

https://dspace.org/

Exploring the practices and success factors of an innovation hub in South Africa

Ntoi, Mihlali

2023
University of the Witswatersrand, Johannesburg
https://hdl.handle.net/10539/38533

Downloaded from a DSpace repository. https://dspace.org/

Exploring the practices and success factors of an innovation hub in South Africa

Mihlali Ntoi

540040

540040@students.wits.ac.za

A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business

Johannesburg, 2023

ABSTRACT

The research report explores the practices and success factors of an innovation hub in South Africa. The study aims to understand how innovation hubs operate within the South African technology ecosystem and the role they play within this environment. It follows a qualitative approach and focuses on a single case study. The data was collected through open ended interviews held with participants that included the hub management, hub employees and hub users of the identified innovation hub. The findings reveal that the innovation hub plays the role of being a community builder and a support structure provider for entrepreneurs. The key challenge they face is ensuring sustainability of the operation in the long run. Lastly, their success factors include leveraging the strategic partnerships they have entered into and providing a good hub experience. The study suggests that similar structures could be of benefit in, underserved areas to promote and further support entrepreneurship and small businesses within these areas. Funding models that are creative, sustainable and mutually beneficial should also be explored by innovation hubs with their funders and investors. The study contributes to the literature on the understanding of innovation hubs within the South African context.

KEYWORDS

Innovation, Innovation hub, technology hub, hub, success factors, practises, challenges, South Africa, incubator, accelerator, entrepreneur, entrepreneurship

DECLARATION

I, __Mihlali Ntoi _, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Name:Mihlali Ntoi Signature: 

Signed at ……Johannesburg……

On the …18.. day of ……June… 2023

DEDICATION

To those that walk with me, those that came before me and those that will come after, Camagu!

To my 12-year-old self, you can, you should and you did!

ACKNOWLEDGEMENTS

I would like to express my gratitude and extend a very special thank you to my supervisor, Professor Leona Craffert for the support, encouragement and patience throughout the research process. Her guidance and insightful feedback were invaluable in my thinking process have assisted me in reaching the finish line of my academic journey.

I would also like to thank my family and friends for their consistent encouragement, and support throughout my academic journey. Their support has been a source of motivation and inspiration for me.

Finally, I would like to express my gratitude to the organisation that was my research site for allowing me to conduct my research at their premises and all the participants who took part in my research. Without their willingness to share their thoughts, experiences, and perspectives, this study would not have been possible. Their contributions have been invaluable, and I am deeply grateful for their time and effort.

TABLE OF CONTENTS

LIST OF TABLES ix

LIST OF ACRONYMS xi

CHAPTER 1. INTRODUCTION 12

1.1 STATEMENT OF PURPOSE 12
1.2 BACKGROUND OF THE STUDY 12
1.3 RESEARCH PROBLEM 13
1.4 RESEARCH QUESTIONS 14
1.5 RATIONALE 14
1.6 DELIMITATIONS OF THE STUDY 14
1.7 DEFINITION OF TERMS 15
1.8 ASSUMPTIONS 15
1.9 CHAPTER OUTLINE 16

CHAPTER 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK 17

2.1 INTRODUCTION 17
2.2 DEFINITION OF TOPIC OR BACKGROUND DISCUSSION 17
2.3 INNOVATION HUB APPROACHES 19
2.3.1 THE ROLE OF INNOVATION HUBS 19
2.3.2 BUSINESS MODEL APPROACHES 20
2.3.3 PROPOSITION 1 21
2.4 INNOVATION HUB CHALLENGES 21
2.4.1 CHALLENGES OF INNOVATION HUBS 21
2.4.2 PROPOSITION 2 22
2.5 SUCCESSES OF INNOVATION HUBS 23
2.5.1 KEY SUCCESS FACTORS OF HUBS 23
2.5.2 PROPOSITION 3 24
2.6 ANALYTICAL FRAMEWORK 25
2.6.1 THEORETICAL FRAMEWORK 25
2.7 CONCLUSION OF LITERATURE REVIEW 25
2.7.1 PROPOSITION 1 25
2.7.2 PROPOSITION 2 26
2.7.3 PROPOSITION 3 26

CHAPTER 3. RESEARCH METHODOLOGY 27

3.1 RESEARCH APPROACH 27

3.2 RESEARCH DESIGN 28
3.3 DATA COLLECTION METHODS 30
3.4 POPULATION AND SAMPLE 31
3.4.1 POPULATION 31
3.4.2 SAMPLE 31
3.4.3 SAMPLING METHOD 32
3.5 THE RESEARCH INSTRUMENT 33
3.6 PROCEDURE FOR DATA COLLECTION 34
3.7 DATA ANALYSIS STRATEGIES AND INTERPRETATION 35
3.8 QUALITY ASSURANCE 36
3.8.1 TRANSFERABILITY 36
3.8.2 CREDIBILITY 36
3.8.3 DEPENDABILITY 37
3.9 ETHICAL CONSIDERATIONS 37

CHAPTER 4. PRESENTATION OF FINDINGS 38

4.1 INTRODUCTION 38
4.2 DESCRIPTION OF THE CASE 39
4.2.1 OVERVIEW 39
4.2.2 BACKGROUND AND GROUP STRUCTURE 39
4.2.3 MARKETS OF OPERATION 40
4.2.4 BUSINESS MODEL APPROACH 41
4.2.5 IMPACT AND FOCUS 41
4.2.6 CASE PHYSICAL SITE 41
4.3 DEMOGRAPHIC PROFILE OF PARTICIPANTS 42
4.4 OVERVIEW OF THE EMERGING THEMES 44
4.5 FINDINGS PERTAINING TO PROPOSITION 1 45
4.5.1 SUB THEME 1: NETWORK FACILITATORS AND CONNECTORS 45
4.5.2 SUB THEME 2: COMMUNITY SUPPORT 48
4.5.3 SUB THEME 3: INCLUSION AND DIVERSITY 50
4.5.4 SUB THEME 4: OPERATIONAL BUSINESS SUPPORT 52
4.5.5 SUB THEME 5: ACCESS TO MARKET 54
4.5.6 SUB THEME 6: ACCESS TO FACILITIES AND SERVICES 55
4.6 FINDINGS PERTAINING TO PROPOSITION 2 57
4.6.1 SUB THEME 1: AWARENESS AND ACCESSIBILITY 58
4.6.2 SUB THEME 2: FUNDING 60
4.6.3 SUB THEME 3: SOURCES OF ENERGY (POWER) 61
4.7 FINDINGS PERTAINING TO PROPOSITION 3 62
4.7.1 SUB THEME 1: IMPACTFUL WORK 63
4.7.2 SUB THEME 2: HUB EXPERIENCE 64
4.7.3 SUB THEME 3: PARTNERSHIPS 66
4.8 SUMMARY OF THE FINDINGS 68

CHAPTER 5. DISCUSSION OF THE FINDINGS 69

5.1 INTRODUCTION 69

5.2 Discussion pertaining to Proposition 1 69
5.2.1 Community Builders 69
5.2.2 Support Structure Providers 73
5.3 Discussion pertaining to Proposition 2 76
5.3.1 Sustainability 76
5.4 Discussion pertaining to Proposition 3 80
5.4.1 Key success factors 80
5.5 Discussion pertaining to the Theoretical Framework 82
5.6 Conclusion 83

CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS 84

6.1 Introduction 84
6.2 Conclusions regarding research objective 1 84
6.3 Conclusions regarding research objective 2 85
6.4 Conclusions regarding research objective 3 86
6.5 Recommendations 87
6.6 Possible limitations and challenges of the study 88
6.7 Suggestions for further research 88

REFERENCES 89

APPENDIX A Participant Information Sheet 96

APPENDIX B Participant Agreement form 98

APPENDIX C Interview Guide 100

APPENDIX D Interview Register 102

APPENDIX E Interview Transcript Samples 103

APPENDIX F Consistency Table 125

APPENDIX G Qualitative Coding 127

APPENDIX H Ethics Approval ..... Error! Bookmark not defined.

LIST OF TABLES

Table 4.a: Demographic profile of participants: hub users 42

Table 4.b Demographic profile of participants: hub employees..... 43

Table 4.c: Emerging themes and sub themes relating to the research objectives and propositions..... 44

Table 4.d Interview findings related to the sub theme Network facilitators and connectors..... 45

Table 4.e Interview findings related to the sub theme Community Support 48

Table 4.f Interview findings related to the sub theme Inclusion and Diversity .. 50

Table 4.g Interview findings related to the sub theme Operational Business Support 52

Table 4.h Interview findings related to the sub theme Access to Market..... 54

Table 4.i Interview findings related to the sub theme Access to Facilities and Services 55

Table 4.j Interview findings related to the sub theme Awareness and Accessibility 58

Table 4.k Interview findings related to the sub theme Funding 60

Table 4.l Interview findings related to the sub theme Sources of Energy..... 61

Table 4.m Interview findings related to sub theme Impactful Work 63

Table 4.n Interview findings related to the sub theme Hub Experience..... 64

Table 4.o Interview findings related to the sub theme Partnerships 66

LIST OF ACRONYMS

GIS - Geographical Information System

GSMA - Groupe Spécial Mobile Association

HE - Hub Employee

HEX – Hub Executive

HM – Hub Manager

HU – Hub User

NPO - Non-Profit Organisation

SADC - Southern African Development Community

SME - Small and Medium Enterprise

STEM - Science, Technology, Engineering, Manufacturing

UK - United Kingdom

USD - United States Dollar

WI-FI - Wireless Fidelity

CHAPTER 1. INTRODUCTION

1.1 Statement of purpose

This case study explores the practices and success factors of an innovation hub in South Africa.

1.2 Background of the study

Hubs are being implemented at an exponential rate in Africa. The number of hubs established has risen by 104% from 314 in 2016 to 643 in 2019 (AfriLabs & Briter Bridges, 2019). The immense and rapid rise in hubs suggests that there is value that they provide for the communities where they are established.

An Africa wide mapping exercise by Groupe Spécial Mobile Association (GSMA) and Briter Bridges (2019) concluded that these hubs represent "the backbone of Africa's technology ecosystem". Their establishment bridges primarily the accessibility gap to technology, resources, knowledge and services in the communities and societies they operate in.

South Africa is home to over 70 innovation hubs (AfriLabs & Briter Bridges, 2019). The South African president, under the Small Enterprise Development Agency, has declared plans to further develop and expand the technology and innovation hub ecosystem (Timm, 2019) focusing on previously disadvantaged communities in hopes to accelerate technology skills development considering the fourth industrial revolution. Further reasons behind the development include innovation hubs being considered as institutions of knowledge creation (Atiasea, Kolade & Liedong, 2020) whose role is to bridge the accessibility gap towards technology and help encourage entrepreneurship that is fuelled by technology (Timm, 2019).

Innovation hubs have been operating in South Africa for several years and billions of rands have been injected into the space. A survey by AfriLabs & Briter Bridges (2019) found that most of the innovation hubs across Africa are privately funded

through various means, such as corporate sponsors, foundation grants, private investors, and philanthropic organisations. Only 3% reported to having received funding from the government. In South Africa, however, the picture is different, with 90% of the surveyed innovation hubs confirming that they receive funding from the government or governmental entities (UK-South Africa Tech Hub, 2020). This is in line with the government's mandate to encourage and support innovation and technology development as solutions for stimulating economic growth and job creation (UK-South Africa Tech Hub, 2020).

The literature on this topic shows that research on hubs within Africa is still in its infancy stage (Littlewood & Kiyumbu, 2018; De Beer, Millar, Mwangi, Nzomo & Rutenberg, 2017). While the body of knowledge continues to grow because of rising interest, knowledge about what African hubs do on the ground (Friederici, 2017, 2018), how they operate and their effectiveness is still relatively under researched.

Due to their proliferation in the African society, it is important to understand the role they play, their challenges and how they succeed, especially in the current times, as multiple African countries undergo technology booms.

1.3 Research problem

Innovation hubs are becoming an integral part of many African economies and technology ecosystems. Their rate of growth in Africa and their growing interest should be facilitated by research evidence. Concurrently, the unemployment rate in South Africa, especially for youth, is alarmingly high. Innovation hubs could help tackle unemployment through bridging digital skills gaps and the high cost of higher education. They also can address the limited access to educational institutions and lack of resources and services that promote entrepreneurship.

The literature on this subject from Africa, while growing steadily, is still fairly limited. Friederici (2018) suggests that understanding how innovation hubs in Africa operate is key to evaluating their success. This study seeks to gain a better

understanding of the phenomenon of innovation hubs within the South African context and the role they play within their unique environment.

1.4 Research questions

The study has the following research objectives:

1. Explore the principles underlying the particular approach and business model of the innovation hub
2. Identify and explore the typical challenges that the hub experiences and needs to overcome
3. Uncover the principles the hub applies in defining and measuring success

1.5 Rationale

The interest was formed because of the rate of growth of the innovation hubs within the country and the African continent at large. There has been an increasing interest in what role these institutions play within the ecosystem they exist in and how they operate. As these institutions are still in their infancy stage, there lies an opportunity to gain a better understanding and grow the knowledge of certain elements of their existence.

Innovation hubs are fairly new institutions within African economies and require investment and adequate knowledge for their successful implementation. The study explores the approaches, challenges, and success factors of an innovation hub in South Africa. This study may be of value to governmental agencies, business practitioners and higher education institutions as it may help inform key business, financing and implementation decisions related to innovation hubs in South Africa. It enriches existing literature on South African innovation hubs.

1.6 Delimitations of the study

The scope of the study will consider:

I. This study will consider innovation hubs operating within South Africa
II. The hub should be open to public participation and not a closed corporate innovation hub
III. The hub should offer a range of services

1.7 Definition of terms

Hub user: Individuals or groups that make use of and the resources and participate in the services provided by an innovation hub.

Innovation hub: Centres of “learning, ideas, co-creation and community” (AfriLabs & Briter Bridges, 2019) where ideas are nurtured into viable businesses. They could be one or a mix of incubator, co-working space, accelerator, hacker space or makerspace.

Privately funded: Innovation hubs that receive a majority of their funding from private institutions.

Publicly funded: Innovation hubs that receive most of their funding from the government either directly or through governmental agencies, organizations or funds.

Tenant: See *hub user* definition.

1.8 Assumptions

The assumptions for the study are as stated below:

1. The innovation hub is based in South Africa. The study is limited to an innovation hub which operates within the confines of South Africa.
2. The innovation hub has been operating for a period that is longer than 1 year.
3. The innovation hub is active and has active tenants that make use of their services and resources.
4. The innovation hub offers programmes and services for its tenant entrepreneurs (or users).

1.9 Chapter Outline

The paper follows this structure, chapter 2 is the literature review where relevant literature on the key questions is discussed and analysed and the theoretical framework introduced and discussed in context of the topic. Chapter 3 provides details on the methodology, such as the data collection process and analysis approach. Chapter 4 offers a better understanding of the data collected by presenting it in detail. Chapter 5 discusses the findings from the data collected and Chapter 6 provides the summary, conclusions and recommendations for future studies.

