

UNIVERSITY ENTREPRENEURIAL ECOSYSTEMS: CATALYSTS FOR REGIONAL INNOVATION AND GROWTH

The evolution towards knowledge-based economies has led universities all around the world to embark upon a third mission, beyond teaching and research, to make a more direct and significant contribution to social and economic development through student entrepreneurship. This call for a conversion of universities knowledge flow into value creation falls within the new entrepreneurial ecosystem paradigm as a promising horizon for higher education institutions to foster regional innovation and growth.

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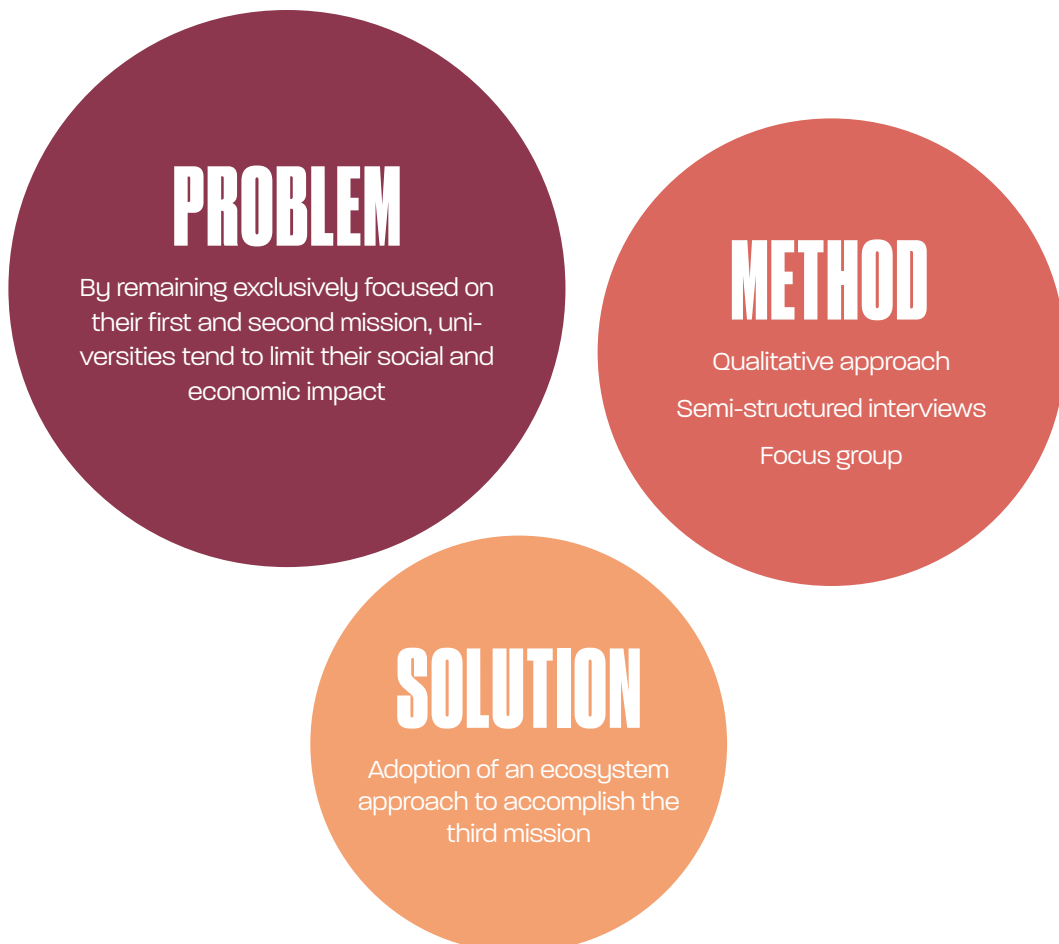


Emerging Business Insights (EBI) aim to produce actionable knowledge and practices in the areas defined by the 2030 Agenda for Sustainable Development and its 17 goals (SDGs) adopted by the United Nations, with particular attention to the strategic choices targeted by the New Development Model (NDM) for Morocco's future programs by 2035, notably the priority area entitled « Morocco of the Regions » as a full-fledged Sustainable Development Goal (SDG).

