Chapter 7

Developing a local innovation ecosystem through a university-coordinated innovation platform: The University of Fort Hare

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Introduction

Although universities have existed for hundreds of years, it is a common phenomenon that societies have come to question to what extent and with what success universities have engaged with society and contributed to human development (Thakrar 2015). Worldwide developments such as globalisation, the digital revolution, policy changes towards university autonomy and, internally, pressure from students to reduce fees and adopt curricula to local needs and contexts, impact on universities. It is within this context that universities need to develop mechanisms through which they can aim to achieve their core missions coherently (Brennan et al. 2004; Grobbelaar & De Wet 2016; Grobbelaar et al. 2016; Schreuder 2013). This reality is also acknowledged in the 1997 South African White Paper on higher education (DoE 1997) which states that universities play an important role in social and cultural development and should contribute to developing a new social order and learning society. This position was bolstered in the *National Development Plan* which acknowledged universities as a key driver of development in the knowledge economy (NPC 2011).

Within this context, the University of Fort Hare (UFH) is at the centre of the question as to how universities in South Africa could respond to transformational challenges. Established by British missionaries in 1916, the university has, over its 100-year history, been concerned with the development of African people. The UFH's development and rural improvement initiatives can be traced back to the 1920s. The university has also produced an impressive list of leaders (e.g. Nelson Mandela and Govan Mbeki) who have shaped the transformation landscape in South Africa and Africa at large (Thakrar 2015).

During the 1990s, South Africa underwent large-scale political change during which the process of transforming UFH from a Bantustan-defined university was initiated. Changes included new management structures, and the incorporation of the East London campus of Rhodes University in 2004. Infrastructure for the coordination of research can be traced back to a Senate Research Committee in the 1980s, but it was only in 2004 that the research and development mission really started to receive increased attention (De Wet 2013). Since 2007/2008, dramatic changes in research output and doctoral degrees awarded have been in evidence (ibid.).

More recently, following close to 20 years of turmoil, the university's *Strategic Plan 2009-2016: Towards our centenary* (UFH 2009) was developed which envisions a 'development role' for the university and emphasises that context and impact on the immediate environment should play a greater role in research programmes. However, up until 2016, the UFH had made little progress in community engagement which led to strained relationships and a breakdown of trust between the university and communities in and around the town of Alice where its main campus is situated (Thakrar 2015). The university has therefore been confronted by the questions: what has the institution done with all the knowledge extracted from the surrounding communities over the years? And why is the impact of its existence not evident in the immediate environment?

In increasing its focus on these issues, the university began to reconsider its relationship with its surrounding communities, particularly in terms of the uptake of research towards improving livelihoods. This prompted a series of meetings with local traditional leaders in the Alice area which led to the establishment of a Transformation Steering Committee, and the signing of a memorandum of understanding between the university and traditional leaders in April 2016.

This chapter focuses on the UFH as a case study of the development of mechanisms and tactical moves for managing the emergence of an innovation ecosystem organised around a university-supported multi-stakeholder platform. Although the chapter focuses on the Fort Hare context, the proposals made may be applicable to how other universities design support infrastructure and mechanisms to orchestrate emergent, engaged scholarship activities. Core sources of data and learning that underpin the suggestions made in this chapter for a framework that maps design choices for a multi-stakeholder platform include interviews and engagement activities with local

communities and traditional leaders surrounding the Alice campus, as well as with university staff and leadership (the latter to achieve buy-in and agreement).

A brief review of the literature

Pathways to development impact for universities

‘Innovation for Inclusive Development’ is related to various dimensions of inclusion where marginalised individuals are not only seen as customers but as partners and co-producers of value (Foster & Heeks 2015). This concept has implications for inclusion in various stages of the innovation process, such as framing challenges and the problem statement, the process of developing a new innovation (e.g. service or product), the adoption or absorption of innovation (that may have development outcomes), and economic inclusion (Dutz 2007; Foster & Heeks 2013; George et al. 2012; Heeks et al. 2014; Swaans et al. 2014). A growing body of knowledge is exploring how this concept finds expression in the university context where the university plays a more important role in local and regional development.