CHAPTER 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

Innovation hubs have been identified as catalysts of economic growth in Africa (Kelly & Flinstone, 2016) and enablers of innovation (Friederici, 2014). They have redefined the entrepreneurship ecosystem (iED, 2020) through providing conducive spaces where like-minded individuals can learn, grow and share ideas that solve real problems. At the same time, they serve as central linking points for other players within the economy such as the start-up community, the private sector, the public sector and academic institutions (Chirchietti, 2017).

While these institutions have been growing and they have been celebrated for the work they do and the impact they have, their moment in the spotlight has not occurred without any level of criticism and questions of worth. The sustainability of hubs has been a topic of concern by some researchers (Gosier, 2014; Akinyemi, 2015) as funders demand more data and accountability. The approaches, i.e., what they do and how they do it, and their success factors are important elements in understanding the overall phenomenon as they enhance the backbone of the operational sustainability of these innovation hubs.

This literature review begins by exploring the definition and purpose of innovation hubs. This is followed by a review of the literature related to the research questions of the study. The first theme under review is of the approaches of innovation hubs, followed by the literature on the success factors and challenges of innovation hubs. The final part comprises a review of the analytical framework, which addresses the theoretical framework of the study.

2.2 Definition of topic or background discussion

Literature suggests that the definition of innovation hubs is unclear (Friederici, 2015; Littlewood & Kiyumbu, 2018) and its terminology is inconsistent (De Beer

et al., 2017). This is mainly because of different purposes each unique innovation hub serves and the context in which it exists.

UNICEF (2012) describes hubs as shared spaces for diverse problem solvers where creativity and collaboration occur to create solutions. This definition is still unclear and does not capture the holistic sense of an innovation hub.

On the other hand, Toivonon & Friederici (2015) expand on the definition of innovation hubs and define them as having four main characteristics. They say that hubs firstly build collaborative entrepreneurial communities. Secondly, they bring together diverse people with different skill sets. Hub managers believe that creativity thrives with diversity. Thirdly, hubs are known to be centres of collaboration and creativity. Hubs are known to have stimulating physical set ups that spark and make collaboration easier. They also host events whose purpose is to encourage collaboration and creativity. Lastly, hubs "localise the global entrepreneurial culture" (Toivonon & Friederici, 2015). Hubs consider themselves a smaller part of the bigger global entrepreneurial community.

Chirchietti (2017) defines innovation hubs as being an institution that is characterised by collaboration and open innovation.

De Beer et al. (2017) proposed a framework that can be used in the description and assessment of innovation hubs in Africa. The framework segments the hubs into 3 archetypes, namely company hubs, cluster hubs and country hubs. Company hubs are independent entities that interact with the world and that build their own communities. Cluster hubs are a collection of independent hub entities that are in close physical proximity to each other. Country hubs are hubs on a macro level and can be considered as an entire region or country. At a more granular level, these hubs can be further categorised as accelerators, incubators, co-working spaces, makerspaces, hacker spaces centres of excellence, or a combination of these (AfriLabs & Briter Bridge, 2019).

Regarding their purpose, innovation hubs have been found to be institutions of knowledge production (Atiase et al., 2020) that drive economic growth (Kelly & Flinstone, 2016) and contribute to human development (Jimenez & Zheng, 2017).

In this paper, innovation hubs can be described as structures that facilitate, support and encourage development, exploration and creation of solutions to problems through the use of technology. They foster community and allow entrepreneurs to learn and grow.

2.3 Innovation hub approaches

Innovation hubs vary in nature and in the purposes they serve. The following section is a review of the literature on the role that innovation hubs play and their business models.

2.3.1 *The role of innovation hubs*

There is growing literature on what role innovation hubs play in the environments where they exist, especially within the African context.

Jimenez & Zheng (2017) studied tech hubs and their role in development. They concluded that hubs are learning environments and should be seen as institutions that promote human development. Atiase et al. (2020) reveal that in Africa, innovation hubs play the important role in producing knowledge and generating innovation. They are providing services similar to universities, such as meeting industry needs, solving social issues, and creating jobs. On the other hand, Mwatimwa, Ndenge, Atela & Hall (2021) found that while the innovation hub under study empowered the youth to co-create and transfer knowledge, entrepreneurial promotion was not adequately achieved due to the high failure rate of start-ups in that particular case.

Innovation hubs have been found to play the role of “hybrid intermediaries” (Littlewood & Kiyumbu, 2018). Littlewood & Kiyumbu (2018) say that they are intermediaries because they fulfil institutional voids through their provision of infrastructure, by facilitating networks and relationships and through enhancing skills. These institutions are hybrid because they serve multiple purposes and have a range of activities and services.

Innovation hubs playing the role of facilitating and creating external communities for entrepreneurs is a recurring theme found in the literature. Jimenez & Zheng (2017) found that innovation hubs are places that cultivate agency in the entrepreneurs and also a sense of community. Friederici (2017, 2018) argues that community is the main benefit for innovation users and is the most important asset for the hub. He further states that these places allow entrepreneurs to grow and provide them with emotional and motivational support.

The immense role the innovations hub play within the entrepreneurial community and society at large is evident from the literature. These institutions not only bridge the services and resources accessibility gap but they are also centres of knowledge creation and innovation and institutions where entrepreneurs can build and grow their community in their entrepreneurial journeys.

2.3.2 *Business model approaches*

The structure, purpose, offerings, and business model of innovation hubs differ (De Beer et al., 2017; Littlewood & Kiyumbu, 2018).

A study by Kolade, Atiase, Murithi & Mwila (2021) suggests that tech hubs need to become more innovative in their business model approaches. The study argues that there is a lack of development and implementation of business models, which ultimately affects the sustainability and viability of innovation hubs. A key finding is the need for innovation hubs to explore and improve their revenue streams (Kolade et al., 2021) as funding appears to be a universal challenge across most hubs.

Survey results from AfriLabs & Briter Bridges (2019) reveal that in Africa, hubs have 3 main sources of revenue, i.e., membership fees, donor funding and consulting fees. Additionally, that 60% of the hubs receive external funding (AfriLabs & Briter Bridges, 2019). The survey further shows that most innovation hubs are structured as private or for-profit, followed by non-governmental or non-profit organisations, while academic institutions are not as significant in size.

Previous research by Kelly & Flinstone (2016) made a similar observation that out of the 117 hubs that were studied, only 9 were academically led.

2.3.3 *Proposition 1*

Based on the research, it is clear that innovation hubs play the role of fostering communities and offering structures offering structures that support the advancement of entrepreneurial activity.

2.4 Innovation hub challenges

The hype and growth of these hubs, especially in the African context, has not come without a fair share of criticism. Innovation hubs and their effectiveness have been critiqued in literature. The following section reviews the challenges hubs face.

2.4.1 *Challenges of innovation hubs*

As high as the rate of growth of innovations hub is within Africa, the rate of failure of innovation hubs generally is also high. According to the U.S. Census Bureau's Business Dynamics Statistics, the failure rate of African hubs between 2013 and 2015 sat at 26% (Kelly & Flinstone, 2016). While lower compared to the American hub failure rate of 60%, sustainability of these institutions remains a challenge.

Earlier studies reveal that failure of some innovation hubs can be accredited to high expectations that are coupled with unrealistic timelines of the hub outcomes O'Hare et al. (2008). There is also evidence that it takes an average of approximately 10 years for innovation hubs to be commercially viable (O'Hare et al., 2008).

Innovation hubs, especially in the African context, have faced scrutiny about their impact, whether they work as they have been intended to (Kelly & Flinstone, 2016) and if they have a healthy return on investment. Friederici (2017) argues that innovation hubs may not be the best investment decision for investors who

expect concrete and predictable returns, as their outcomes are not always linear or measurable.

South African innovation hub challenges include day-to-day operations and unsustainable business models. Lose & Tengeh (2015) and UK-South Africa Tech Hub (2020) found that some incubators struggled with hiring adequately skilled and experienced staff that can be able to operate the hub and also guide the hub tenants through their entrepreneurial journey.

Other challenges faced by hubs include the ability to connect entrepreneurs within the hub to funders, largely depending on the government as a primary financial support structure which then affects sustainability in the long run (Lose & Tengeh, 2015). Sponsor and funding commitments have also been found to be a challenge (Shinga, 2010). Gernego et al. (2021) found similar challenges at innovation hubs in rural Europe, citing access to finance, access to skilled labour and poor infrastructure as some challenges hubs experience in that region.

The prominence of funding as both a critical success factor and a common challenge is interesting to note, as it shows its importance within the innovation hub space. Sustainability of these institutions is vital because of the impact they have on their communities, which highlights an area where more development is required.

Failure of innovation hubs arises due to disconnect of the hub's business goals to its environment needs (Kelly & Flinstone, 2016). It is imperative that hubs serve the environments and communities where they exist (Friederici, 2018) as each community is unique with its own needs. This is an important point, as hubs that adopted existing hub business models from other regions were found to struggle in having impact for their communities (Friederici, 2018).

2.4.2 *Proposition 2*

The challenges hubs face and have to overcome vary. The key challenges facing hubs include access to funding and sustainability of the hubs in the long term,

access to the right level of skilled labour resources and ensuring that they serve the communities they exist in.

2.5 Successes of innovation hubs

Innovation hubs have been successful in certain industries and geographies, particularly within the developed world (Berger & Brem, 2016) with many key takeaways. The following section will discuss the key success factors that have been discovered about innovation hubs.

2.5.1 *Key success factors of hubs*

A study by O'Hare et al. (2008) explored why some innovation 'superstar' hubs fail early and compared the early failers with the hubs that succeeded. This study, while looking exclusively at innovation hubs established by corporate groups, provides evidence that can be selectively applied to independent innovation hubs as well. Successful innovation hubs began with a few projects and grew gradually. This had the effect of allowing the hubs to focus and do well on fewer items by not getting involved in too many things. The hubs that succeeded had a balance of skills and abilities across idea generation, incubation, acceleration and management.

A common and perhaps quite important theme across innovation hubs in Africa is the availability of consistent funding for the sustainability of the hubs (Kelly & Flinstone, 2016; AfriLabs & Briter Bridges, 2019; Kolade et al., 2021; Shinga, 2010). A survey by UK-South Africa Tech Hub (2020) found that over 50% of the hubs would not survive 6 months without the funding they receive. Studies show that financial backing is necessary for innovation hubs to stay viable and provide their communities with needed support.

A South African study by Shinga (2010) finds that successful incubators are characterised by their geographical location, however, Lantz & Wu (2017) found that geographical location can also be a disadvantage if the hub is located in areas with limited access to attract support and finance. Shinga (2010) also found

that successful incubators are characterised by their linkages to higher education institutions. Similarly, Kelly & Flinstone (2016) find that higher education institutions bridge the gap between the private sector and innovation hubs, providing access to funding and networks of students and other innovation practitioners for the innovation hubs. Shinga (2010) further notes that the mentorship and networking opportunities available for the hub tenants also determine the success of innovation hubs.

Berger & Brem (2016) found that the key to successful innovation hubs of Silicon Valley lies in the calibre of staff that were hired to manage and operate the hub and the level of autonomy they had. The characteristics of the right people include those that are creative and highly motivated. The study further suggests that focusing on disruptive innovation as opposed to incremental innovation is another factor that has contributed to the success of innovation hubs.

Community is essential for innovation hub success, according to Friederici (2017), which is a collaborative effort between hub users and management.

The key success factors vary vastly across the literature and mean something different to different hubs. These innovation hubs differ due to their environments, the needs of their communities, and their role in their ecosystems. Most studies have been case studies with a small sample size. Therefore, their findings cannot be generalised, but their contributions can be appreciated.

2.5.2 *Proposition 3*

Innovation hubs are successful when they are in a good location, linked to higher education, have community involvement and a great balance of resources and services.

2.6 ANALYTICAL FRAMEWORK

2.6.1 *Theoretical Framework*

This study adopts the Assembly theory to explain the how innovation hubs exist in their environment. Assembly theory can be described as a process of co-ordination or structuring (Friederici, 2016) where the assembler plays the role of 'convening, interconnecting and activating' (Friederici, 2016) various disparate actors together. Innovation hubs act as facilitators of entrepreneurial communities, connecting players within the entrepreneurial ecosystem (Friederici, 2016).

This framework was chosen as it best describes how complex ecological communities work together and as such can help us understand how innovation hubs also operate.

2.7 Conclusion of Literature Review

In summary, the literature about the role that hubs play, the challenges they encounter, as well as what makes up success was reviewed. The main themes that emerged are that hubs have been found to be entrepreneurial community builders, the ongoing issue and importance of financial security and sustainability within innovation hubs and the notion that the success factors vary across the board. The propositions that have been put forward are:

2.7.1 *Proposition 1*

Innovation hubs play the role of fostering communities and offering structures that support the advancement of entrepreneurial activity.

2.7.2 *Proposition 2*

The key challenges facing hubs include access to funding and sustainability of the hubs in the long term, access to the right level of skilled labour resources and ensuring that they serve the communities they exist in.

2.7.3 *Proposition 3*

Innovation hubs need a good location, links to external players, community involvement, and the right resources and services.

CHAPTER 3. RESEARCH METHODOLOGY

This chapter outlines the methods and processes used to gather and analyse the data.

A constructivist view has been adopted as the worldview for the study. Constructivist views and beliefs are rooted in the subjective experiences and viewpoints of the participants (Creswell & Creswell, 2018). The aim of the study is to acquire a better understanding of an innovation hub within its environment. The data was collected from participants based on their experiences in the innovation hub. Meaning has been interpreted from the data with the aim of creating theory.

The chapter begins by examining the literature on the qualitative methodology approach and justifying its selection for the study. Thereafter, the reasoning behind the research design being a single case study, along with the advantages and disadvantages of this design is discussed. This is followed by the sources of data and the procedure followed to collect the data. Lastly, the quality assurance and ethical considerations of the study are discussed.

3.1 Research approach

The approach for the study is a qualitative study as its aim is to explore the workings of an innovation hub in South Africa. The aim is to understand how the innovation hub operates within the South African technology ecosystem. Qualitative inquiry involves “exploring and understanding the meaning individuals or groups ascribe to a social or human problem” (Creswell & Creswell, 2018). This approach is usually inductive in style, supports individual interpretation and is used to unpack a complex phenomenon or one that has very little information (Njie & Asimira, 2014).

Friederici (2017) argues that the outcomes produced by innovation hubs are complex and not as linear as expected. He further suggests that it is perhaps premature to establish if African hubs work, as more research and literature is

required to understand how African innovation hubs work first. While innovation hubs have been popular and to some extent successful in developed markets (Berger & Brem, 2016), the African context presents a completely different environment with different needs (Friederici, 2017, 2018). Qualitative research is ideal for understanding this phenomenon.

Creswell & Creswell (2018) stipulate that a qualitative research approach needs to fulfil certain characteristics. The data for the research needs to be collected in a natural setting where the phenomenon occurs with no outside or forced interference. Participants were interviewed at the data collection site and the researcher observed behaviours within the innovation hub.

Further, the study must be emergent in nature, display reflexivity and be a holistic account of the subject (Creswell & Creswell, 2018). This suggests that the study should allow for changes throughout the data collection process and to be guided by the outcomes received. In addition, the researcher should be cognisant of how their experiences influence their perception and views of the study. Qualitative research also requires that the researcher develop a complex picture of the problem by using multiple factors to give a better understanding of the phenomenon in real-life terms. Data was collected from multiple sources and analysed into themes to help create a picture that assists in understanding the research objectives on innovation hubs in South Africa.