IN A NUTSHELL

Entrepreneurship has been associated not only with organizations of businesses but also with continuous economic and social development. And while scholars have been growing awareness for the social and cultural embeddedness of entrepreneurship, the focus of the present study has increasingly shifted from individual entrepreneurs to entrepreneurial ecosystems as an interrelated set of actors, organizations, resources and values that generate and support regional entrepreneurial activities, capturing the entrepreneurial output component described by Erik Stam integrative model of entrepreneurial ecosystems (Stam, 2005), in addition to the institutional arrangements' component captured by the formal institutions, culture, and network elements, and the resource endowment component captured by the physical infrastructure, finance, leadership, talent, knowledge, intermediate services and demand elements.

In this respect, universities have been grounding a crucial role in entrepreneurial ecosystems more specifically through the development of a knowledge-based competitive advantage for student entrepreneurs, thereby encouraging a bottom-up approach to commercialize the abundant knowledge flowing in universities, enable innovative market-oriented solutions and thus, enhance the overall regional economic performance through the accomplishment of the so-called “university third mission” – i.e. the university's contributions to societal and economic development by ensuring knowledge spillovers in addition to knowledge creation (second university mission: research), and knowledge dissemination (first university mission: teaching).



PROBLEM

It is now generally accepted that universities are an important instrument in the facilitation of the contemporary knowledge-based economy (Bano & Taylor, 2014; Maniglio, 2018; Scott, 2005). Since much knowledge is developed within universities and government research establishments, they are seen as important catalysts for regional economic and social development, through the spin-off of new, innovative enterprises that add value through knowledge creation. Hence it is largely, though not exclusively, for this reason that Governments around the world, are attempting to create more “Entrepreneurial Universities” (Guerrero *et al.*, 2006).

Increasingly higher educational institutions are being required to operate more entrepreneurially, commercializing the results of their research and spinning out new, knowledge-based enterprises (Kirby, 2005). According to Etzkowitz (2004), universities have already been undergoing a “second revolution”, incorporating economic and social development as part of their mission. The first academic revolution made research an academic function in addition to teaching. Since then, the emerging entrepreneurial university has been integrating economic development as an additional function.

BOX 1. THE THIRD MISSION OF THE UNIVERSITY

In recent years, there has been increasing pressure on universities, to shift from mainly teaching and performing research, and adding a Third Mission (TM), portrayed as a contribution to society. Universities engaged in TM activities are becoming engines that contribute to the social, economic and cultural development of the regions in which they operate, by transferring knowledge and technologies to industry and to society at large. Thus, the TM refers to an extensive array of activities performed by higher education institutions which seek to transfer knowledge to society in general and to organizations, as well as to promote entrepreneurial skills, innovation, social welfare and the formation of human capital. Furthermore, it concerns the development of science and society through various forms of communication and social engagement. These activities are usually classified in relation to research (technology transfer and innovation), to teaching (lifelong learning/continuing education) and to university engagement in social and cultural life¹.

In Morocco, public administrations and other institutions have begun to establish supporting measures to create favorable environments for entrepreneurship at the university level and motivate the interaction between these organisms and universities. Admittedly, there is a growing awareness² among Moroccan universities of the importance of the so-called “third mission” (Hamdani & Koubaa, 2020), but it is most certainly far too early to talk about a “conversion project”.

BOX 2. ENTREPRENEURIAL UNIVERSITY

Entrepreneurial University is defined as a university that have the ability to innovate, recognize and create opportunities, work in teams, take risks and respond to challenges, on its own, seeks to work out a substantial shift in organizational character so as to arrive at a more promising posture for the future. In other words, it's a natural incubator that provides support structures for teachers and students to initiate new ventures: intellectual, commercial and conjoint³.

¹ Based on Laredo (2007), Predazzi (2012) and Compagnucci & Spigarelli (2020).

² “[...] universities do not declare that the aim is to become entrepreneurial but rather they are aware of the importance of entrepreneurship and entrepreneurial initiatives and they are trying to set actions to respond to government directives and market needs, thus go with the flow [...] entrepreneurialism is considered in Moroccan public universities’ strategic plan. Ambitious actions were set to implement for the quadrennial 2015–2018 (Hamdani & Koubaa, 2020).