The expectation that a university should play a role in a country’s development and be included in development planning is not new (Brennan et al. 2004). This has taken many shapes and forms such as the Soviet model of the university as an *‘instrument of the state’* where the focus was on ‘manpower development’ and the ‘political socialisation’ of an elite (Castells & Cardoso 2005), or as *‘industrial development’* as illustrated by Japanese universities that assisted government in modernisation and industrialisation. The *‘entrepreneurial university’* has been used to describe the role of universities such as Stanford, Massachusetts Institute of Technology, Oxford and Cambridge as engines of growth and industry formation (Clark 2004; Cloete et al. 2011; Etzkowitz & Leydesdorff 2000; Grobbelaar & De Wet 2016; Jones 1995).

In parallel to the concept of the ‘developmental university’, the ‘engaged university’ movement has emerged. This has established thinking that engaged scholarship entails (1) embedding engagement in the missions of the university, (2) supporting evidence-based practise, and (3) achieving mutual benefit for the stakeholder groups involved (Bringle & Hatcher 2002, 2014). Engagement is a dynamic process, highly dependent on partnership that evolves from superficial to more institutionalised approaches and takes place at various levels in the university (Bender 2008; Denison et al. 1996; Van De Ven & Poole 1995).

A conceptual framework for the development(al) university considers the context, drivers of focus and changes in control, governance and university functions, with a view to defining a potential development pathway. Core principles of the engaged university were integrated into this framework in terms of engagement with the community, engaged scholarship and the goal of mutual benefit and co-creation.

Innovation system perspectives and innovation platforms

The ecosystem perspective utilised in this chapter can be argued to be useful in taking a systems view on innovation when considering a multi-stakeholder platform as the unit of analysis. Where the traditional innovation systems framework mostly considers components and innovation functions (Hekkert et al. 2007), the ecosystem approach considers the evolutionary nature of the ecosystem. The innovation

Figure 7.1: The dynamics of the development pathway framework

Source: Grobbelaar & De Wet (2016)

ecosystem perspective was developed in a business context and maintains that certain actors create whole ecosystems, usually around certain products (Iansiti & Levien 2004; Moore 1993). Ecosystem leaders, often a large firm, establish the ecosystem around a platform – such as a technological, supply-chain or industry platform – with leadership provided through concertation and orchestration of platforms (Van Rooyen et al. 2013). The ecosystem's evolution depends on interconnectedness and interdependence between actors, which play three functional roles, namely as initiators that develop the ecosystem, specialists that add value to a central platform, and the adopter that co-develops the platform (Tucker et al. 2013).

Furthermore, the innovation ecosystem framework attempts to make some distinction between innovation events and innovation structures, which include economic agents and the relations between them, and non-economic issues such as technology institutions and culture (Mercan & Götkas 2011). This framework also goes to some length to include the evolutionary features of interactions between individuals, their relationships and relations to the environment (Durst & Poutanen 2013). Here, a central concept to the concertation and coordination of an ecosystem is complexity theory principles, which have been used to explain the process of emergence of ecosystems and interaction around a principle of self-organisation (Gawer 2014).

It has also become commonplace in innovation programmes in developmental contexts to not only focus on technology-push drives but to develop multi-stakeholder innovation platforms (Sanyang et al. 2015; Schut et al. 2016). Innovation platforms have consequently been applied in a vast range of areas to facilitate multi-stakeholder engagement and innovation (Bullinger et al. 2012; Duncan et al. 2013). Such platforms are multi-stakeholder partnerships where actors engage to identify problems and provide insights into the biophysical, technological and institutional dimensions of a challenge (Adekunle & Fatunbi 2012; Esparcia 2014; Tomekpe et al. 2011). Multi-stakeholder engagement helps stakeholders to realise their interdependence and collective action in problem-solving and to reach objectives. Platforms also place a strong emphasis on a systematic and iterative process of learning through reflection, and a space to negotiate power dynamics (Ngwenya & Hagmann 2011), where exchange of knowledge and learning complements the capacity to innovate among the actors. This is achieved by continuously identifying and prioritising problems and opportunities and experimenting with social and technical options (Dror et al. 2015).