For these reasons stipulated above, a qualitative method is the most fitting approach for this research into innovation hubs.

3.2 Research design

The research design is an exploratory case study. According to Crowe et al. (2011) the case study is an approach of inquiry that is used to “generate an in-depth, multifaceted understanding of a complex issue in its real-life context”. They can either be exploratory, descriptive or explanatory (Teegavarapu et al., 2009). Stake (1995) had initially categorised them as either *intrinsic*–the exploration of a unique phenomenon or issue, *instrumental*—the exploration of a selected case

to further appreciate an issue or phenomenon or *collective*–the exploration of multiple cases to contribute to the appreciation of a phenomenon or issue.

According to Yin (2009), case studies are suitable for exploring, describing and explaining natural phenomena or events. This method is beneficial for determining "why" and "how" questions, when behavioural events are not controlled, and when studying contemporary events (Teegavarapu et al., 2009).

As the literature suggests, the case study approach is suitable for this study as it facilitates the exploration of how innovation hubs work within the South African context. The data and observations were collected in the natural settings with no interference. The case study design approach helped to uncover and gain a holistic understanding of the hub in its ecosystem.

Mfinanga et al. (2019) note that the strengths of using case studies include the ability to offer a greater amount of specific detail about a phenomenon of study. Additionally, that it is a method that allows for the understanding of another person’s perspective. Further, that it provides a comprehensive view of a social context without any manipulated social settings. Lastly, new hypotheses can be derived from this approach (Starman, 2013) through the inductive identification of additional variables.

The case study methodology is advantageous for this study for the reasons that follow. Case study methodology allows for in-depth exploration and understanding of the innovation hub, as it is an exploratory study. The interview process revealed more details about how the innovation hub works and what the hub considers important for success. Interviewing participants provides insights into their personal experiences and perspectives of the innovation hub, which contributes to our overall understanding of innovation hubs in South Africa. The data collection process occurred in the natural environment of the participants, i.e., at the innovation hub.

Flyvbjerg (2011) identified common misunderstandings or weaknesses of case studies as a method of inquiry. Case studies usually deal with one or few cases, making it difficult to draw generalisations. Similarly, Suryani (2017) maintains that

data gathered under case methodology is subjective data and depends on the participants' experiences and the researchers' observations. Despite this limitation, the study is still beneficial, as it will give an understanding of the case at hand, furthering South African innovation hub research.

3.3 Data collection methods

Creswell and Creswell (2018) note that in qualitative design, the researcher is the primary data collector. They collect all the data themselves for case studies; the data is collected through multiple sources (Schoch, 2020).

Data for this study was obtained through semi-structured interviews with a hub executive, managers, employees, and users. Further data was acquired through reviewing resources related to the company (i.e., interviews, articles) which were available on the worldwide web (Creswell & Creswell, 2018; Schoch, 2020).

Data collection from multiple sources i.e., data triangulation is a method which increases internal validity (Crowe et al., 2011) as it is assumed that data from multiple sources should converge to provide similar conclusions resulting in a more holistic perspective of the phenomenon (Crowe et al., 2011).

The primary source of data has been collected through semi-structured interviews with the stakeholders within the hub community, i.e., the hub executive, hub management, hub employees and users of the hub. Understanding the hub requires listening to the perspectives of executives, management, employees and users.

A majority (11) of the interviews were conducted with the participants on a one-on-one basis, in person, at the case site, which is the hub itself. One interview was conducted virtually, via Microsoft Teams, due to the participant's limited availability. Interviews are good sources of data because they allow the participants to give historical information (Creswell & Creswell, 2018) or information not that is not readily available. Interviews are also useful when observations are not possible (Creswell & Creswell, 2018).

3.4 Population and sample.

3.4.1 *Population*

The population of the study can be defined as the innovation hubs within South Africa. There are over 70 innovation hubs within South Africa (AfriLabs & Briter Bridges, 2019). Within the population, the focus is on privately funded hubs.

3.4.2 *Sample*

The procedure of data collection first includes the identification of the research sites (Creswell & Creswell, 2018).

The case study was conducted at an innovation hub located in the Johannesburg region in Gauteng, South Africa. This hub was selected as it is unique in its offering by being an innovation hub that focuses on and supports women in Sciences, Technology, Engineering and Manufacturing (STEM) industries. It was conveniently located for the researcher, which provided easier accessibility for data collection.

Case Site

In this study, as it is a single case study, the case (the hub itself) is considered the sample. There is a second level of sampling that involves including individuals as part of the sample. The sample for data collection consists of the stakeholders in the hub environment, namely the hub executive, the hub managers, hub employees and the hub users.

Sample Size

The adequate size of the sample varies in the literature on case studies. Schreiber & Asner (2011) argue that the size of the sample is not an important issue in case studies because the richness it uncovers is more important than the numbers (Njie & Asimiran, 2014). On the other hand, Creswell & Creswell (2018) state that a sample size of 4-5 is adequate.

A total number of 12 interviews were conducted until a point of saturation was reached. Multiple interviews allow for more voices to be heard, as opposed to only conducting one interview. Multiple voices provide a diverse perspective and greater depth of information about a subject.

3.4.3 *Sampling method*

A combination of a purposive sampling strategy and a snowball sampling strategy was used to collect the data.

This innovation hub was selected due to its local location and private operations, along with its services that satisfy Friederici's (2017) description of an African innovation hub. The hub facilitates entrepreneurial community building and helps in creating relationships with parties that would have otherwise not met. This case site provides a rich source of theory about how specialised privately operated innovation hubs in South Africa operate.

The sample specifically consists of a hub executive, hub managers, hub employees and hub users for the data gathering interviews. This serves the purpose of providing multiple perspectives of the innovation hub. Ishak & Bakar (2014) state that it is the most acceptable qualitative sampling method. They further say that it is a method that is useful for a case study for in-depth investigation or when the study is of a unique case. This sampling method is ideal when the researcher has a particular purpose (Neuman, 2009).

The snowball strategy involved the hub manager suggesting interview subjects.

Multiple interviews were conducted in order to gain a variety of perspectives of the hub. The hub executive's perspective on all 3 research objectives provides important strategic insight. Hub managers and employees have an operational perspective of the hub. The hub users' perspectives are important from a service and hub experience point of view.

The interviews were conducted until a saturation point was reached, i.e., there are no new themes that can be identified from the data collected. This was after 12 interviews were conducted.

Demographic profiles

The hub executive is a participant that is concerned with the strategic and operational elements of operating the hub. We want to know this participant's perspective on the models they follow and the factors that keep them operating.

Hub managers and hub employees consist of the participants that are concerned with the efficient day-to-day running of the innovation hub. From these participants, we are interested in uncovering how the innovation hub works and reasons the hub is a preferred innovation hub for entrepreneurs.

Hub users consist of the entrepreneurs and users of the hub space for the services provided. We seek knowledge of the participants' experiences of the hub, their reasons for selecting residency, the hub's success factors, and how the hub aids their businesses or ideas.

3.5 The research instrument

The primary research instrument is a semi structured interview with open-ended questions. The interview schedule is segmented into 3 sections, whose aim is to answer each of the research questions for the study.

The initial section of questions is concerned with answering how the hub works, i.e., methods and approaches.

The second section of questions is concerned with the purpose of acquiring an understanding of the challenges the innovation hub faces from the perspective of the users, the managers and the executive.

The third section consists of questions with the purpose of answering what success means to different participants and how this is measured for the users, employees, managers and executives.

The interview guides that were used can be found in Appendix C.

3.6 Procedure for data collection

The innovation hub was identified initially as the case site of interest. Once approval had been received from the University's ethics committee, contact was made, via email, to the innovation hub manager expressing interest in using the hub as a site to collect data. After sharing information about the research project, permission was granted by the hub.

The data collection procedure was as follows; an email with the details of the research study was shared with the manager who then shared it with the greater hub mailing list informing them of the study and inviting participants. The hub manager was further instrumental in identifying and recommending potential participants to take part in the study. These participants were pursued and, if they agreed, were interviewed.

Interviews from the hub environment were the main source of data for the research study. The data collection steps for interviews will be expanded on in the following bullet points:

1. Interview appointments were scheduled according to the availability of the participants.
2. The participants were informed of the background of the study, their role, and the consent forms prior to the interview.
3. Eleven interviews were conducted in person at the case site. One interview was conducted online on Microsoft Teams due to the limited availability of the participant. The participants gave permission to record their interviews with mobile devices.
4. The interview guides were used to guide the interviews with the different demographic groups, although the interviewer was also guided by the responses of the participants.
5. Interview notes were also taken by the interviewer during the interview.

6. The recorded interviews were transcribed, segmented and labelled as either hub user, hub management, hub employee hub executive.
7. The data is stored on a secure, password protected drive on a cloud platform and will be destroyed after 6 months.

3.7 Data analysis strategies and interpretation

The analysis steps have been adapted from the recommended qualitative analysis steps by Creswell & Creswell (2018).

Once the interviews had been conducted and recorded, the voice recorded interviews were transcribed with a tool called Descript. The transcribed interviews were edited by cleaning the document to remove crutch words such as ‘uhm’ and ‘uh’, as well as repetitive words or phrases mentioned during the interview.

Due to the volume and detail collected and provided in qualitative studies, researchers need to go through a process where they focus on portions of the data, and not all the data, this is called “winnowing the data” (Creswell & Creswell, 2018). This process involves categorising the data into common themes. This can be completed manually or with the assistance of a software system.

Thematic analysis has been applied in the data analysis by coding common themes that are identified from the data. Initially, coding was done manually with the interview transcript and Microsoft word. This enabled the researcher to get a deeper understanding and appreciation of the data. For more efficient management of the coding process, a qualitative analysis tool, Atlas.ti was subsequently used. Using a computerised tool is more time efficient and not as laborious as manually coding the data (Creswell & Creswell, 2018). The interview transcripts were uploaded onto the analysis tool and codes were created.

Once the codes had been created, they were analysed and organised into categories where similar codes were grouped together. Once this had been completed, the categories were grouped further into common groupings. These common groupings were classified as the broader themes. Following this was the

representation of the themes within the text. The next step after coding and theming involved the interpretation of these emerging themes. This is conducted through a summary of the overall findings and comparison of the findings to the available literature. The approach used is a narrative passage that details the findings from the analysis.

3.8 Quality Assurance

The following section details the strategies of rigour that will be applied within the research study.

3.8.1 *Transferability*

Transferability is the extent of how applicable the research study is in other contexts and with other participants (Korstjens & Moser, 2018). Due to the research study being a case study, it is specific and purposive and thus does not fit into the generalisability criteria. However, in order to manage and maximise transferability, the study provides 'rich and thick' (Lincoln & Guba, 1985) detailed descriptions of the participants, context of the innovation hub, and the research process. The study achieved this by providing specific demographic details about the participants, the history of the hub, as well as the nature of the hub environment. The research process has also been thoroughly documented, from site identification to data collection and data analysis.

3.8.2 *Credibility*

Three strategies were used to strengthen the credibility of the research. Triangulation was applied. Data was collected from multiple sources, such as semi-structured interviews and online sources, to ensure authenticity and credibility. Using peer debriefing whose purpose is to review the research and ask critical questions of the research. This role was played by both the supervisor and peers in academia. The report makes use of 'thick, rich description' (Morse,

2015) to paint the picture of how innovation hubs work, in order for the reader to understand the complete context of the research study.

3.8.3 *Dependability*

Dependability is concerned with whether the findings of the research are repeatable within the same research boundaries (Forero et al., 2018). The following strategies have been used to ensure that dependability is maximised during the research. The detailed description of the research methods and the processes followed have been explained and shared in depth in the chapter. An audit trail was created by tracking the complete and detailed data collection process throughout the study (Forero et al., 2018). The artefacts that support this are the interview register (Appendix D), the list of the codes from the analysis conducted (Appendix G), samples of the interview (Appendices E) and data collection processes (Section 3.6).

3.9 Ethical considerations

The following ethical considerations were adhered to in order to protect the participant's information:

- The participants were provided with information and consent forms before they took part in the study, informing them of the details of the study. The participants were required to sign these to acknowledge giving their consent before data collection begun.
- There was complete transparency. The participants were made fully aware of the research study and their role before their participation begun.
- Participants were made aware of all recording tools used during the interview and were asked for consent to be recorded.
- The participants' confidentiality was ensured by preserving their anonymity. Unique identifiers were used instead of names in the final report.

CHAPTER 4. PRESENTATION OF FINDINGS

4.1 Introduction

The data from the twelve interviews with the innovation hub participants is presented in this chapter. The interviews were audio recorded, transcribed, coded and themed as a part of the process under thematic analysis.

The purpose of the study is to explore the practises and success factors of an innovation hub in South Africa through exploring three objectives. Namely, examining the principles of the business model approach, identifying the typical challenges experienced by the hub, and understanding the key success factors of the innovation hub. The propositions that were presented are;

1. Innovation hubs play the role of fostering communities and offering structures that support the advancement of entrepreneurial activity.
2. The key challenges facing hubs include access to funding, sustainability of the hubs in the long term, access to the right level of skilled labour resources and ensuring that they serve the communities they exist in.
3. Innovation hub success depends on location, external connections, community engagement, and a good resource balance..

The chapter is structured as follows;

- Section 4.2 presents the case in detail
- Section 4.3 discusses the demographics of the participants
- Section 4.4 presents an overview of the themes that have emerged
- Section 4.5 presents the findings pertaining to proposition 1
- Section 4.6 presents the findings pertaining to proposition 2
- Section 4.7 presents the findings pertaining to proposition 3
- Section 4.8 presents the summary of the findings

4.2 Description of the case

4.2.1 *Overview*

The case site is a local innovation hub based in Johannesburg, South Africa that specialises in co-ordinating and facilitating an inclusive innovation ecosystem within the STEM industries. It provides female entrepreneurs and female students in STEM with various offerings, which range from skills development workshops, incubation programs that focus on supporting ideas or early-stage businesses to assisting businesses to scale through mentorship or investment. Other services include access to co-working spaces, networking, thought leadership and an entrepreneurship community.

4.2.2 *Background and group structure*

Around 2005, the founders of the hub came together and created a non-profit organization (NPO) as part of the hub's group of companies, marking the beginning of the hub's history. The NPO is primarily focused on creating more inclusive and diverse spaces for girls and women entering engineering fields. The NPO targets girls and women attending high school and university. At the high school level, the mandate is to create an awareness of STEM careers as an option for girls. At the university level, the mandate is about providing the right support for girls enrolled in STEM programs to thrive in the workplace. The NPO is a volunteer-based organisation and now forms the foundation of the group.

After great success and growth of the NPO, and given the demand, the founders opened up an innovation hub. In 2016, the hub was founded, forming the incubation part of the business. It is focused on the incubation and acceleration of female founders on the African continent. In 2020, the physical hub was opened in the northern suburbs of Johannesburg in Sandton. The hub has been instrumental in building and supporting the participation of women in the STEM industries through the lens of ownership. The hub is on an expansion drive due to the demand that exists within the market. They have successfully opened up

a second hub in Cape Town, South Africa, in 2023 and have plans to open up more Pan African hubs within the SADC region.