³ Based on Clark (1998), Kirby (2002) and Etzkowitz (2003).

The purpose of this study is to shed light on important gaps concerning the strategic approach of universities in building entrepreneurial ecosystems in a lower middle-income emerging country like Morocco (The World Bank, 2018), while the ultimate goal is to suggest perspectives of improvement of the existing strategies of universities to deploy their third mission activities such as entrepreneurship education, entrepreneurial culture and knowledge spillovers programs with future research venues and adequate methodologies to conduct these activities while considering their regional effects in higher education institutions (see Figure 1).

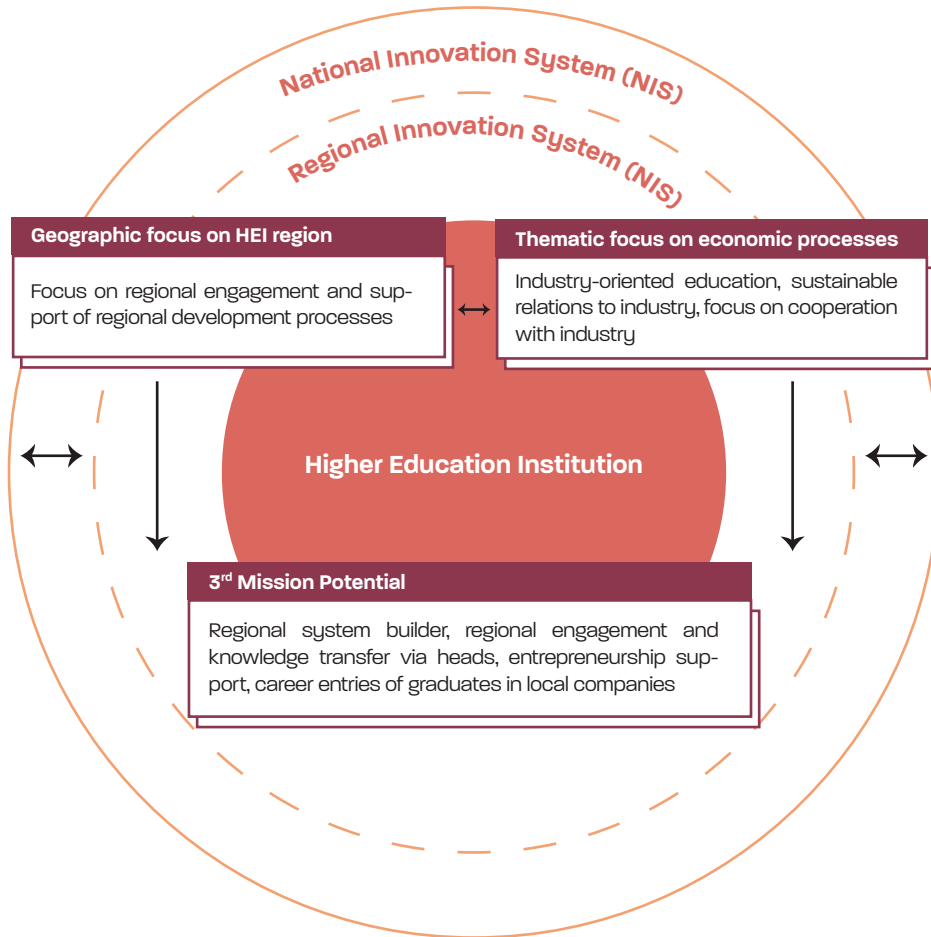


Figure 1. Potential for “Third mission engagement” of higher education institutions (Jaeger & Kopper, 2014)

This means, most importantly, laying the groundwork for the establishment of a model of entrepreneurial universities with an ecosystem approach in Morocco to join the third wave of universities transformation in emerging economies knowing that several countries – like Turkey (Temel *et al.*, 2015), Mexico (Rehák *et al.*, 2020) and Brazil (Dalmarco *et al.*, 2018) – have introduced programs intended to develop or increase their competitiveness through the development of entrepreneurial universities aiming to simultaneously creating knowledge, skills and competencies, as well as new ventures and jobs. This is indeed a major challenge for universities that are keen to align with government policies, respond to regional needs and demonstrate impact.