In search for innovation platform design principles, ecosystem success factors straddle natural, structural, organisational and cultural

factors, and include effective resources and resource management, governance issues, effective partnering and partnerships, and the management of people and technology (Boudreau 2007; Durst & Poutanen 2013; Gawer & Cusumano 2016; Madsen & Cruickshank 2015). Autio and Llewellyn (2014) explore the implication of ecosystems for innovation management and develop an overarching innovation management that outlines factors such as control mechanisms, value creation dynamics, architectures, various levels of strategy, and capacity development factors. Here, design principles include the definition of architectures to explore the process of ecosystem creation. This approach draws on core literature of lifecycles, network structure and network management principles (Gawer 2014; Gawer & Cusumano 2016). These architectures include: (1) *the physical platform and technology architecture* which sets out design principles of shared resources and has implications for the spaces, places and accessibility of opportunities through platform design; (2) *activity architecture* which relates to the composition of participants and structure of the emergence of activities within the ecosystem environment; and (3) *value architecture* which is an interplay between the physical and activity architectures, and defines the value dynamic (ibid.).

Figure 7.2: *The university as orchestrator of an innovation ecosystem*

Analytical framework: Nurturing an ecosystem

This section links up with the university transformation pathway discussion above with design considerations for a university-coordinated intermediary platform to facilitate and nurture the development of an innovation ecosystem that facilitates development outcomes for local communities. Following the platform ecosystem design framework, this chapter approaches the discussion from three perspectives, namely (1) contextual considerations and design requirements, (2) distinguishing between top-down creation of architectures and facilitation, and the emergence of bottom-up activities, and (3) governance and orchestration through platform and ecosystem architectural considerations.

Table 7.1: Platform design and ecosystem orchestration framework

Dimensions	Design considerations
Top-down activities: Institutional design and mechanisms	
Transformation pathway and institutional changes	<ul style="list-style-type: none"> • External and internal barriers to a development role • Changes in institutional control and governance • Focus and form of teaching mission • The form and focus of the research mission • Form and focus of engagement mission
Facilitating emergent activities: Platform-level design framework	
Activity architecture	<ul style="list-style-type: none"> • Partnering and partnership management • Platform engagement and facilitation • Conflict resolution and dealing with power dynamics • Structure of networks and platform composition considerations • Network and platform evolution planning • Guiding the search, visioning and planning • Demand articulation
Physical and technology architecture	<ul style="list-style-type: none"> • Physical design considerations • Resource allocation and availability • Actor capabilities and capability development; knowledge skills and interests • Supporting entrepreneurial activity
Value architecture	<ul style="list-style-type: none"> • Value creation and capture, and the interplay between activity and technological architecture • Basis of value creation and appropriation of value • Network effects to boost value creation benefits • Collective experimentation, participation and co-creation of knowledge and value

The analytical framework as shown in Table 7.1 explores top-down design considerations and platform architectures to facilitate bottom-up activities and emergence of locally relevant solutions and innovations for the local environment through platform design principles.

Case study: University of Fort Hare as orchestrator of an inclusive innovation ecosystem

The transformation pathway framework proposed in this chapter provides a framework against which to consider the complexities of facilitating the attempts by UFH to reposition its core foci. It is proposed here that critical lessons can be learned that will take the developmental model to new levels of inclusion and complexity – specifically, how this may contribute to facilitating emergent activities within the university for the benefit of surrounding communities.