The third company within the group is a venture capital fund that supports female-owned businesses with access to capital. This venture capital fund was opened to address the gap of underfunding of female-owned businesses on the continent. The fund is a 30 million US Dollar fund that targets African women entrepreneurs with tech-enabled businesses in the early stage of business who are seeking seed or series A funding.

The company is private and is governed by 3 executives who consist of the two founders and the chief operations officer. The company team consists of 14 employees who are involved in various roles within the operation of the hub.[1]

The executive team has successfully established an end-to-end ecosystem that addresses supporting and encouraging women in STEM at multiple points within the entrepreneurial value chain.

4.2.3 *Markets of operation*

The hub has a physical presence in South Africa with two hubs located in Johannesburg and Cape Town, South Africa. These two cities are considered the innovation hub hotspots of South Africa. There are plans to open up more innovation hubs with a similar focus in Namibia and Botswana as well. Despite being physically present in two cities, the hub has global reach and works across 22 countries internationally through their programmatic work.

[1] These figures were accurate during the period of interview i.e., 2022.

4.2.4 *Business model approach*

A majority of the work the hub does is programmatic in nature. This entails hosting incubator and accelerator programs that support businesses. Their programs involve elements of how to scale businesses, business and investor readiness, business operations toolkits and leadership programmes, to name a few. They mostly partner with corporates, government agencies and non-profit organisations who sponsor the programmes and have a vested interest in working with the program participants in their respective areas of business or service.

The hub is funded by equity from the founders and funding from investors.
The hub offers a paid membership option to the hub, where members have full access to the hub's co working space and facilities. This membership is paid for through a monthly premium for renting out the working spaces. The hub finds that program participants often become paying members.

4.2.5 *Impact and focus*

The hub has an exclusive focus on women running businesses in STEM and providing mentorship for women studying in STEM related fields at a school and university level (the focus of the NPO). To date, the innovation hub has impacted up to 400 women-owned businesses in Africa.

4.2.6 *Case physical site*

The innovation hub in Johannesburg is located in the northern suburbs of Sandton, Johannesburg, within an office park. The hub itself is moderate in size and has ample space for eventing.

The hub's layout includes an open-plan workspace, private meeting spaces, a kitchenette, a boardroom, an outdoor amphitheatre event space, and a garden area. Modern finishes that are stylish create aesthetically pleasing interiors. The hub space brings comfort and ease of interaction in a professional environment.

4.3 Demographic profile of participants

The following section gives a description of participants in the study. There were 12 participants for the study, each being involved within the hub ecosystem in some capacity. As mentioned in the summary Chapter 3, the methodology section, the role of the participants was either hub executives, hub managers, hub employees or hub users. This was done to gain a holistic perspective of the hub and its operations.

Tables 4.a and 4.b below describe the demographic profiles of the participants in more detail.

As seen from Table 4.a, the hub users are entrepreneurs with businesses within the STEM fields. A majority of them are founders or managing directors of businesses within engineering fields. All the businesses are based in South Africa and have been operating for less than 10 years, with the average tenure in business being approximately 6 years. This highlights the maturity of the average business that is within the hub ecosystem. The businesses are relatively new and young.

Table 4.b details the demographic profile of the participants that are hub employees. The range of skills within the overall team is diverse. The tenure of employees at the hub ranged from 2 months to over 10 years, with 4 having worked there for less than a year. This indicates its growth in the past year and the need for more capacity due to the hub's activities and various plans for the future.

Table 4.a: Demographic profile of participants: hub users

Participants	Role	Position	Business description	Sector	Year business was established
HU1	Hub user	Chief Innovator	Beverages	Manufacturing	2016

HU2	Hub user	Founder and Director	Geographical Information System (GIS) Location Services	Technology & Engineering	2015
HU3	Hub user	Founder & Managing Partner	Green energy consultants	Science & Engineering	2016
HU4	Hub user	Managing Director	Information technology services	Technology	2018
HU5	Hub user	Business owner	Construction & Technology	Engineering & Technology	2017

Table 4.b Demographic profile of participants: hub employees

Participants	**Role**	**Position**	**Tenure at hub**	**Background**
HM1	Hub manager	Marketing Director	10 years*	Qualification in textile design, 10 years advertising experience
HM2	Hub manager	Hub Manager	2,5 years	Qualification in Project Management
HE1	Hub employee	Community Manager	1 year	Qualification in Communications
HE2	Hub employee	Project Co-ordinator	2 months	Au Pair experience
HE3	Hub employee	Executive Assistant	5 months	Qualification in Psychology
HE4	Hub employee	Finance and Payroll	6 months	Qualification in Payroll, 10 years payroll experience
HEX1	Hub executive	Chief Operations Officer	3 years	Qualification in Psychology and Business Strategy, 23 years change management experience

*10 years on a part time basis, working on the NPO of the group before the opening of the innovation hub and physical hub

4.4 Overview of the emerging themes

Four main themes were identified from the data. These are community builders, support structure providers, sustainability and key success factors. Twelve sub themes were identified. These are network facilitators & connectors, community support, inclusion & diversity, operational business support, access to market, access to facilities and services, awareness and accessibility, funding, sources of energy (power), impactful work, hub experience and partnerships. Table 4.c gives more detail on the themes and the research objectives and propositions.

Table 4.c: Emerging themes and sub themes relating to the research objectives and propositions

Research objectives	**Propositions**	**Themes**	**Sub themes**
1. Explore the principles underlying the particular approach and business model of the innovation hub	1. Innovation hubs play the role of fostering communities and offering structures that support the advancement of entrepreneurial activity.	Community Builders	Network facilitators & connectors
			Community Support
			Inclusion and diversity
		Support Structure Providers	Operational business support
			Access to market
			Access to facilities and services
		Sustainability	Awareness and accessibility

2. Identify and explore the typical challenges that the hub experiences and needs to overcome	2. The key challenges facing hubs include access to funding, sustainability of the hubs in the long term, access to the right level of skilled labour resources and ensuring that they serve the communities they exist in.		Funding
			Sources of energy(power)
3. Uncover the principles the hub applies in defining and measuring success	3. Success factors of innovation hubs include its geographical location, its linkages to external players, fostering community participation and offering a good balance of resources and services.	Key Success Factors	Impactful work
			Hub experience
			Partnerships

4.5 Findings pertaining to Proposition 1

The following section presents the findings pertaining to proposition 1 being that *innovation hubs play the role of fostering communities and offering structures that support the advancement of entrepreneurial activity.*

Two themes emerged during data analysis for this proposition, *community builders* and *support structure providers*. A total of 6 sub themes have been identified, namely *network facilitators & connectors*, *community support*, *inclusion & diversity*, *operational business support*, *access to market*, *access to facilities and services.*

The following sub sections presents findings from the interview data collected per sub theme.

4.5.1 *Sub theme 1: Network facilitators and connectors*

Table 4.d Interview findings related to the sub theme Network facilitators and connectors

Proposition 1: Innovation hubs play the role of fostering communities and offering structures that support the advancement of entrepreneurial activity.	
Main theme: Community Builders	**Sub theme:** Network facilitators and connectors
Quotations	
HU1: *"They are very instrumental in aligning you with, for example, industry specific mentors."* *"It was almost like they had tailor-made or chosen the specific people that would be on the program to align with my business because most of the people that were on the program, we ended up collaborating with in different spaces of business. I'm still talking to the chemical engineer because there's a product we're working on…So I guess that's very beneficial for us because it's services that we know we can reach out to in the same hub. So, it's very, very beneficial."* **HM2:** *"What we do is we bridge the gap between entrepreneurs and experts in the field and also helping them get funding and making sure that the companies are a success. So, we play that middle man making sure that they connect."* *"So, most of them are already in our network. It's people that, for example, [the hub founders] meet in this space because they travel a lot. So, they are the ones that meet all these industry experts. And they make a connection with them and always keep them in our network. And then when we do run these sessions, they are able to reach out to them."* **HU2:** *"I think the openness, secondly…for you to say that, 'do you need this person at this organization?' They've got those connections and relationships. And I think that's a big thing for us that we still need to tap into, while we are in this program."* *"This access to [the hub] or even the program itself, there's various people that come in and use this facility and that helps with our networking as well…even potential investors that pop in from time to time for their meetings."* **HM1:** *"Many of the founders have approached me to help them with some of their design work and that sort of has helped my business grow as well."* **HE2:**	

"She's recently gotten her stuff into some of the stores that are around and that was through some of the connections that we helped her build."

HU4:

"You get to hear also from other business leaders, what they're experiencing in their own businesses. You get value to interact with the likes of our host, who is in this case [the sponsor]."

HE3:

"It's literally to connect, cultivate and there's another one, but it's literally to bring people together to network."

The sub theme of network facilitators and connectors emerged from the main theme of community builders. Most participants highlighted the hub played the role of creating a platform or a space that enables connections to occur. Collaboration is encouraged within the hub environment and entities that would have ordinarily not met are engaging and working together to create synergies.

Participant HU1 stated the hub aided in aligning them with industry mentors and facilitated collaboration with other entrepreneurs. Participant HM1 also saw the benefits of collaboration with other hub users, as it impacted the growth of their business.

Many of the hub users found the networking potential quite beneficial and appreciated the hub's open approach to facilitating connections. Participant HU2 remarked on the hub's level of openness in sharing contacts and allowing connections to be formed. Participant HE2 further explained that one of the hub participants was able to achieve a commercial agreement where they supply their products to local stores from the connections they gained through the hub.

Participant HM2 explained that networking is core to what they do and that the hub considers itself the "bridge between entrepreneurs and experts in the field" further describing the hub as the "middle man ensuring the entrepreneurs connect". This networking is made possible through the efforts of the founders which the participant further elaborates on. Particularly that through the founders' travels and business activities, they also network intentionally to use those connections to benefit their hub business and positively impact the hub users.

Being part of the hub ecosystem gives participant HU2 and HU4 the opportunity to interact with potential investors.

4.5.2 *Sub theme 2: Community support*

Table 4.e Interview findings related to the sub theme Community Support

Proposition 1: Innovation hubs play the role of fostering communities and offering structures that support the advancement of entrepreneurial activity.	
Main theme: Community Builders	**Sub theme: Community support**
Quotations	
HU5: "*They are really great at firstly creating that community. Which I feel like is very vital for, firstly, just being an entrepreneur."* *"Having that community, which these guys are really great at building, of other like-minded females, for support, for encouragement, for sharing opportunities, backing each other up, et cetera. I feel like they do that really great"* *"You've got people who can share opportunities with you and who you can share opportunities with as well now. And so that community also becomes part of the package."* **HU4:** *"…having to meet up and belonging to this woman business owned community where we share our challenges as women and as business people. I find it very valuable."* *"…when you belong to a hub, when you belong to a network, a community like [the hub], you're able to get that help that could have cost you money."* **HU2:** *"I think just really making sure that we're okay... just that generally you're okay also as a person because most of the time we go through a lot as founders. And I appreciated that. When something like that happened to me during one of the events here, I was able to talk to someone and say that this is what's going on and I can't fully participate. So, the support was there. It's not just about helping you with your business, but they care about you as a person as well."*	

HE2:

"It's nice to know that you were part of a program and that you still got a place here all the time."

"We've got alumni group chats and everything and people post their successes. Even though in the group chats, they'll post their failures and everything like that. So, there's a very strong sense of community within our programs and just within the hub."

HE1:

"So, after they leave the program, they have left the program. They're not necessarily obliged or obligated to keep communications. But we do create a community of women that are walking the same path. And moving together, especially if you are one cohort, once you move from one milestone to another it's as if everyone is on that journey with you...Their wins are our wins. And we love it."

"When you have a group of women also supporting your journey and people that have also walked the journey, it's beneficial."

HM2:

"We have a community. We have a community leader that still communicates with you, engages with you. And whenever we have information sessions or any other workshops that we might be able to invite you to, to come and meet people, network, still continue growing your business. So, it's not like you just come here, stay with us for six months and then you go, you know?"

HU1:

"They knew us by name. They knew us by our problems. They knew what we need."

The second sub theme is community support. It was quite apparent from the responses of the participants that community building is of high importance within the hub ecosystem and there is great value that exists in being part of a community while on the entrepreneurial journey. The participants emphasised the role community support had on their entrepreneurial success and psychosocial wellbeing.

When asked about what the hub does well, Participant HU5 mentioned they are great at creating a community of like-minded women for support, encouragement and sharing opportunities. This participant felt that this is an important factor, especially within the entrepreneurial journey. Their statements point to the idea that even though being a part of a community is not explicitly what was signed up for by joining the hub, it indirectly became a part of the package. Participant HU4

echoed these sentiments and mentioned that there is value in belonging to a community where members are going through similar journeys and having access to help that does not have to cost anything.

Participant HU2 elaborated on the psychosocial support provided by the hub, which is something that stood out for them. They mentioned the hub takes care in ensuring the hub participants are mentally well and that they genuinely care not only about the business but about the entrepreneurs running the businesses.

The hub employment and management team (HE2, HE1 & HM2) highlighted the activities involved in building the community and the intentionality behind it. This is shown through their commitment to continuing engagement and communication with all members, past and present, to keep the connection going and the networks alive. The participants mentioned that group chats and communications are maintained within the hub and a community leader engages with hub users, keeping them informed of all hub activities and opportunities to grow their business and to further network. Many of the participants also remarked on the “sense of belonging” they experienced while at the hub. HE2 described it as always feeling like they have a place there, i.e., a home.

4.5.3 *Sub theme 3: Inclusion and diversity*

Table 4.f Interview findings related to the sub theme Inclusion and Diversity

Proposition 1: Innovation hubs play the role of fostering communities and offering structures that support the advancement of entrepreneurial activity.	
Main theme: Community Builders	**Sub theme: Inclusion and Diversity**
Quotations	
HU1: *“For me, when I read their profile to say they're a woman owned accelerator program. First of all, I was intrigued that it is women run.”*	

HM1:

"From mentoring school girls to mentoring entrepreneurs, to providing a safe space for female entrepreneurs"

HM2:

"You know, we have a lot of men that dominate that field. So, I think the whole mission behind it, is to empower women."

"It's all about bridging the gap in the STEM field"

"A space where these women can physically meet and actually network and gain as much knowledge about building a company or building a business in the STEM industry."

HE1:

"We want to be the anchor for women."

HEX1:

"[The founders] founded the company 17 years ago but founded [the hub NPO] and [the hub NPO] was around creating more diverse and inclusive spaces for girls and women entering into engineering fields."

"If we want to truly create a diverse and inclusive sector, we have to look at creating awareness and building people from careers talks to participation in the industry. For us, it was important to create, the incubator and the incubation hub because that talked to ownership in the industry and what is the role that women can play in terms of ownership in the industry."

"So, at a high school level, [it's about] really creating awareness for girls that STEM and STEM careers are an option for them. And then at the university level, how do we support cognitive and behavioural development to make sure that these incredible female engineers can thrive in in the workplace?"