Considered as a fundamental tool for fostering resilient economies based on entrepreneurial innovation (Roundy *et al.*, 2017, Stam & Spigel, 2017), entrepreneurial ecosystems have received increasing attention from scholars, highlighting the importance of structural, cultural and social factors of entrepreneurship (Stam & Spigel, 2017; Theodoraki *et al.*, 2018) and their contextualization through the local specificities of places and cities (Audretsch & Belitski, 2017). Therefore, an ecosystem approach was adopted to first understand the theoretical role of universities in regional entrepreneurial ecosystems with an exploratory phase by organizing semi-structured interviews and focus groups with different actors of the regional ecosystem including university presidents, support systems managers, researchers, investors, banks representatives and policy makers ; and then to grasp the practical effect of university entrepreneurial ecosystems (UEEs) conditions on the innovativeness of student entrepreneurs. The empirical study was conducted in Marrakech-Safi region (see Figure 2).

Description	
Ecosystem approach	An ecosystem approach enables a broader understanding of organizations strategies as well as the role of the context on the entrepreneurial dynamics. It requires a holistic and systemic view rather than focusing on a few dimensions of the exchange. This makes it possible to grasp the co-evolution and mutualistic interdependence among a complex nested system of diverse organizations and actors, by avoiding any (over)simplification of the phenomenon through a more realistic and consistent view ⁴ .
Qualitative methodology	Our study is multi-method in focus, involving an interpretive, naturalistic approach to our subject matter. This means that we study things in their natural settings, attempting to make sense of, or interpret phenomena, in terms of the meanings people bring to them. This involves the studied use and collection of a variety of empirical materials that describe routine and problematic moments and meanings in individuals' lives ⁵ .
Qualitative methodology	<ul style="list-style-type: none"> • A Focus group was organized on December 8th, 2020, with diverse entrepreneurial ecosystems researchers, practitioners, and policy makers to exchange insights and inspiration about the status of entrepreneurial ecosystems as a phenomenon, and to which extent it is emerging in Marrakech-Safi region. This focus group was organized in a format of hybrid webinar, and it was hosted by Mohammed 6 Polytechnic University. • Semi-structured interviews: once the contextual regional setting of universities was clarified by the speakers of the focus group, we selected the three universities established in the region of Marrakech Safi as an official population of this study. Then, as a second part of the explorative phase, we conducted a series of three semi-structured interviews with managers and decision makers from these universities: <ul style="list-style-type: none"> - Prof. Fatimzohra Iflahen: Vice president in charge of innovation and entrepreneurship at Cadi Ayyad University (Marrakech) ; - Mr. Hicham El Habti: President of Mohammed 6 Polytechnic University ; - Prof. Ali Moujtaid: Head of entrepreneurship and innovation department at Private University of Marrakech. <p>Interviewees spoke about the initiatives launched by each university to promote entrepreneurship and innovation; notably, the ongoing initiatives of building UEEs specific to each university, and how it reflects on the contribution of these universities to the social and economic development in the region of Marrakech-Safi, as a potential outcome of the accomplishment of university third mission.</p>

Table 1. Methodological elements

⁴ Based on Acs *et al.* (2017), Isenberg (2010), Stam & Van de Ven (2021) and Theodoraki *et al.* (2018).

⁵ Following Denzin & Lincoln (2005) instructions.

Universities in Morocco have been experiencing a significant change through a series of reforms under the High Directive of His Majesty the King Mohammed 6, such as the National Education and Training Charter (1999) and the Emergency Plan 2009-2012 for the overhaul and modernization of the education and training system, followed by the Strategic Vision of Reform 2015-2030 to infuse greater quality and equality in Moroccan schools (CSEFRS, 2015). This urged universities and higher education institutions to take a set of actions in terms of change management, support and involvement of university structures, stakeholders and representative bodies (staff, councils, collaborators, etc.) to reach the critical size needed to create universities of multidisciplinary excellence with more substantial research structures, to create a new operating synergies between researchers and practitioners in key economic sectors such as agriculture, renewable energies and telecommunications.