Top-down activities: Institutional design and mechanisms

After a decade of uncertainty and sustainability challenges over the 1994–2004 period, UFH started to settle down and align itself to be better organised. This can be seen through the restructuring of the faculty system, investments in research administration and capacity development, better financial control, and the appointment of, for example, a Dean of Research and a Deputy Vice-Chancellor of Academic Affairs. Since 2007, there has been a dramatic increase in all forms of accredited research outputs (from 64 units to 208.57 units) and doctoral degrees awarded (from only 10 in 2007 to 47 in 2012 – a more than 700% increase) (Grobbelaar & De Wet 2016). A number of changes in the forms and focus of core missions have taken place and are briefly discussed below.

Over the 2009–2016 period, the link with community-based projects has proved important in the research function. This has allowed researchers to tap into national and international funding sources. Many of the projects that received funding had a community focus and helped to attract funding from the South African science system. A further measure implemented was to set minimum research output targets for senior researchers. Furthermore, an annual research budget was created to make provision for funded research activities and provide seed funding for capital expenditure. The university has 19 associated entities such as institutes, centres and units – all of which have strong development agendas and to which funding is allocated for development

projects. Moreover, the university attempts to strengthen and improve the management of more sustainable networks and relationships with both international and local communities. This has included the establishment of the International Relations Office, which facilitates mobility and exchange programmes, and a scholarship programme which benefits a large number of postdoctoral and visiting fellows.

The university provides support to staff for engagement with industry and the research community through the Tech-Transfer and Intellectual Property function, with a regional Tech-Transfer Office assisting with the protection of intellectual property and the sourcing of seed funding. The Technology Innovation Agency has also provided seed funding to a number of patents, which are being considered for potential commercialisation. The Senate Technology Transfer and Innovation Committee, established in 2013, monitors the development activities, and relationships are governed by a clear code of ethics, which falls within the domain of the University Research Ethics Committee. Progress on development is actively monitored by these structures, which also bring together the staff who work on developmental issues – although this is still at an early stage. Unfortunately, the system is still fragmented and there is a lack of facilitation and governance. Clearly, changing the existing culture is taking time.

Despite a range of measures such as establishing a Directorate of Community Engagement and a Deputy Dean of Community Engagement in each faculty, communities' perception that researchers exploit them and do not plough back findings into the community remains a core issue. This is acknowledged in the university's policy on community engagement and the university's approach is to refocus its research philosophy towards a strong participatory approach with an emphasis on sustainability. Capacity development is taking place through workshops and teaching on appropriate means to enter community spaces.

The university's Strategic Plan includes the integration of 'knowledge in action' into the teaching and research activities of the university (UFH 2009). This is done through the integration of local context and experiences into core curricula and the development of case studies grounded in the local environment. The case studies enrich teaching and curricula through improved understanding of practical implementation, while research and projects are influenced by these case studies as they are rich and agnostic of local context.

A focus on capacity development has resulted in some prioritisation processes undertaken by the university, with a focus on vital scarce

skills disciplines – namely science, agriculture and education. This has received impetus through nine research niche areas that specifically state the requirement of transdisciplinary teams and research, which is intended to assist in the firm anchoring of projects in community-based involvement. These initiatives are intended to drive the development of UFH to become more knowledge- and research-focused as an institution.

Engagement support provided in the Faculty of Science and Agriculture has a rich history through project research and related engagements. The Directorate of Community Engagement established in 2009/2010 aims to foster a positive relationship with researchers and offer capacity development workshops on whom to approach and how to enter community spaces. Each faculty has a deputy dean who is tasked with a community-engaged portfolio, and a quarterly report is submitted to the Senate Committee on Community Engagement. Nevertheless, in spite of all these measures, the accusation is made that researchers enter communities to gather data, formulate theories and findings, and that students graduate and staff deliver papers at conferences all over the world, but never take the time to drive uptake of findings in communities.