HE4:

"They mentor and accelerate women in engineering, which is great because in the department of engineering, women are not really recognized."

The third sub theme that emerged under community builders is inclusion and diversity. The responses that emerged indicate that one of the hub's main mission and objectives is about providing an inclusive space and environment for women, specifically in traditionally male-dominated industries such as sciences, technology, engineering and manufacturing, to thrive and for support. This is evident in the responses from HM1 and HE4.

Participant HU1 noted how they were surprised and intrigued to discover that the hub was exclusively for women and operated by women.

Participant HE1 mentioned the hub is a source of support for women in STEM, helping them with their entrepreneurial journey. Participant HM2 further added that their role is to empower women by bridging the gap within the STEM fields.

Participant HEX1 gave more detail on the organization's inclusion and diversity initiatives. The participant outlined how the organisation supports women's inclusion and diversity. This is achieved by, first, raising awareness about careers in STEM and encouraging this pursuit with school going girls. Secondly, through providing support to women in university studying in STEM fields, and lastly, supporting female entrepreneurs within the STEM fields to be successful in their businesses.

4.5.4 *Sub theme 4: Operational business support*

Table 4.g Interview findings related to the sub theme Operational Business Support

Proposition 1: Innovation hubs play the role of fostering communities and offering structures that support the advancement of entrepreneurial activity.	
Main theme: Support structure providers	**Sub theme: Operational business support**
Quotations	
HE2: *"And throughout the program we offer stipends. Just like a helping hand and advice and things like that to them."* **HU1:** *"An entrepreneur will always accept a stipend, but I think what was most beneficial about this one was you were accountable. And you are to give feedback as to what exactly was that money used for in the business… For us, we were actually able to launch our peanut butter brand…with the stipend, it actually came to life."*	

HU5:

"The support that they bring into that experience is great in terms of not now just having all these master classes, but rather like, let's literally look at you individually as a business and as an entrepreneur."

"It's one thing teaching me how to fish and now I need the tools to actually, you know, catch the fish. So that's what they're doing and they're really great at."

HE3:

"She has a contract now with [a South African retailer]. And she went through the Accelerator Program, and obviously I think with [the hub's] assistance and guidance on certain aspects in her business I think that allowed her to address another step to get to where she is today."

HM2:

"We have different people from different industries come in. We have lawyers, we have accountants. We have people that talk to them about the requirements for starting up a business, how to get funding."

Operational business support is the fourth emerging theme from the main theme of support structure providers. The participants' responses all pointed to the hub providing operational support that assists the entrepreneurs in succeeding in their respective business ventures. This is mostly achieved through the programs they host that include workshops and masterclasses where the entrepreneurs acquire skills essential for operating their businesses. They also provide financial support through stipends and access to the hub facilities as spaces where business operations can occur.

Participant HU1 mentioned how beneficial the stipends they received were in launching a product they had been planning to launch for a while.

When asked about what services they offered to hub users, participant HM2 mentioned that they have industry experts that have been already vetted. The industry experts provide masterclasses and help entrepreneurs with essential business skills. This includes legal advice, financial management advice and help with funding. Participant HU5 praised the support received, saying the hub was great at providing knowledge and tools for success.

Similarly, participant HE3 mentioned that one of the hub users successfully entered into a contract with a national retailer, which was made possible through the connections facilitated by the hub and with the business support and guidance they were also provided with.

4.5.5 *Sub theme 5: Access to market*

Table 4.h Interview findings related to the sub theme Access to Market

Proposition 1: Innovation hubs play the role of fostering communities and offering structures that support the advancement of entrepreneurial activity.	
Main theme: Support structure providers	**Sub theme: Access to market**
Quotations	
HM2: *"So, there's also the various programs that give access to market because as much as you want to be part of incubation, but the main thing that I feel businesses lack or need is access to market."* **HU4:** *"I must say, it also helps with brand association. From people who'll be reading [the hub's] social media pages, people who'll be reading their social media, they get to know about our business."* **HU1:** *"[The hub] has opened so many doors. They've stretched me a lot as an entrepreneur."* **HEX1:** *"They need support around how is it that they access opportunities and markets, that can be quite closed and quite hard to enter into."*	

Access to market is the fifth sub theme to emerge from the support structure providers' main theme under proposition one. The consensus was that being a member of the hub or participating in the programs they host would place one in a good position to get access to the market through the networks the hub could facilitate.

It is apparent from the responses that one of the main reasons the entrepreneurs became members of the hub or participated in the programs offered was to also

gain access to market by way of opportunities and investment. Participant HU4 elaborated by explaining that being associated with the hub had a positive impact on the awareness of their brand. The hub's social media pages highlight its resident entrepreneurs and their businesses. These pages have a wide reach and as a result, increase exposure and awareness of the businesses taking advantage of the network effects. Participant HU1 stated that the hub has opened opportunities to meet investors and collaborate with other entrepreneurs.

Participant HEX1 said the hub helps female entrepreneurs access markets and opportunities. Access to markets in STEM industries can be challenging for this demographic.

4.5.6 *Sub theme 6: Access to facilities and services*

Table 4.i Interview findings related to the sub theme Access to Facilities and Services

Proposition 1: Innovation hubs play the role of fostering communities and offering structures that support the advancement of entrepreneurial activity.	
Main theme: Support structure providers	**Sub theme: Access to facilities and services**
Quotations	
HU3: *"I think hubs are good. They do offer that legitimacy pertaining to small businesses…People take you seriously when you're in an office space as opposed to operating from home."* **HU5:** *"Sometimes you need a designated space because you are an entrepreneur, a small business. You're not yet at a time where you're going to be spending money on renting premises, it's just a waste of money at that particular point, or it's money you don't even have. So, to have a hub like this, it helps in that regard because now if you've got an appointment with someone, you can say, look, this is where we're going to meet, this is where we'll have our meeting."*	

"It [the hub space] gives me a space, a really good working space, when I need it, for quiet, for focus, for whether you've got a meeting, for interviews, all sorts of things. I'm able to use the space for that."

HU2:

"So, it's those kinds of workshops where it was quite interactive as well. That's what I like about the workshops as well that we've had. There'll be quite a lot of engagement. You really get out of it quite empowered."

HU4:

"So, a hub will give you that access. It'll give you access to the internet; it'll give you access to a commercial space where you can operate your business, especially if you don't have a lot of stuff. You're still starting out. It gives you that value that you need at the beginning of your business."

"If you notice, even on social media, everybody who advertises the small business engagement, it's at a cost. And some of the small businesses cannot even afford it. So that for me, that's the value."

HEX1:

"[The hub space has] got possibilities for eventing, for running professional board meetings in our boardroom, presentations, interviews, and all of that in a space that supports a professional brand, which the founders may not necessarily have the financial means to create for themselves."

Access to facilities and services is the final subtheme from support structure providers. The responses from the participants highlighted the importance of the physical space, especially for small entrepreneurs who are starting up and do not have the finances for expensive office rentals. The hub facilities represent a space where business operations take place and provide legitimacy for starter entrepreneurs, an important factor impacting public perception.

Participant HU3 relayed that hubs are good for public perception, especially as a small business, because people take you seriously when you have a legitimate business address. Participant HEX1 supported this statement by explaining that the space "supports a professional brand which the founders may not have the financial means to attain for themselves" due to the high costs of rentals for small businesses.

As most hub users are small businesses who are mostly in their start-up phases or in operation for a few years, many do not have the finances to afford rental offices. Therefore, the hub services the gap that exists for the entrepreneur, as

participants HU4 and HU5 explained. Participant HU4 mentioned that hub facilities can be beneficial for start-up entrepreneurs who have few resources.

Besides the facilities it provides, the hub offers a space where the users can be productive and have access to essential products and services such as the internet and printers. This is elaborated on by participant HU5, who commented that the hub space is a good working space if they want quiet and to focus. They remarked they make use of the hub for a variety of reasons, including meetings and interviews.

The hub also offers services such as masterclasses and workshops as a part of the programmatic work they do. The hub users also get the benefit of these services. HU2 said the masterclasses and workshops made them feel empowered and were engaging and interactive.

Participant HU4 further remarked about the social media advertising service that they gain from being members of the hub. The hub showcases the businesses that are members and this is a valuable service to the participant because this eliminates the cost element but still raises awareness of the hubs' social network.

4.6 Findings pertaining to Proposition 2

The following section presents the findings relating to Proposition 2 i.e. *The key challenges facing hubs include access to funding, sustainability of the hubs in the long term, access to the right level of skilled labour resources and ensuring that they serve the communities they exist in.*

One key theme emerged from the data, namely *Sustainability*, with 3 related sub themes i.e., *Awareness and accessibility*, *Funding* and *Sources of energy(power).*

The findings are presented in the tables below.

4.6.1 *Sub theme 1: Awareness and accessibility*

Table 4.j Interview findings related to the sub theme Awareness and Accessibility

Proposition 2: The key challenges facing hubs include access to funding, sustainability of the hubs in the long term, access to the right level of skilled labour resources and ensuring that they serve the communities they exist in.	
Main theme: Sustainability	**Sub theme: Awareness and accessibility**
Quotations	
HU2: *"Access, access, because one of the things for me, is I am very flexy with the hours. So here, for now, you're limited to the access during their specific hours…I think for me, it would be access because I would like to work until eight some days. Sometimes I need to nine."* *"Some were there, it's just I didn't know. And so, I don't know how as entrepreneurs we can change that or even if the likes of [the hub] can be more visible"* **HU4:** *"Things like [the hub] and these communities, they actually bring awareness of certain things that you could not be aware of, as there are many business challenges."* *"They don't have access or they have no knowledge that such hubs exist."* **HU5:** *"…To have them in those areas where it's not Sandton, you know, it's Soweto, it's in Tembisa. And reach those people that would actually naturally be the ones who need the most…So, if those businesses or government or whoever could plough funds into, sort of cloning this in those areas. Saying, okay, you guys are doing great here in Sandton, now let's have you do the same thing in these other areas where access is an issue, you know. And push more of this literally across South Africa would be amazing."* **HE3:** *"I think people just need to become more aware of the hub because when I started, I didn't know that this place exists and this company exists. I think the more people become aware that there are facilities like this and they can use it literally for, if they want office space, if they just want to take photos. You know, the works."*	

HU1:

"To actually run this type of innovation accelerator hub in the townships. Yes, it was very beneficial for me to be able to come all the way from the township, but also to be part of this here. But I feel that they don't have the means to reach to the grassroots people. And because I'm from the township. I know exactly how the township functions and works. Their people. Yeah. Everything for me. This type of model of a program would create magic."

The first sub theme to emerge from the theme around sustainability is awareness and accessibility. Awareness relates to the public's knowledge of the hub and its activities. Accessibility relates to the ease of reach and use. The responses from the participants on accessibility varied, although a few mentioned that access to the 'hub-model' needs to also exist in areas that do not have these institutions, such as previously disadvantaged areas like townships. Participants also mentioned that they were not aware of the hub and services until they either began working for it or when they had applied for a program which the hub was hosting.

Participant HU2 said they would like to extend the hub's access hours. The participant would prefer longer hours to access the hub due to their flexible and longer business hours.

Participant HU5 and HU1 had similar opinions regarding access to services for those underserved, especially in areas previously disadvantaged. The participants reflected that hub institutions of this nature need to also exist in areas such as local townships as those communities stand to benefit the most from them.

HU2, HU4 and HE3 mentioned they were unaware of the hub's existence until they interacted with it. Participant HU2 mentioned that even though these hubs exist, there is little visibility. HU4 also similarly noted that some entrepreneurs do not have knowledge that such institutions exist. Participant HE3 also indicated that more could be done to raise awareness of the hub's existence, commenting that even they were not aware of it before beginning to work there.

4.6.2 *Sub theme 2: Funding*

Table 4.k Interview findings related to the sub theme Funding

Proposition 2: The key challenges facing hubs include access to funding, sustainability of the hubs in the long term, access to the right level of skilled labour resources and ensuring that they serve the communities they exist in.	
Main theme: Sustainability	**Sub theme: Funding**
Quotations	
HE4: *"I think it's not easy for them to get funds. So, they always underway, overseas and around to get funds from government and big businesses that that's how they stay on"* **HM2:** *"Sourcing funding is always an issue, with government. Government can give you a project for this year and then next year they'll be like, no, but we have to open it up to other companies as well."* *"Well, obviously it's all about money. We won't be able to survive without money. We do get a lot of funding from different organizations and now we've started actually working with a lot of government departments."* *"We actually reach out to organizations and we tell them what we do and if it's possible for them to fund the specific project, then we get it"* **HEX1:** *"I think we've been really fortunate that our revenue has been able to sustain our growth. But we find now that we are in a high growth phase. So, understanding the capital needs of our growing business is going to become more and more important and we are kind of looking at that now. So certainly, capital funding to support future growth. But also, we have a very strong business development pillar that sits outside of operations, because we understand that this world is not about sales, you know. This is such a relationship focused investment that funders would make."*	

Funding is the second sub theme to emerge from the theme of sustainability. Funding, in this case, relates to access to capital and financial sources required to operate the hub outside of the finances of the founders.

When asked about the various challenges they faced and how they ensure sustainability of the hub, some participants pointed out to the difficulty of sourcing funding and of the efforts undergone to secure funding. Participant HE4 elaborated on this by describing that it is difficult for the hub to secure funds and the founders have to often venture internationally to obtain funding from various entities in other markets.

Participant HM2 also stated that sourcing funding, particularly from the government, is a challenge as the government's timelines are not guaranteed, which affects the stability of the hub's income sources. This becomes a bigger issue as a large portion of what the hub does is in partnership with the governmental organisations. Participant HM2 also highlighted that funding is critical to the hub's survival.

When asked about how they ensure sustainability, participant HEX1 explained that the organisation has been fortunate to sustain itself through its growth, but the founders are seeing the need for more capital as the organisation grows further. They mentioned that their business development is also important, as the quality of the relationships built ultimately determines the funding they can secure.

4.6.3 *Sub theme 3: Sources of energy (power)*

Table 4.l Interview findings related to the sub theme Sources of Energy

Proposition 2: The key challenges facing hubs include access to funding, sustainability of the hubs in the long term, access to the right level of skilled labour resources and ensuring that they serve the communities they exist in.	
Main theme: Sustainability	**Sub theme: Sources of energy(power)**
Quotations	

HE2:

"It's just mostly based on loadshedding. Because once the lights are out of here, there is still Wi-Fi. But working in a dark room, you know, you can't really have meetings and things like that unless you've got like a light"

HE3:

"I think obviously the main challenges is loadshedding. Because you always have to schedule certain things around loadshedding because we currently have an inverter. But that's only for the Wi-Fi and the plugs. So, if we have someone over then, you know, there's no need to hire a generator."

HM2:

"Well with the hub, I think we can invest more on the physical space. I mean, when we have loadshedding, yes, we do have Wi-Fi, but we don't have lights. And that becomes a problem if you're coming here to have meetings. It's an issue. I think we need to also look at physically making the hub better for people that want to use it."

Reliable energy sources were a recurring sub theme that came up during interviews considering the ongoing load-shedding issue that is occurring in South Africa. Energy stability is critical to ensure business longevity and sustainability.