BOX 3. UNIVERSITY ENTREPRENEURIAL ECOSYSTEM (UEE)

University Entrepreneurial Ecosystem (UEE) is an interconnected tool to develop students' venture within the university framework. Nowadays, a university not only plays a vital role in entrepreneurship development, but also develops a systematic process where talented graduates invent, innovate and commercialize their ideas. The core of UEE is the start-ups of the students which discusses to exertions undertaken by university to generate, develop and nurture, promote and commercialize venture within a university framework. A university entrepreneurial ecosystem is defined as multidimensional enterprises that support entrepreneurship development through a variety of initiatives related to teaching, research and outreach. The concept of UEE proposes interconnectedness with all the stakeholders, organizations, institutions, and entrepreneurial processes by the dynamic university system which coexist to connect, mediate and govern the performance of the entrepreneurial environment⁶.

More recently, in a report entitled "Higher education reform: Strategic perspectives", The Higher Council for Education, Training and Research (CSEFRS, 2019) strongly advocates making the university a regional hub and argues that "through the training of the laureates and the production of research, the university contributes to the progress of the nation, whose impact must be visible at the level of its region of establishment. The university must thus link its development with that of its region, in order to first radiate at the level of its territory". This echoes the project of Advanced Regionalization (2000) undertaken by the Government of Morocco in the last twenty years which aims at strengthening the region's role in the Kingdom, which implies major changes in the partition of powers between central government and local actors. Today, regionalization agendas are executed by regional centers of investment (CRIs) in close collaboration with local stakeholders both in the public and in the private sector. It is against this background that CRI Marrakech-Safi is actively partnering with universities⁷ to meet the social and economic challenges in the region while encouraging a bottom-up approach and synergy by engaging all stakeholders (professors, students and administrators) in line with the growing paradigm of university entrepreneurial ecosystem (UEE), including entrepreneurship education, incubation, technology transfer, internationalization, regional implications and partnerships with industry and government.

⁶ Based on Shill *et al.* (2020).

⁷ In January 2020, a partnership with Université Cadi Ayyad (UCA) for supporting the economic inclusion of youth, and in November 2020, a collaboration with Université Mohammed VI Polytechnique (UM6P) to assist the entrepreneurial fabric, to name but two.

Figure 2. Marrakech-Safi region: Key figures



	Population : Urban/Rural	Surface (km ²)
Marrakech	1 330 468	2 625
Chichaoua	369 955	6 872
Al Haouz	573 128	6 212
ELKela des Sraghna	537 488	4 193
Rhamna	315 077	5 877
Essaouira	450 527	6 355
Safi	691 983	6 351
Youssoufia	251 943	2 919
Marrakech-Safi	4 520 569	41 404

The Marrakech-Safi region, located in the center of the country and encompassing part of the High Atlas, covers an area of 39 167 Km. Its capital, Marrakech, is the second most populous prefecture of the seventy-five Moroccan provinces and prefectures, with more than 1.5 million inhabitants in 2020. This seventh region of the new Moroccan administrative division consists of a prefecture, Marrakech, in more than seven provinces. These are the provinces of Safi, Al Haouz, El Kelâa des Sraghna, Essaouira, Chichaoua, Rehamna and Youssoufia. The urban population represents 44% of the total population of the region in 2020. The latter is made up of 255 municipalities of which 27 are entirely urban. Twenty of the 228 rural municipalities each have an urban center.