Engagement between researchers and stakeholder groups remains fraught and requires a specific focus. For one, power relations offer a challenge, as do the unrealistic hopes and expectations around communities' immediate material environment. Special attention must be given here to respect cultural customs and treat participants with dignity. Although the university's policies are highly sensitive to these matters and to the fact that communities are trapped in poverty and desperation, it also acknowledges that these individuals should be empowered to make a difference to their own situation. This factor is a key aspect of how engagement and programmes could be designed around the forms and focus of engagement. To this end, the university has created an innovation platform initiative. The next section provides greater detail regarding the design considerations for the establishment of this platform, with a core focus on how the university might coordinate the emerging local innovation ecosystem.

Facilitating emergent activities: Platform-level design framework

Already in 2008, an agricultural intermediary development platform was envisioned that would engage core stakeholders in creating an environment that is conducive to improving training and research, and

to partnering with local and international stakeholders. The initial platform goals were mostly focused on economic outcomes, namely (1) to enhance the efficiency with which agricultural production takes place in the region, (2) to create market opportunities for excess production, and (3) to engage in a range of agricultural value-added activities for achieving increased profits. The intention was that the platform would be sustainable through community inputs and labour, and help understand local challenges, while postgraduate students would engage in ongoing research projects. Societal impact would be achieved through the Rural Education Access Programme training and capacity development programmes and projects. Unfortunately, the Programme, although it had institutional support at UFH, never materialised. Important lessons were learned through this failed initiative:

- Expectations of communities need to be managed as they may become disillusioned, especially if economic outcomes or material changes to living conditions are not achieved;
- The development of platforms and continued engagement exceed the time available to a single researcher or postgraduate student;
- Usually research-to-action machinery does not exist which makes the implementation of findings difficult;
- Finding role players that embody the legitimacy, interest and knowledge to participate proved challenging; and
- The development of specific skills is required to ensure that the platform functioning and governance take place in an effective, orderly and sustainable fashion.

Another core lesson learned from the early attempt to facilitate and develop an intermediary was that the university's best chance for success would be to take a leading role in such a setup, and to create an environment around this platform where research activities could emerge and be fed back to community structures.

A renewed attempt to develop an intermediary structure for community engagement was revived in 2015. Here, trust had to be re-established with the community. To this end, a series of meetings were held with 11 of the local chiefs in the immediate vicinity of the Alice campus. A number of organising architectures were formed, including a steering committee, a research committee, and the memorandum of understanding between the traditional leaders (local chiefs) and the university mentioned earlier. The memorandum sets out the basis of

the agreement and how research will contribute to socio-economic development in response to the expressed needs of the community. The core architecture that was developed here was a multi-stakeholder, inclusive innovation platform. This was a novel project for the university and surrounding communities. The following sections unpack the envisioned design principles and goals of the platform. Although admittedly still aspirational, this provides some useful insights into how the UFH is aiming to achieve these objectives.

Activity architectures

In order to set goals for the platform, the university had to ensure that it considered the availability of expertise and other resources, the nature of research conducted in the university, and the needs and priorities of communities. The aim of the formation stage of the platform is to ensure that activities of the platform provide five academic faculties (each with a large range of projects) with a means to align research with local challenges. The main aim here is that researchers will not unilaterally decide on projects but gain input through alignment and mutual goal-setting with stakeholder groups.

The quintuple helix philosophy, which acknowledges the importance of various communities and their contexts, underpins the activity architecture of this platform. The systems included in the platform were the socio-cultural context (the community); the educational context (the researcher); the economic context (business); the governmental and non-governmental contexts (traditional leaders, local municipality, etc.) and the environmental context (specific actors, resources). Furthermore, the principles of 'Innovation for Inclusive Development' underpin the engagement of various communities in the whole process of developing and implementing solutions and innovations. This means that it aims to engage the community to be more than merely subjects of research but to participate in the uptake of findings towards the improvement of people's lives. The platform activities are supported through expertise and resources from the various stakeholder groups and by the articulated requirements of the community. With five faculties on campus, a large number of research projects exist that may be community-based, ranging from energy and early childhood development to entrepreneurship and social innovation.