The participants all mentioned the load-shedding crisis as a key challenge in the hub environment. Participant HE2 mentioned that load shedding impacted the ability to work, as the lights were usually out. The Wi-Fi continues to work, though, as the hub has an inverter which powers the Wi-Fi and the plugs. Participant HE3 added to this by saying that load-shedding is disruptive and an inconvenience, as they have to always plan around the schedule. Considering the load-shedding issue, participant HM2 proposed more investment in the physical hub to improve it for its users, so that issues like load-shedding do not affect the operational ability or attractiveness of the hub.

4.7 Findings pertaining to Proposition 3

The following section presents the findings relating to Proposition 3, i.e., *Success factors of innovation hubs include its geographical location, its linkages to external players, fostering community participation and offering a good balance of resources and services.*

One theme emerged from the data relating to this proposition with 3 sub themes. The main theme is *Key Success Factors* and the sub themes are *Impactful work*, *Hub Experience* and *Partnerships*.

The findings are presented in the below tables.

4.7.1 *Sub theme 1: Impactful work*

Table 4.m Interview findings related to sub theme Impactful Work

Proposition 3: Success factors of innovation hubs include its geographical location, its linkages to external players, fostering community participation and offering a good balance of resources and services.	
Main theme: Key Success Factors	**Sub theme: Impactful Work**
Quotations	
HEX1: *"And if we work with smaller groups, we're able to go deep, we're able to understand the founders and their needs better, and we are able to meet them where they're at and understand what their needs are in terms of incubation and development. So, for us, impacting 400 founders who are then able to create more jobs, run increased revenue and do increase capital raises, is a great outcome for us."* *"On the number of founders that we've impacted, so we, through our incubation and acceleration hubs, have impacted roughly 400 founders. And all female founders, all based, in South Africa or on the continent."* **HM1:** *"In order to open more hubs, you have to make this space work and this space is working well"* **HU5:** *"It's just what South Africa needs more of, and I hope there are other ones that run, more hubs that run like this, or better if they are, I don't know better how. But yeah, this is pretty awesome for me."* **HM2:** *"It's very nice to see that you're actually making a change in people's lives and you're doing something to contribute positively to them."*	

“Success looks like having the women that come in here, who have started up their companies come back and say, I found funding here and my company's growing, or I'm employing now 10 people in my company and I'm making a revenue stream of 10 million, we want to see growth. Most importantly, we don't want you to come here and five years down the line, you're still facing the same challenges that you were facing when you came. So that's how we see success. It's when we see other people becoming success because of what they gained from us.”

HE4:
“When they see their founders growing. When they see their founders successful. More successful than they were when they joined the hub, the programs.”

The first sub theme to emerge from the main theme of key success factors is of Impactful Work. This theme relates to the results of the hub activities and what makes the hub successful.

Participant HEX1 mentioned their preference for small groups to better understand users and provide better incubation and support. They also shared the estimated total number of founders that they have impacted in Africa, which equates to around 400.

Participants HM1 and HU5 remarked about how the space works well, is well operated and more establishments like it need to be in South Africa.

Some participants defined success for the hub as being the success of the founder’s businesses because of their participation in the hub program. Participant HE4 remarked that seeing the founders growing and becoming successful from participation in the hub programs was what the hub considered as success. Participant HM2 further elaborated that being involved in changing someone’s life and seeing the positive contribution was a benefit. They said that seeing the growth of the founders and getting feedback about their growth was important to the hub, as that indicates that what the hub was doing was making a difference in the founder’s lives.

4.7.2 *Sub theme 2: Hub Experience*

Table 4.n Interview findings related to the sub theme Hub Experience

Proposition 3: Success factors of innovation hubs include its geographical location, its linkages to external players, fostering community participation and offering a good balance of resources and services.	
Main theme: Key Success Factors	**Sub theme: Hub experience**
Quotations	
HU5: *"In terms of now having been here and gotten to know of them, through the program, I will continue using the hub because even post the program because it just makes sense. As opposed to going and looking for another place. Because it becomes so comfortable here. I know the people and this complete experience has been great."* *"In terms of the hub itself, the hub is great. The hub has everything. There's coffee, there's Wi-Fi, awesome beautiful space. So, the hub is awesome. It's great! It's what it needs to be…I mean, the people are warm, friendly, and always just willing to help,"* **HU1:** *"I would do exactly as [the hub] does. Very, very close-knit group. Very small number that you can manage. There's no point taking a big chunk that you cannot fully service. So, for them it was a very intimate."* **HU2:** *"The staff is so willing to assist us with even the most smallest things. From smallest to the biggest."* **HU4:** *"You're able to get that help that could have cost you money. You can get that kind of help for free."* **HE4:** *"They leave here with smiles. Like they're very happy, they have gained more knowledge."* **HEX1:** *"The physical hub is the space that we've created, which we believe gives female founders a home, gives them a space where they can bring their creativity, where they feel that they belong. Where they, have kind of dedicated spaces to be able to do business, particularly when they're starting out where they wouldn't necessarily have office space".*	

The second sub theme that has emerged from the main theme of key success factors is hub experience. The hub experience encompasses the perspective of the users and the employees and management.

Participants had a positive opinion of the hub experience, citing the staff's friendliness and helpfulness, the productive work environment, and the low-cost amenities. Participant HU5 remarked on the great experience at the hub and about the level of comfort they had while there. They further commented saying that the people (employees) were warm and friendly and always willing to assist. This statement was corroborated by Participants HU2 & HU4, who noted that the staff were always willing to help with anything, whether big or small. The hub offered them access to facilities and services, often without any cost implications.

The participants who are employees described the hub as a place of growth. There were various opportunities for them to grow within the hub and additionally, the hub being in its growth phase, a lot of expansion was in progress and many potential opportunities along with this.

Hub participant HEX1 explained that the hub was a refuge for entrepreneurs. A safe space created that encouraged creativity and belonging, all while allowing business operations to occur.

4.7.3 *Sub theme 3: Partnerships*

Table 4.o Interview findings related to the sub theme Partnerships

Proposition 3: Success factors of innovation hubs include its geographical location, its linkages to external players, fostering community participation and offering a good balance of resources and services.	
Main theme: Key Success Factors	**Sub theme: Partnerships**
Quotations	
HEX1: *"I would say about 90% of our work is programmatic. And so, what that means is female founders would join a defined program that is client mandated and they would go through an incubation program with us."*	

"We have a very strong business development pillar that sits outside of operations because we understand that this world isn't about its sales, you know. This is such a relationship focused investment that funders would make. So, what that means is we need to create relationships with clients who are either philanthropies or corporates or government agencies like embassies and stuff who are looking for sustainable outcomes for either economic growth, as I said, or diversity and inclusion, or for corporates looking for female suppliers into their value chain. So that business development leg is very important for us and also gives us a longer-term runway for our business."

HM1:

"There's interest in Africa in Kenya and other places to open similar hubs. So, plans for opportunity and growth [are] definitely there. In Namibia, the First Lady of Namibia is building a hub. And I think we've been offered a part of it. There are plans to expand to Cape Town."

HM2:

"…They also source funding from different organizations that also want to help women in the STEM industry."

"It is with the Western Cape government and they specifically said they want women-owned businesses in STEM that are based in Cape Town. They don't want to fund companies outside of Cape Town. So, it's according to specific issues of the client, mostly."

"So, we do have a lot of projects that we are working with different companies that actually pay us."

The third sub theme to emerge from the main theme of key success factors is partnerships.

The responses indicate the importance of the role partnerships play within the hub's activities and environment. The partnerships, as well as the ecosystem that the hub has built, forms the pillar around which the hub operates.

The response from participant HEX1 highlights that most of the work they do was related to work commissioned by one of their partners. These partner entities range from being corporates, governmental agencies, philanthropies and embassies. The participant further elaborated on the importance of building relationships with the various entities that sponsored different programs in order to enable them to continue providing cost-effective services to the hub users and women within the STEM fields. HM2 responses proved programs are funded by partners with distinct requirements, all to empower women in STEM.

The hub formed partnerships with corporate companies and governmental agencies in South Africa and other African countries. Participant HM1 mentioned the hub had partnerships with governmental agencies in Kenya and Namibia and was planning to construct a similar operational model in these areas, too.

4.8 Summary of the findings

The chapter presented the findings that emerged from the interviews conducted with the participants. Four themes (community builders, support structure providers, sustainability and key success factors) and twelve sub themes emerged from the data.

CHAPTER 5. DISCUSSION OF THE FINDINGS

5.1 Introduction

The following chapter will discuss and explain the findings of the study by proposition. This will be achieved by discussing and explaining the themes and sub themes that were introduced in chapter 4 while also referring to relevant literature.

5.2 Discussion pertaining to Proposition 1

The first research question focused on the principles of the innovation hub's approach and its business model.

The first proposition that was put forward was *Innovation hubs play the role of fostering communities and offering structures that support the advancement of entrepreneurial activity.* Two themes and six sub themes emerged from the data under this proposition i.e., community builders (sub themes: network facilitators & connectors, community support, inclusion and diversity) and support structure providers (sub themes: operational business support, access to market, access to facilities and services).

5.2.1 *Community Builders*

The studies of Jimenez & Zheng (2017) and Friederici (2017, 2018) both found that innovation hubs play the important role of community building. They note that innovation hubs are places where the hub users positively gained from the community, impacting their entrepreneurial journeys.

The findings from the data of the study corroborate the literature. The participants discussed how the hub created a supportive network of entrepreneurs. This act of community building was also instrumental in growing their businesses further.

i. Network facilitators & connectors

Littlewood and Kiyumbu (2018) suggested that innovation hubs act as intermediaries, creating networks and relationships. The responses from the participants show that the hub under study is a place where networks and key connections occur. They alluded to the notion that they gain immense value from being a part of the hub, as it allows them to access these networks and form connections that are key to their respective entrepreneurial journeys.

The responses from the participants highlighted the importance of the networking factor within entrepreneurship. The idea that you can go further together rings true in this case. One could argue that the success of entrepreneurship, especially early entrepreneurship, is heavily influenced by the nature and quality of the networks of the entrepreneur. Building a business is complex, needing a combination of skills and expertise. It is too much for one individual to execute on alone. This is where networks become valuable. Networking, investment and acquiring skills help grow a business.

The responses from the participants, especially the hub managers, suggest that the hub places an importance and emphasis on networking and being the intermediary responsible for connecting various parties together to achieve synergies. Participant HM2 encapsulates this well by mentioning the following *“We bridge the gap between entrepreneurs and experts in the field and also helping them get funding and making sure that the companies are a success. So, we play that middle man making sure that they connect.”* This participant mentions that the connections that are made by the founders are shared freely with the hub users. This act of encouraging networking and taking on the responsibility of providing the platform to connect for so many women indicates the hub’s dedication to building community.

ii. Community support

Friederici (2017, 2018) is of the opinion that community is the most valuable benefit that hub users gain. Additionally, that hubs provide motivational and

emotional support to its users who are mostly entrepreneurs. The findings from this study reveal some similarities.

Strong community support was a recurring theme that most of the participating hub users mentioned. Their responses revealed they held being a part of the community in high stead and benefitted from the support the community provided. Community support seems to be extremely important for both the hub and its users. This is demonstrated through the structures in place to promote and encourage community. This includes having an active community manager whose role is to keep the community engaged, active and keep the conversation going, support groups where hub users can engage and support each other further and engaged and supportive staff.

The responses indicate that the aspect of belonging to the hub and being within the community may be one of the most important benefits for the users. Many of them indicated the high value they place on the support and knowing that the entrepreneurial journey they are on is not one they have to do all alone. These findings support the out of the Friederici (2017, 2018) studies.

The importance of wellness, especially mental wellness, is a topic that is often overlooked when dealing with business or entrepreneurial areas even though it is extremely important due to the sheer grit, perseverance and determination required to make a business succeed. The participants appreciated the psychosocial support that the hub provided, especially as they were starting out with their businesses. One participant remarked that the hub staff care about the hub users' wellness, above and beyond their businesses, saying that the staff supported them through a tough time. The road of entrepreneurship is not an easy one and the entrepreneurs need as much support as possible. The hub being a place where they can get such help makes it worthwhile for the users because they know that the hub likely has experience in their area of challenge and can probably advise on a course of action. In addition, they have access to the network where relevant expertise can be leveraged according to their needs. A paper by OECD (2019) indicates that business that receive support from hub establishments such as incubators or accelerators tend to have higher survival

rates, generate more revenue and that there is evidence that hubs that support underrepresented groups such as women also show similar trends.

These particular findings from the study can further enrich the findings by Friederici (2017, 2018) and Littlewood & Kiyumbu (2018). Littlewood & Kiyumbu (2018) that discovered that innovation hubs play the role of being “hybrid intermediaries that fulfil the institutional voids through providing market infrastructure, facilitating network and relationship building and developing the skills and capabilities of entrepreneurs.” The contribution of this study is to include the dimension of belonging and wellness to the role that innovation hubs play within the entrepreneurial community. The focus is so often on the technical skills needed and gaps small entrepreneurs have, that little is considered about the psychosocial and human element required to support entrepreneurs. Our findings suggest that belonging to a community and receiving psychosocial and wellness support are valuable benefits for the hub users and are factors that can influence the hub experience.

iii. Inclusion and diversity

Inclusion and diversity are core themes that run through everything the hub does. The hub was created to tackle the poor inclusion and diversity within the science, technology, engineering, and manufacturing industries, especially for women in these industries. The hub being founded by women, operated by women with a focus on women, is one of its key differentiators.

Creating a community that is inclusive within STEM is within the hub’s core mission and vision. Women are still underrepresented in these fields, with few countries achieving gender equality in within STEM fields (UNESCO, 2017). According to UNESCO (2017), only 35% of women are STEM graduates globally. In South Africa, women make up approximately 35% of managerial and professional employees in STEM fields (Moleko, 2018). The inclusion agenda is taken seriously by the hub and this is reflected in its activities.

The organisation has multiple touchpoints where they have an impact within the ecosystem. This is can be seen through their engagement at a junior and high

school level where careers within STEM are introduced and encouraged in school going girls. At the university level, female students in the STEM fields of study are provided with relevant support to succeed. Within the business world, female entrepreneurs are supported through incubation and acceleration activities provided by the programs they host.

One could argue that their involvement at the various career levels within the ecosystem allows them to understand the needs at the various levels and are better equipped to service those needs, impacting on their overall effectiveness and success.

5.2.2 *Support Structure Providers*

The data from the interviews and the interactions with the participants reveals that the hub fundamentally provides support to its users. This support can be segmented into at least 3 identifiable levels, in particular, operational business support, support accessing the market and support accessing facilities and services required to operate a business.

These findings are consistent with the findings of Jimenez & Zheng (2017) that hubs play the role of filling institutional voids by becoming providers of infrastructure. The data from this study further reveals that above the infrastructure support provided by the hub, additional support in the form of business skills and access to relevant networks that enable success are valuable resources provided by the hub.

i. Operational business support

The hub's business model includes having an incubator and accelerator for small businesses within STEM. Some of the work they do includes hosting programs on behalf of, or in partnership with their partners where they upskill and train participants on essential skills to succeed as entrepreneurs within STEM.

