional barriers. During discussions regarding institutional support for entrepreneurial activities, informants highlighted several key barriers within the institutional context that they believed were obstructing progress. The barriers noted by the sample included:

1. Lack of entrepreneurial role models in universities.
2. Lack of an integrated entrepreneurial culture across universities.
3. Academic development processes that negatively impact entrepreneurial efforts.

Cunningham and Harney (2006) highlight the importance of having entrepreneurial role models to facilitate the commercialization of research, noting that organizations require a critical mass of such role models to inspire others to adopt entrepreneurial behaviors. Unfortunately, this critical mass seems to be lacking in this context. Many respondents found it challenging to identify even a single entrepreneurial role model at their institution, much less recognize multiple candidates.

Additionally, to maintain high levels of research commercialization, it is essential to cultivate an integrated entrepreneurial character throughout the university. The lack of this character can impede the pursuit of more complex entrepreneurial endeavors. Achieving a cohesive and integrated movement toward the entrepreneurial university becomes difficult without a unified entrepreneurial character across the institutional framework.

The last barrier mentioned is perhaps the most important to the university's progress towards its entrepreneurial mission. Senior lecturers who spoke about entrepreneurship from different perspectives (D, G, and J) emphasized that the university's reward structure is primarily based on publications and under-rewards entrepreneurial activity. Senior lecturer D (Islamic Economics) noted, "There are a number of people in the Faculty of Islamic Economics and Business with great ideas, developing students, doing a lot of R&D with industry, but none of them get promoted because they are told, 'You do not have enough publications.' I have to explain this to the staff. I want them to be entrepreneurs, but I have to tell them, 'You have to be academics and research because you will not get any points if you are an entrepreneur."

Lecturer K (Digital Business) agreed and explained, "Simply put, when universities recognise their staff and reward them through promotions, it is done primarily based on publications in peer-reviewed international journals. Universities should recognize and reward efforts if they seriously encourage entrepreneurship in such departments. Currently, younger staff in these departments, for career development reasons, are more interested in publishing papers than working with companies."

It appears that, even among more entrepreneurial informants, the current university promotion system discourages engagement in academic entrepreneurship. Although universities allocate a percentage of intellectual property revenues to relevant academics, they face severe professional penalties for engaging in entrepreneurial activities in career advancement. In short, in addition to the fragmented nature of universities, movement towards the ideal of the entrepreneurial university is also hampered by several institutional barriers that need to be overcome for universities to move further along their entrepreneurial path. This, of course, assumes that universities themselves perceive progress towards this ideal as relevant.

Entrepreneurship University Development Pathway

The findings from this case study support Tuunainen's (2005) conclusion that "developing an entrepreneurial university is not as easy as it seems from a more general perspective." In particular, an analysis of how the entrepreneurial paradigm is implemented at the departmental level can reveal important underlying complexities and tensions (Tuunainen & Knuutila, 2009). This case study highlights a number of issues related to integrating the third academic mission while maintaining the university's traditional academic ethos. These issues may be due to the relatively short time it took for most European universities

to develop their entrepreneurial role. On the other hand, these issues may also indicate that not all universities are suited to the move towards the entrepreneurial ideal in an absolute sense.

According to the findings of this study, the latter explanation appears to be more fitting for the case study. The results indicate that the entrepreneurial mission is better suited for a few universities serving as entrepreneurial models. This is attributed to the substantial resources these universities need to develop more complex forms of academic entrepreneurship, such as establishing spin-off companies (Rasmussen & Borch, 2010). Furthermore, most universities typically require five to ten years to generate entrepreneurial revenue that can offset the associated costs of technology transfer. Producing licensed outputs is significantly more costly than obtaining research grants and contracts.

Since universities face declining funding globally, a five- to ten-year period may be too long to expect a return on investment. The findings from this case study raise particular concerns about the ability of many universities to move beyond their current levels of entrepreneurial activity, especially considering the existing institutional structures and procedural barriers that hinder academics' entrepreneurial pursuits. Furthermore, universities with diverse academic disciplines will experience internal differences in their respective abilities to engage in entrepreneurial activity. This may lead to academic disharmony rather than the unified drive needed to achieve the third academic mission.

The comprehensive university sector has played a vital role in national innovation systems and economic development. However, efforts to secure the financial advancement of universities may obstruct their interactions with industry and diminish their contributions to economic growth. Additionally, under certain circumstances, softer activities may yield more favorable entrepreneurial outcomes than harder activities. Thus, universities do not have to achieve a level of "maturity" where they consistently produce more hard activities. Even at universities recognized as entrepreneurial models, most technology and knowledge transfer initiatives are not predominantly hard (Agrawal & Henderson, 2020); they often include conferences, workshops, publications, and consultancies. For many universities, placing excessive emphasis on generating harder forms of academic entrepreneurship may be misguided. This raises questions about the assumption that all universities should follow the same developmental path toward the entrepreneurial ideal, suggesting that it may be more beneficial to promote competency-based ideals rather than a "one-size-fits-all" approach.

CONCLUSION

This study suggests that university management would benefit from implementing communication and training programs regarding the entrepreneurial university ideal for the academic community. Without such programs, universities risk creating a significant entrepreneurship gap within their institutions. The case study findings also indicate that progress towards the entrepreneurial university ideal is highly context-dependent and may not be appropriate for all universities. University management should be wary of "one-size-fits-all" practices, which claim universal applicability. Instead, it should seek to define their entrepreneurial pathways based on their capabilities and unique operational contexts. This may require managing expectations from the Government, as an emphasis on more tangible entrepreneurial outcomes may detract from the broader economic contribution of universities.

Finally, this study highlights that while a top-down approach to the entrepreneurial university ideal is common in higher education systems, it may be ineffective and detrimental in nurturing academic entrepreneurial activity. This study suggests that a bottom-up approach is more supportive of the development of academic entrepreneurship within a comprehensive university environment, and that university management needs to understand the underlying culture of their institutions before engaging in interventionist policies.

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