From a practical perspective, and as far as platform engagement and facilitation are concerned, the dynamics of the functioning of the platform should include the following steps: (1) a researcher who wants

to do research submits a potential research problem to the secretariat of the platform; (2) a database of voiced community challenges is drawn upon and consultations held with relevant community members; (3) the engagement process assists in refining the problem statement in order to be realistic and to acknowledge contextual issues; (4) the final research proposal is submitted to the platform committee for recommendation to the Senate; (5) upon completion, the findings of the study are fed back to communities, and the potential of developing an initiative based on the findings needs to be considered (which would include a feasibility analysis); and (6) the platform and its programmes are regularly evaluated in order to ensure that it is effectively executing its objectives, and that real benefits accrue to the community. The platform needs to be supported by the following:

- Various actors from the quintuple helix need to be included and, crucially, remain included in the functioning of the platform. This means that some traditional participants in the innovation ecosystems (e.g. the university and local business as well as some non-traditional actors such as community structures) need to be included to ensure adequate representation.
- The governance rules of the platform need to be drawn up through consultation and need to outline the level of engagement, integration, responsibilities and actions of the various participants.
- Research objectives of community engagement research are informed by community needs.
- A clear and shared vision needs to be developed by participants regarding how research outcomes and transfer of technology will support community development. This should be utilised as a mechanism through which expectations may be managed.
- Through platform structures, such as the establishment of a steering committee and research committee, tangible and intangible resources need to be identified and made available.
- The platform participants need to ensure that research-to-action machinery is developed for the effective diffusion of ideas and technologies or processes, and to include community members as participants in the process.
- The need for good information and educational material must be informed by continuous research done on such projects.
- The transdisciplinary nature of these projects provides endless opportunities for researchers to contribute to societal change and the identification of future research topics.

Physical and technology architecture

The role of the university (which is a traditional actor in the system) is to play a non-traditional role in the innovation ecosystem; that is, to coordinate a platform for engagement over a prolonged period of time. Core to the engagement of the various actors is the development of appropriate capabilities to engage with stakeholders, perpetuating a dynamic that increases in depth and value over time. More specifically, creating a platform that could facilitate the development of an ecosystem requires novel ways of understanding and positioning research programmes within the community engagement premise. Here, researchers will need to gain an additional set of skills to engage more effectively with communities, while community structures will need to be developed to engage in processes that may be new to them. Such issues have implications for the type of learning, knowledge production and how scholarship may be approached in the university. Also, the interactions between actors may take on different forms. Here, the structure of networks and platform composition come into play. The various actors need to be involved by forming partnerships with formal and informal participants. It is necessary to ensure the interlinking of systems both in the community, and in terms of university committee structures and governance requirements. The formation phase requires setting in place various contractual agreements, as well as a supportive policy environment in the university.

The platform includes both hard and soft infrastructure, with initial planning for resource requirements, exploring the range of resources available through the quintuple helix actors involved, and finally securing resources. The functioning of the knowledge-sharing machinery of the platform requires human, financial and physical resources to successfully engage and implement projects. During the formation phase, it is important to set up feedback into curricula and teaching in the university, with appropriate knowledge of the range of skills and of the various actors who participate in the platform. The functioning of the platform will require effective two-way information flows to ensure continued strength of linkages and trust relationships. In summary:

- Clearly define and discuss roles, functions and expectations of each participant in order to envision and develop goals through participatory approaches and engagement.
- Secure institutional support through endorsed and accepted relevant policies and strategic research frameworks such as the

innovation and tech-transfer policy, the research uptake policy, and the community engagement policy.