- 1st contribution to the added value of the tourism sector
- 2nd contribution to the value added of the extractive industries and construction sectors
- 3rd source of national wealth
- 3rd lowest unemployment rate in 2018
- 3rd largest productive and second largest exporter of artisanal products in 2015, after having been 1st for years

CONTRIBUTION TO GDP

- 11,4% (2017) Share in wealth creation
- 2,4% (2010-2017) Growth rate

PUBLIC INVESTMENT

- 9,7% (2019) Share in GB* investment
- 10% (2019) Share in PIE** investment
- 8% (2017) Share in private State land mobilised for investment

SOCIAL

- 7,1% (2018) Unemployment rate
- 4,6% (2014) Poverty rate

GDP PER CAPITA

Region : 26.197
National : 30.510

3rd region of Morocco in terms of wealth and 11th in terms of GDP per capita; with a contribution of 11.4% to global GDP in 2017

POVERTY

Region : 4,6%
National : 4,8%

6th less poorest region in Morocco but remains the 3rd most vulnerable to poverty

UNEMPLOYMENT

Region : 7,4%
National : 9,4%

The Marrakech-Safi region is ranked 3rd in terms of the level of unemployment which remains below the national level, at 7.1% against 9.8% in 2018

GDP PER SECTOR

	Region	National
Primary :	13,6%	13,6%
Secondary :	21,1%	29,4%
Services :	65,3%	57%

* GB : Global budget

** PIE : Public Institutions & Entreprises

Source : DRETLEMS⁸ (2021)

The regional GDP in Marrakech-Safi is dominated by the tertiary sector (mostly tourism), while regional employment is driven by the agricultural sector. Services and tourism are largely concentrated in the City of Marrakech, while industry is concentrated around the urban centers of Safi, Marrakech, Benguerir and Youssoufia. Agriculture employs 45% of the population. The region represents 13.3% of the total Moroccan population, that is 4.8 million inhabitants in 2020. Approximately 1.2 million young people, namely 26% of the population of the region, are enrolled in one of the cycles of education (preschool, school or higher) or in one of the vocational training courses. Higher education in the region is represented by Cadi Ayyad University, one of the leading public universities nationally and regionally. Since its creation in 1978, it has ensured that it plays its full role in the creation and transmission of knowledge, and that it stands out in research and innovation. Over the years, it has developed other structures that have strengthened the higher education landscape. For the year 2019-2020, there are 83 504 students in the normal cycle, 4 022 in the Master's program and 2 800 in the doctoral program, representing a total student population of 90 326, spread over six faculties and eight other regulated access institutions attached to the same university⁹.

⁸ Monograph by Regional Directorate for Equipment, Transport, Logistics and Water of Marrakech-Safi, available (in French) on the Ministry website: www.equipement.gov.ma

⁹ Information extracted from the report (in French) entitled "Marrakech-Safi. Cadre de performance 2015-2018 du suivi de la vision stratégique à l'horizon 2030", by Conseil Supérieur de l'Éducation de la Formation et de la Recherche Scientifique & Instance Nationale d'Évaluation du Système d'Éducation, de Formation et de la Recherche Scientifique, 2020.

SOLUTIONS

Since entrepreneurship has become the relief to deal with economic crises, promoting entrepreneurship within university and developing measures to support entrepreneurial activities are now an imperative necessity (Audretsch & Belitski, 2017; Compagnucci & Spigarelli, 2020). A new priority implies a process of the transformation of university's short-term goals into the development of its third mission activities and needs to be implemented through appropriate design and strategic planning, defining the activities and services to implement based on its resources and environment characteristics, such as the regional characteristics that has an impact on the university's vision and initiatives as well as contextual peculiarities that influence how a university reacts. Therefore, each university must align its strategic plan with regional characteristics.

The results obtained from interviews and focus groups emphasize the crucial importance of the social dimension in the study of entrepreneurial ecosystems, including structural (ties, stability, and configuration), cognitive (shared goals and knowledge, shared narratives), and relational (trust, norms, members obligations, identification) aspects of the problem. Furthermore, the facts on the ground show that entrepreneurial ecosystems in Morocco are still nascent and in consolidation. This is also recognized in the Global Entrepreneurship Monitor report (GEM, 2019) stating that there are still shortcomings in Moroccan entrepreneurial ecosystems related to governance issues (lack of structure and transparency, redundancies, etc.) which must be acknowledged and dealt with, globally and regionally, to provide a stronger foundation for future entrepreneurial ecosystems.