It is important to highlight that the success of a venture or business lies not only in it being a good idea but in good business practises which boil down to good

operational health of the business. This includes the likes of having healthy cash flows, ensuring the business is legally airtight and the marketing is at the right level, amongst other things.

Participants showed that while many hub users were running successful businesses, they still needed help with the basics of business operations. The hub provides education on financial, legal, and marketing matters to equip entrepreneurs with the skills needed to run a business. Participant HU5 was equipped with the right tools and educated, as well as empowered with relevant skills..

The hub users needed extra financial support to either scale the business or continue operating optimally. Participant HU1 mentioned that the stipend they received was a catalyst for launching a product they had had in the pipeline. This again highlights the value this sort of business support provides the hub users or the participants of the hub programs.

Some are of the opinion that innovation hubs are primarily for the discovery of unicorn companies. Unicorns are defined as privately owned and operated startups with a valuation of over 1 billion US Dollars (Chen, 2022). But how realistic is this expectation, especially in a 3rd world country with a very different environment and different level of challenges? One could argue that the hubs play an important role in bridging the gap that exists in entrepreneurial education.

ii. Access to market

Studies have shown that there is a relationship that exists between the success of a business and the access it has to markets and resources (Chittithaworn, Islam, Keawchana & Yusuf, 2011; Omri, Frikha & Bouraoui, 2015). Access to markets in this study refers to access to capital, resources and contacts within the industry for the success of the business.

The Chittithaworn et al. (2011) study explored the success factors of Small & Medium Enterprises (SME's) in Thailand and identified the important role of external factors in ensuring the success of the firm. They found that networks and

government support improve access to knowledge and capital. Omri et. al. (2015) indicated that small businesses with more access to human and financial capital have greater chances of success due to their likelihood of exploring innovation within their business. This investment in innovation often results in the business succeeding.

The participants in the study highlighted access to markets as one of the key benefits of being members of the hub community and participating in the programs hosted by the hub. The findings from the data highlight the hub helps to connect the hub users to the market.

Access to market is critical to ensure the growth and success of small and new entrants and can be argued to be a determinant of success of the business. Access to market for previously marginalised groups within the STEM industries is even more important to ensure their advancement and success because access to markets for these groups is currently a challenge due to markets being closed as highlighted by Participant HEX1 “They need support around how is it that they access opportunities and markets, that can be quite closed and quite hard to enter into.”

iii. Access to facilities and services

The hub plays the role of also providing access to facilities and services. As mentioned above and previously, Jimenez & Zheng (2017) found that hubs play the role of being intermediaries that provide infrastructure to the entrepreneurial community. In this case, the hub plays a similar role. It provides essential infrastructure that entrepreneurs require to operate.

An interesting comment made by a participant is that by being related to a hub, small and start-up businesses gain legitimacy. Participant HU3 said, “I think hubs are good. They do offer that legitimacy pertaining to small business. People take you seriously when you’re in an office space as opposed to operating from home.” Public perception and image are of high importance for small businesses and having a formal work address allows the public to view the organisation as a professional entity. This may fair favourably for the small business, as it may

mean that they get more business through opportunities or sales because they are credible and legitimate.

The data reveals that the access to facilities and its services is a big benefit and value driver for the users. Most of the hub users are start-ups or small to medium-sized businesses. Starting and running a business takes large amounts of capital, and office rentals can also be expensive. A hub of this nature gives a business access to the same services and facilities as an office, but at a lower cost or even free. This has an effect of putting less pressure on the finances of the business and allows the entrepreneurs to focus on other critical factors of operation.

The hub has sufficient facilities for business use, like boardrooms, event spaces and private meeting rooms. There is access to Wi-Fi, printing facilities, kitchen facilities with refreshments and an open and inviting space conducive to professional work. These are all important inputs and factors for a growing business and entrepreneurs.

5.3 Discussion pertaining to Proposition 2

The second research objective involved identifying and exploring the typical challenges that the hub experiences and must overcome.

The second proposition that was put forward was *the key challenges facing hubs include access to funding, sustainability of the hubs in the long term, access to the right level of skilled labour resources and ensuring that they serve the communities they exist in.* One theme and three subthemes emerged from the data. Namely, sustainability as the main theme and awareness & accessibility, funding and sources of energy as the sub themes.

5.3.1 *Sustainability*

The sustainability of innovation hubs is an area that has been widely analysed along with the factors influencing it (Lose & Tengeh, 2015; AfriLabs & Briterbridges, 2019; Abrahams, 2020; Kolade et al., 2021). As seen in earlier

chapters, sustainability of hubs may be impacted by the business model of the hub and funding, to name a few examples.

Sustainability is a key theme that emerged from the data that related to challenges that the hub faces. Sustainability, in this case, relates to all the factors that affect business continuity and the hub's ability to fulfil its mandate. Three main sub themes have emerged relating to this theme namely awareness and accessibility i.e., the marketing and awareness efforts and general accessibility of the hub, the funding i.e., sources of consistent and stable funds and sources of energy i.e. alternative energy or power sources.

i. Awareness & accessibility

Awareness was a theme that was consistently mentioned by the participants. Many of them highlighted the lack of awareness they had of hubs. They did not know of their existence and were not aware of what they do. They also did not know of this hub until they interacted with it. Participants noted the lack of visibility of these institutions and what they do within the public and especially with the people their services are aimed at, i.e., the small and start-up entrepreneurs that require the additional support.

Lack of awareness of the hub can be seen as a challenge as it may affect and possibly hinder the hub's ability to render its services and achieve its mandate. The hub in the case prides itself in being a boutique hub, which serves and services a very niche market. This may result in it inadvertently limiting its exposure to the public. The hub has active social media profiles on the major social media platforms such as Facebook (2300 followers), LinkedIn (3261 followers), Twitter (631 followers) and Instagram (1647 followers) with a collective reach of ~ 7800 followers. A Google search also returns numerous articles about the founders of the hub and the work they do at the hub. In terms of online presence, the hub is doing well and is well represented across the various platforms.

Accessibility in this case can be analysed as either ease of access in the physical sense, i.e., is it located in an area that is easily reachable for its users, is it easy

to access the facilities and does it have reasonable operating times. Accessibility can also be also viewed as its reach and ability to service the people that truly need it.

A few study participants made comments about how more institutions like the hub need to be located in areas where their services are required and areas where hubs can make a real difference. They mentioned townships, which are areas known to be historically underserved and previously disadvantaged. The President of South Africa declared plans to expand the network of these institutions across South Africa with a focus on previously disadvantaged areas (Timm, 2019). This is exactly the gap the participants have identified within the communities they come from and are more aware of their challenges and needs. Structures like the hub are important, especially in the underserved areas, as access to such facilities raises awareness about entrepreneurship and encourages participation in entrepreneurship within those communities. This may be a step in addressing the high unemployment rates and economic growth contribution.

ii. Funding

The literature on hubs finds that access to consistent funding is a common challenge faced by numerous hubs (Gernego et al., 2021; Lose & Tengeh, 2015; Shinga, 2010). Hubs depend on external funding, which is not always easy to attract or consistently get.

The hub depends on different sources of funding. They have capital funding that is sourced from the founders. Additionally, the hub and the group have investors, some of which are found while on international business engagements. They partner with local government and corporate entities to deliver STEM programs. These are all sources of where the organisation gains funding sources.

Getting access to all these sources of funding is where the challenge lies. Funding is the lifeline that keeps the hub afloat. The hub management has active business development, which they partly depend on for business continuity. There has been a realisation that the nature of the business is largely relationship

based and efforts have been directed to growing this aspect as the founders partake in international travel to increase their networks and secure international investors and partners.

It is clear that funding influences the sustainability of a hub. More creative methods and financing policies need to be created and implemented to ensure that sustainability is maintained for hub establishments.

iii. Sources of energy

Reliable energy is one of the main challenges that has emerged from the data. This challenge can be viewed as situational as it arises due to the current energy crises that is faced by South Africa called load-shedding. Load shedding is a South African phenomenon that occurs due to power constraints on the electricity grid, which results in rolling blackouts. The blackouts are planned outages of electricity. This means that there are times throughout the day where there is no electricity available (Walsh, Theron & Reeders, 2021).

The impact of loadshedding is quite catastrophic on the South African economy, costing an estimated amount of up to R204 million - R899 million per day (South African Reserve Bank, 2023). The effects are worse for small and medium businesses, with many having had to shut down too due to lack of alternative sources of energy (Adonis, 2022).

Similarly, load-shedding has affected the operations of the hub in the case. Due to the hubs' activities and services requiring physical attendance to make use of the hub, energy is quite important. Most of the participants who are employed by the hub brought up that load-shedding is a key issue they face at the hub. Loadshedding is disruptive and requires alternative sources of energy to offset the disruption it brings to productivity.

One participant mentioned that the hub needs to invest in making sure the hub is comfortable for its users and caters for all their needs. This would also include ensuring that the hub can still function during disturbances like load-shedding. Previously, it was mentioned that hubs play the role of being infrastructure

intermediaries (Littlewood & Kiyumbu, 2018), the issue of load-shedding means that this key benefit for the users cannot be fully realised or utilised.

The interim solution the hub has put in place is an inverter which only powers the Wi-Fi but does not provide power to the plug points or the lights in the hub. This means the hub users can potentially continue with their work provided their devices have sufficient power to last the duration of the load-shedding slot. The hub is located in an office park and could potentially have access to a generator that is organised by the different members of the office park.

5.4 Discussion pertaining to Proposition 3

The third research objective was to uncover the principles the hub applies in defining and measuring success.

The third proposition put forward was *success factors of innovation hubs include its geographical location, its linkages to external players, fostering community participation and offering a good balance of resources and services.* One main theme emerged, namely Key Success Factors and 3 sub themes, namely impactful work, hub experience and partnerships.

5.4.1 *Key success factors*

Various and differing success factors have been identified in the literature.

Key success factors relate to how the hub defines and measures success. It relates to what uniquely differentiates the hub and can be considered a competitive advantage.

i. Impactful work

The hub defines its success as the number of founders or entrepreneurs it has impacted. Their programs have been completed by 400 female entrepreneurs in South Africa and Africa. They are a boutique innovation hub, so their numbers will be smaller compared to other hubs. They use their smaller size to their

advantage as it allows them to understand and focus in on the entrepreneurs and their issues in more depth and by doing so, provide relevant assistance and solutions.

The hub is intentional in making a change and helping the entrepreneurs succeed and see improvements in their businesses. This is clear in the responses from both the hub users and the employees. The employees view success as making a difference to the entrepreneur's way of doing business, whether it is through the knowledge acquired, access to markets, or through getting funding and growing their operational capacity. The responses from the hub users indicate that there is a positive sentiment towards the hub and its impact on their entrepreneurial journey. They have made mention of the uniqueness of the service provided and how the hub, as an institution, works well.

ii. Hub experience

Throughout the data collection processes and the interviews held, it was quite clear that the respondents' experience of the hub and its services is regarded as a key success factor and value driver. Consistent positive comments relating to the hub experience were made by the hub user and hub employee participants. This can be viewed as a unique differentiator and thus a key success factor.

Providing a seamless and remarkable hub experience was a deliberate decision made by the hub management. Physically, the hub itself is aesthetically pleasing to the eye, functional, and is prime for productivity to occur.

Attention has also been placed on the quality of service being provided to the hub users. Many of the participants mentioned how helpful the staff is. The hub being a place where users feel a sense of belonging and comfort also relates to the positive hub experience provided through the hub. Perhaps these factors also draw in and attract the hub users by making them continue using the space even after they have concluded their partnership program tenure in some instances.

iii. Partnerships

This study shows that the hub's work, awareness, and access to new users and sponsors are all impacted by the partnerships.

The hub management has been strategic in partnering with strong, recognized brands in the market. This gives them access to potential users and sponsors, legitimizing their brand, building trust and raising awareness. Many of the hub user participants mentioned they applied to a program that was sponsored by a well-known corporate organisation, and it was through the program that they were introduced to the hub due to the existing partnership.

The hub’s partnerships with governmental agencies have also been instrumental in their success. Through these collaborations, the hub has put plans in motion for its expansion into various African regions, enabling them to tap into broader markets. More access and awareness can be achieved when collaborations in the form of partnerships occur, provided there is a synergy between the organisations.

5.5 Discussion pertaining to the Theoretical Framework

The Assembly theory (discussed in chapter 2.3) formulated by Friederici (2018) was used as a guide for this study. The theory proposes that innovation hubs play the role of being connectors of separate entities within the entrepreneurial ecosystem through facilitating communities in the ecosystem of parties that would have otherwise not met.

The findings of this study support this theory. The findings suggest that the hub, in its environment, helps to facilitate networks and handles community building of female entrepreneurs within the STEM ecosystem. They play the role of being connectors by being the central and common point of contact for the entrepreneurs and the funders. The findings on the psychosocial and wellness support the hub provide further support Friederici’s (2017) findings that hubs are

places where entrepreneurs are provided with emotional and motivational support.

5.6 Conclusion

The chapter discussed the findings related to the research objectives of the practises and success factors of an innovation hub in South Africa.

The key takeaways are:

The hub plays the role of being a community builder, responsible for facilitating networking and connection between different parties. The hub plays the additional role of providing operational business support to the hub users.

The challenges that are faced by the hub include awareness of the hub and its services. Secondly, securing and consistently raising funding, as this is a very relationship-based business. Lastly, having stable sources of energy as load shedding causes disruptions and impedes on the value it brings to its users.

The key success factors of the hub include the impactful work it does that results in conversion of users from the incubation or acceleration programs into hub users. Secondly, the hub experience and service the hub provides results in positive sentiment and users that have long tenures at the hub. Lastly, the success of the hub lies in the strength of its partnerships with external organisations where synergy can occur. The findings suggest partnerships can bring the hub more users, access to new markets, and increased growth.

CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS

6.1 Introduction

The study sought to explore the practices and success factors of an innovation hub in South Africa. Innovation hubs are a recent phenomenon in the African context, and understanding what they do and the value they bring is important for the ecosystem they are a part of.

The study had 3 research objectives, namely:

1. Explore the principles underlying the particular approach and business model of the innovation hub
2. Identify and explore the typical challenges that the hub experiences and needs to overcome
3. Uncover the principles the hub applies in defining and measuring success

This chapter discusses the conclusions reached from the findings. It will first discuss the conclusions per research objective, secondly it will provide recommendations per the conclusions and lastly provide suggestions for further research on the topic.

6.2 Conclusions regarding research objective 1

Research objective 1 was to *explore the principles underlying the particular approach and business model of the innovation hub.*

The findings revealed the hub plays the role of community building and providing operational business support to its immediate community. The results align with previous research on innovation hubs by Friederici (2017, 2018), Jimenez & Zheng (2017), Littlewood & Kiyumbu (2018), and Atiasea et al. (2020) as

discussed in Chapter 2. The notable point of difference is on the core focus of inclusion and diversity that the hub places emphasis on. Its boutique nature means that it has smaller numbers and can focus and truly understand and assist the hub users in their respective journeys.