- Embed the principles of the innovation platform in the institutional setup and the introduction of the principles of platform into the university's approach to scholarly community engagement. This entails awareness of contextual inclusivity to ensure relevant research and findings and the formulation of a communication research policy and strategy.
- Mixed media and social media strategies should be used regularly, taking into account the contextual requirements such as cultural and educational diversities and needs.
- Having a well-equipped Intellectual Property Office with support systems and staff, including a research information and data management system, is very important for the monitoring and evaluation of the research and development processes.
- A database of community needs should be developed to inform potential researchable needs of the community. This would ensure that needs and research programmes are connected and that unilateral decision-making by academics about projects is eliminated.

Value architecture

It is in the interplay between physical technology and activity architectures that the functioning of the platform is dependent on the development of appropriate institutions. A core issue during the setup phase of the platform is to ensure that the stakeholders will be able to develop and extract value from the platform. This is the only condition under which continued participation can be ensured and that such a platform may become sustainable. A number of considerations are outlined below.

The platform allows for synergies to exist between the core university functions, such as making use of case studies from research that are used to enrich teaching and curricula in order to provide relevant and practical examples. This also feeds back into research programmes that are informed by these case studies. Such studies are important to develop insight into contextual issues and participatory frameworks to increase the depth and quality of research programmes. Such activities also contribute to insights into the complexities of the environment and the challenges that accompany knowledge production and the dissemination of results. In particular, the development of trust and enduring collaborations are aligned through the formulation of the problem statement in close collaboration with various actors around mutual value creation:

- Buy-in from the university at the highest level has to be obtained in order to, among others, manage risks and potential conflicts. This may include the impacts of the platform on research agendas, scholarship development and methodological training.
- Through the functioning of the platform, co-production of knowledge takes place in a trans-disciplinary context with skills training, ethics and the monitoring and evaluation of development outcomes as important functions.
- The platform needs to contribute to the development of new institutions or the 'reinvention of the commons'. An example is how intellectual property could benefit the community collectively. It is in this regard that the governance framework in this case study is of crucial importance.

Conclusion

This chapter has presented an overview of the core design choices for a multi-stakeholder platform in order to create a university-orchestrated innovation platform towards nurturing a local innovation ecosystem. The chapter proposes how learning and scholarship can evolve to be embedded in this context. It can be concluded that ensuring a greater developmental role for the UFH includes a number of changes on the institutional and infrastructural levels. The development pathway approach was unpacked to describe efforts by the university to create an institutional environment conducive to a development role. In particular, drivers that affect the university's form and focus of functions, and changes in the form and focus of the three missions, were considered.

Flowing from the development pathway discussion (institutional-level changes), a platform intervention that is being implemented by the UFH was explored. Here, a new and diverse range of actors are engaged through the platform in order to contribute to a wider range of experiences, perspectives, histories and expectations. This contributes to the creation of spaces for engagement, collective experimentation and capacity development. It creates a mechanism through which the UFH and regional stakeholders may discuss needs and possibly incubate ideas.

Reflecting critically on the recommendations above, the effective and successful implementation of the suggested infrastructures depends wholly on their acceptance and implementation on an institutional level. This requires a change in the disengaged science model of the past

decade. Of crucial importance is that the sustainability of the platform is dependent on resourcing both soft and hard infrastructures, as well as learning from and sharing of tangible results and outcomes to be reached. This entails the development of monitoring and evaluation infrastructures and the sharing of success stories through appropriate channels. Finally, constructive and productive collaborations can only be achieved through ensuring formal and informal engagement processes, which are largely dependent on the development of appropriate capabilities in all actors.

Future research efforts may include a more detailed unpacking of development pathway factors and how these relate to infrastructural innovations such as intermediary platforms. Although the role of innovation platforms in the concertation and coordination of an innovation ecosystem has been investigated in the business context, its application in a university context remains under-explored.

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