Interviewees and participants also stated that initiatives launched by their respective universities to promote entrepreneurship and innovation – notably the ongoing initiatives of building UEEs that are specific to each university – should open up opportunities for (more) economic development in the region of Marrakech-Safi as a potential outcome of the accomplishment of university Third Mission. They also indicated that scientific research activities and projects conducted within the university should not only be converted into publications, patents, and intellectual properties, it should also be credited as reliable source of innovative ideas that can be held by students and supported by all the actors of the university entrepreneurial ecosystem. This will give student entrepreneurs the chance to turn more quickly and effectively inventions into marketable innovations.

Overall, our study clearly show the crucial importance – if not the imperative – for relevant stakeholders in Marrakech-Safi region to put knowledge-based innovation at the heart of universities' vision and strategy where they are stressed to take all steps, accomplishing their third mission to promote innovative, competitive, and sustainable entrepreneurship in the region starting from their internal UEEs (see Figure 3). Regional university's pathways to entrepreneurial transformation may be long, but they must be well-paved and rooted in a coherent vision of the regional ecosystem as a whole while paying close attention to each of its components.

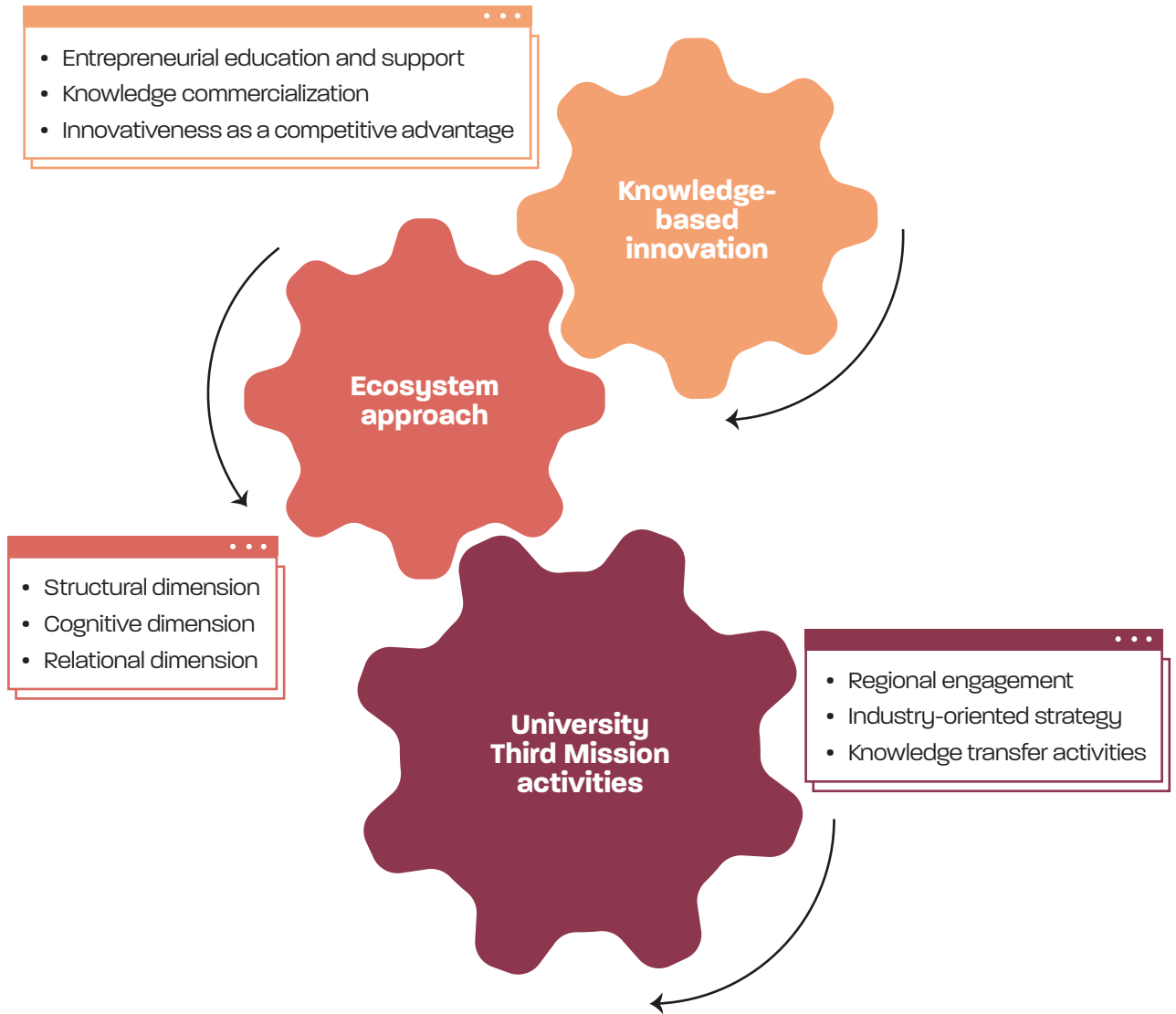


Figure 3. Towards a Third Mission of the university in Marrakech-Safi¹⁰

Source : the author

¹⁰ A more detailed description and discussion can be found in our Doctorate of Business Administration thesis entitled "From Knowledge-flow to Intellectual Capital Assets in University-based Entrepreneurial Ecosystems", jointly supervised by Prof. Alessio Castello (International University of Monaco) and Prof. Christina Theodoraki (Toulouse Business School).

GOODA

The present study shed lights on the challenges faced by universities in playing the roles of their third mission on a regional scale. This involves the contribution of universities in the regional economic growth in addition to their traditional missions (second mission “research” and first mission “teaching”), specifically in the region of Marrakech-Safi (Morocco), mainly due to the following reasons:

- Presence of the target population (student entrepreneurs in universities) ;
- Regional economic potential for employment creation for the target population ;
- High level of interest and mobilization of local entrepreneurial ecosystem stakeholders.

Our study presents potential contributions on both a theoretical and managerial level:

At the theoretical level, this study contributes to the debate on universities strategic perspectives in terms of the adoption of the ecosystem approach to accomplish their third mission by generating knowledge-based innovation through the stream of student entrepreneurship, which seeks to understand fundamentally the way in which these strategic perspectives are chosen. The contextual dimension is also omnipresent in this study and shows how – in the case of Marrakech-Safi region – this research agenda can be improved and put in place.

At the managerial level, this study highlights the need to consider the crucial importance of the strategic shift in the ecosystem approach for universities to transform the abundant university knowledge flow into a competitive advantage for the benefit of student entrepreneurs in the region of Marrakech-Safi and beyond.

The expected practical contributions of this study are mainly addressed to university executive boards members. With the right governance, this can result in making roadmaps and best practices suggestions that can be used by universities to potentially improve their service offer and contribution to the regional business ecosystem ; first, by shifting (internally) from the “managerial” to the ecosystem approach, to integrate holistically all the stakeholders ; and second, by building sustainable university entrepreneurial ecosystems, not only as tangible assets (physical infrastructures) but also as intangible assets and values. In this regard, universities can be well established on the accomplishment of their third mission as an active strategic partner in the regional business ecosystem, by adapting the human capital to the local needs and extending the regional job market to unexplored horizons, through the generation of an impactful knowledge-based students ventures.

This, as a matter of fact, is very consistent with the recommendations made by The Higher Council for Education, Training and Research in its latest report: “European universities have recently begun a shift from the Humboldtian model, founded in the 19th century, to invest in new missions other than training and research. Today, we are mainly talking about a third mission of universities, which has emerged in recent decades and which directs them towards the *entrepreneurial model*. In this sense, the Moroccan university should encourage within it the creation of organizational structures capable of helping student researchers carrying out new business ventures” (CSEFRS, 2019). This is also recognized in the New Development Model calling for a “new generation of universities”, “deeply rooted in their region and open to the world”, “student-centered” and located “at the heart of the territorial ecosystem” (SCDM, 2021). Today, more than never, to quote Prof. Burton Clark, we are convinced that “being entrepreneurial is no longer a choice if the university wants to grow up in quality and reputation¹¹” and we hope that this exploratory work will contribute to furthering reflection on this issue.

¹¹ Clark (1998) as cited in Hamdani & Koubaa (2021).

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**EMERGING
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