The hub can be considered as a community builder. It has achieved this through providing a platform and being responsible for facilitating networking and connection between different parties. This is a critical component to the longevity of the entrepreneurial community as networks have the potential to fuel growth. The hub supports and encourages community building. Insight was provided on the difficulties of the entrepreneurial journey and thus the support offered through the internal hub community helps to manage and ease this pain point of entrepreneurship. The hub places high importance on inclusion and diversity, as this is one reason for its existence and purpose.

The hub plays the additional role of providing operational business support to the hub users. This includes infrastructure support (services and facilities) and business support (skills and market access). This function is one of its key and main benefits to the hub users and a key value driver. The hub enables entrepreneurs to access the necessary services and facilities. The hub's services and infrastructure aid entrepreneurs in overcoming their business shortcomings.

6.3 Conclusions regarding research objective 2

Research objective 2 was to *identify and explore the typical challenges that the hub experiences and needs to overcome.*

Three key challenges were identified and emerged from the data. These were awareness of the hub, securing funding and lastly, unstable energy supply.

Awareness and accessibility were other challenges that emerged from the study. Poor public awareness of the hub was highlighted. This may have the result of limiting the exposure and subsequently the reach of the hub as a brand and its services, impacting the potential new hub users or potential investors.

Accessibility of the hub services to the people that really require them was also highlighted as a challenge. More institutions similar to the hub should be located in areas where the entrepreneurs who need them the most would benefit from their resources.

Secondly, securing and consistently raising funding was found to be a challenge faced by the hub. This finding is consistent with literature from AfriLabs & Briter Bridges (2019), Abrahams (2020), UK-South Africa Tech Hub (2020) Gernego et al. (2021) and Kolade et al. (2021). Funding forms part of the lifeline of the hub. Its sustainability depends on it. The study revealed that the hub relies on multiple sources of funding. The hub management understands the significance of relationships and is taking action to expand current networks through their business development activities. Active and consistent business development is seen to drive the longevity within the business and augment its ability to achieve more.

Lastly, unstable energy supply was found to be a challenge faced by the hub. Load-shedding causes disruptions and impedes on the value the hub brings to its users. It limits the functionality of the hub impacting on the services it provides and on the overall hub experience, which is one of the key value drivers. The importance of energy backups for business continuity was emphasized, especially in places with unreliable energy sources.

6.4 Conclusions regarding research objective 3

Research objective 3 was to *uncover the principles the hub applies in defining and measuring success.*

The data revealed three key success factors for the hub, namely impactful work, providing a notable hub experience and having partnerships with organisations where synergies exist.

The data showed the hub had no structure to assess success, apart from reviews conducted before and after the program.

The key success factors of the hub include the impactful work it does. The hub is a boutique hub, allowing fewer entrepreneurs in and more focus and attention to be given to hub users. This is clear in the quality of service the hub users receive, evident from their responses where there is general satisfaction.

Secondly, the hub experience and service the hub provides plays a big role in the value it provides for its users and results in positive sentiment towards the hub. It additionally increases conversion rates of program participants into full-time hub users.

Lastly, the success of the hub lies in the strength of its partnerships with external organisations where synergies can occur. The findings show that the right partnerships allow the hub access to new hub users and access to new markets, unlocking the potential for more growth. This is evidenced by the partnerships it currently has in different markets and ones also in the pipeline.

6.5 Recommendations

Chapter 1 identified three groups who could benefit from this study: government, business, and universities. The recommendations based on the findings are:

- Establishing similar operations in the underserved areas of South Africa, particularly within the townships of South Africa, to benefit the entrepreneurial community of that area. More establishments in townships would improve awareness of these services and drive entrepreneurship, aiding economic growth.
- Innovation hubs should actively work to raise awareness of their services. This can be achieved in various ways. For example, aligning with brands that have a wider audience to access potential clients. The innovation hubs could also make greater usage of social media platforms to create an awareness of their brand. Social media platforms can be leveraged for additional access to the public. They provide the ability to interact easily with the public and provide a platform to showcase their work further, allowing them to market the work they do.

- Making use of creative funding models that benefit both the investors and the beneficiaries to create more sustainability and longevity for innovation hubs in the entrepreneurial community.

6.6 Possible limitations and challenges of the study

- Receiving permission required access to the desired sites for data collection
- Availability of the participants for interviews and data collection within the project timelines.
- Getting the adequate number of participants to interview required in the within the planned timelines.
- Ensuring that the data collected has useful information that contributes to the analysis and understanding of the overall study.
- Lack of experience collecting data via interviews.

6.7 Suggestions for further research

Literature on innovation hubs as necessary structures within the entrepreneurial community of Africa and South Africa continues to grow as the innovation hub agenda expands and increases in sophistication.

There is still potential to add to the growing literature around the topic. The suggested topics for further research related to innovation hubs are:

- The impact of partnerships on the success of innovation hubs
- Measures of success for innovation hubs
- The effectiveness of innovation hubs in fulfilling their mandate
- The impact of innovation hubs on startups or small businesses.

REFERENCES

Abrahams, L. (2020). Innovation entanglement at three South African tech hubs. *The African Journal of Information and Communication (AJIC),* 26, 1-29. https://doi.org/10.23962/10539/30358

Adonis, V. (2022, December 22). Stage 6 load shedding - the small business killer. *IOL*. https://www.iol.co.za/business-report/entrepreneurs/stage-6-load-shedding-the-small-business-killer-0843bfd5-ffa1-4b17-94d5-3c12f5bd7231

AfriLabs & Briter Bridges. (2019). *Building A Conducive Setting For Innovators To Thrive: A Qualitative And Quantitative Study Of A Hundred Hubs Across Africa*. Afrilabs And Briter Bridges. https://www.afrilabs.com/wp content/uploads/2019/11/AfriLabs-Innovation-Ecosystem-Report.pdf

Akinyemi, T. (2015, March 30). *11 Key lessons for Innovation Hubs in Africa.* VC4A. http://vc4africa.biz/blog/2015/03/30/11-key-lessons-innovation tech-hubs

Atiasea, V., Kolade, O., & Liedong, T. (2020). The emergence and strategy of tech hubs in Africa: Implications for knowledge production and value creation. *Technological Forecasting & Social Change*, 161. https://doi.org/10.1016/j.techfore.2020.120307

Berger, A., & Brem, A. (2016). Innovation Hub How-To: Lessons From Silicon Valley. *Global Business & Organizational Excellence*, 35(5), 58–70. https://0-doi-org.innopac.wits.ac.za/10.1002/joe.21698

Chen, J. (2022, May 31). *Unicorn: What It Means in Investing, With Examples*. Investopedia. https://www.investopedia.com/terms/u/unicorn.asp

Chirchietti, N. (2017). The role of Innovation Hubs taking start-ups from idea to business. The case of Nairobi, Kenya. *IZNE Working Paper Series*, 17(7). https://doi.org/10.18418/978-3-96043-038-4

Chittithaworn, C., Islam, M. A., Keawchana, T., & Yusuf, D. H. M. (2011). Factors affecting business success of small & medium enterprises (SMEs) in Thailand. *Asian Social Science*, 7(5), 180-190.

Creswell, J.W. & Creswell, J.D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, *5th edition*. SAGE Publications.

Crowe, S., Cresswell, K., Robertson, A., Huby, G., Avery, A & Sheikh, A. (2011). The case study approach. *BMC Medical Research Methodology*. 11(100). https://doi.org/10.1186/1471-2288-11-100

De Beer, J., Millar, P., Mwangi, J., Nzomo, V., Rutenberg, I. (2017). A Framework for Assessing Technology Hubs in Africa. *Journal Of Intellectual Property And Entertainment Law,* 6(2)*, 237-277. https://www.kiip.re.kr/webzine/1705/resource/file/library06.pdf*

Flyvbjerg, B. (2011). *Case Study: The SAGE Handbook of Qualitative Research*, *4th edition*. SAGE Publications.

Forero, R., Nahidi, S., De Costa, J., Mohsin, M., Fitzgerald, G., Gibson, N., Sally McCarthy, S. & Aboagye-Sarfo, P. (2018). Application of four-dimension criteria to assess rigour of qualitative research in emergency medicine. *BMC Health Services Research*, 18(120).

Friederici, N. (2014, March). *More Art than Science? Exploring the Roles of Technology Innovation Hubs for Urban Regions in Developing Countries* [Short paper]. EU-SPRI Forum, Early Career Researcher Conference 2014, Valencia, Spain. http://dx.doi.org/10.2139/ssrn.3123868.

Friederici, N. (2016). *Innovation hubs in Africa: Assemblers of technology entrepreneurs*. Oxford, UK.

Friederici, N. (2017). Innovation Hubs In Africa: An Entrepreneurial Perspective. SSRN. https://dx.doi.org/10.2139/ssrn.3123840

Friederici, N. (2018). Grounding the Dream of African Innovation Hubs: Two Cases in Kigali. *Journal of Developmental Entrepreneurship*, *23*(2).

Gernego, I., Dyba, M., & Onikiienko, S. (2021). Challenges And Opportunities For Digital Innovative Hubs Development In Europe. *Management Theory and Studies for Rural Business and Infrastructure Development*, *43*(2), 298 306. https://doi.org/10.15544/mts.2021.26

Gosier, J. (2014, August 15). *What Tech Hubs Are Getting Wrong in Africa (and How to Fix it).* Barbara Birungi Mutabazi. https://blog.appfrica.com/2014/08/13/what-tech hubs-aregetting-wrong in-africa-and-how-to-fix-it/

iED. (2020, September 30). Innovation hubs redefining the entrepreneurial ecosystem. Retrieved from Institute of entrepreneurship development: https://ied.eu/blog/innovation-hubs-redefining-the-entrepreneurial ecosystem/#:~:text=Innovation%20Hubs%20are%20the%20perfect,happened%20because%20of%20Innovation%20Hubs.

Ishak, N. M., & Bakar, A. Y. (2014). Developing Sampling Frame for Case Study: Challenges and Conditions. *World Journal of Education*, 4(3). https://doi.org/10.5430/wje.v4n3p29

Jimenez, A. & Zheng, Y. (2017). Tech hubs, innovation and development. *Information Technology for Development*, https://doi.org/10.1080/02681102.2017.1335282

Kelly, T. & Flinstone, R. (2016). *How Tech Hubs are helping to Drive Economic Growth in Africa.* World Bank Group. https://openknowledge.worldbank.org/handle/10986/23645.

Kolade, O., Atiase, V., Murithi, W., Mwila, N. (2021). The business models of tech hubs in Africa: implications for viability and sustainability. *Technology Analysis & Strategic Management,* 33(10), 1213–1225, *https://doi.org/10.1080/09537325.2021.1947492*

Korstjens, I. & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, 24(1), 120-124, https://doi.org/10.1080/13814788.2017.1375092

Lantz, C. E., & Wu, K. Y. (2017). *Building and managing an innovation hub: A case study of the challenges and opportunities faced by a Northern Swedish innovation hub* [Masters thesis, Umea University]. Diva Portal. https://www.diva-portal.org/smash/get/diva2:1118192/fulltext01.pdf

Littlewood, D. C. & Kiyumbu, W. L. (2018). "Hub" organisations in Kenya: What are they? What do they do? And what is their potential? *Technological Forecasting & Social Change,* 131, 276–285, http://dx.doi.org/10.1016/j.techfore.2017.09.031

Lose, T. & Tengeh, R. K. (2015). The Sustainability and Challenges of Business Incubators in the Western Cape Province, South Africa. *Sustainability*, 7, 14344-14357, https://doi.org/10.3390/su71014344

Mfinanga, F. A., Mrosso, R. M., Bishibura, S. (2019). Comparing Case Study and Grounded Theory as Qualitative Research Approaches. *International Journal of Latest Research in Humanities and Social Science (IJLRHSS)*, 2(5), 51-56.

Moleko, N. (2018). Women en route to technical vocations. In A. Bosch (Eds.), *South African Board for People Practices Women's Report 2018*, (pp. 19-23). SABPP.

Morse, J. M. (2015). Critical analysis of strategies for determining rigour in qualitative inquiry. *Qualitative Health Research*, 25(9), 1212-1222.

Mwantimwa, K.M., Ndege, N.R., Atela, J.I., Hall, A., (2021). Scaling Innovation Hubs: Impact on Knowledge, Innovation and Entrepreneurial Ecosystems in Tanzania, *Journal of Innovation Management*, 9(2), 39-63, https://doi.org/10.24840/2183-0606_009.002_0005.

Neuman, W.L. (2009). Social research methods: Qualitative and quantitative approaches(7th ed.). Boston, MA: Pearson/Allyn & Bacon.

O'Hare, J., Hansen, P. K., Turner, N., Dekoninck, E. (2008, May 19-22). *Innovation Hubs: Why Do These Innovation Superstars Often Die Young?* [Conference paper]. International Design Conference, Dubrovnik - Croatia.

OECD/European Commission. (2019). Policy brief on incubators and accelerators that support inclusive entrepreneurship, *OECD SME and Entrepreneurship Papers*, 13, OECD Publishing, Paris, https://doi.org/10.1787/d7d81c23-en

Omri, A., Frikha, M.A. and Bouraoui, M.A. (2015). An empirical investigation of factors affecting small business success. Journal of Management Development, 34(9), 1073-1093. https://doi.org/10.1108/JMD-07-2013 0088.

Rashid, Y., Rashid, A., Warraich, M. A., Sabir, S. S., Waseem, A. (2019). Case Study Method: A Step-by-Step Guide for Business Researchers. *International Journal of Qualitative Methods*, 18, 1-13. https://doi.org/10.1177/1609406919862424

Schoch, K. (2020). Case study research. Research design and methods: An applied guide for the scholar-practitioner, 245-258.

Shinga, N. Y. Z. (2010). *Taking Ideas From Mind To Market: Challenges And Critical Success Factors For Effective Incubation Of Ict Start-Up Firms Within The Innovation Hub* [Masters dissertation, University of KwaZulu Natal]. Research Space. http://hdl.handle.net/10413/7354

South African Reserve Bank. (2023, January 26). *Statement of the Monetary Policy Committee January 2023.* Retrieved from South African Reserve Bank: https://www.resbank.co.za/content/dam/sarb/publications/statements/mo

netary-policy-statements/2023/january-/Statement%20of%20the%20Monetary%20Policy%20Committee%20January%202023.pdf

Stake, R. E. (1995). *The art of case study research*. Sage.

Starman, A.B. (2013). The case study as a type of qualitative research. *Journal of Contemporary Educational Studies*. 64(1), 28–43.

Suryani, A. (2017). Comparing Case Study and Ethnography as Qualitative Research Approaches. *Journal ILMU KOMUNIKASI*, 5(1), 117–127.

Teegavarapu, S., Summers, J. D., & Mocko, G. M. (2009). Case Study Method for Design Research: A Justification. https://doi.org/10.1115/detc2008 49980.

Timm, S. (2019, March 4). *Seda ready to roll out township tech hubs announced by Ramaphosa*. Ventureburn: https://ventureburn.com/2019/03/township-tech-hubs-seda/

Toivonen, T. & Friederici, N. (2015, April 7). Time to Define What a “Hub” Really Is. Retrieved from Stanford Social Innovation Review: https://ssir.org/articles/entry/time_to_define_what_a_hub_really_is

UK-South Africa Tech Hub. (2020). *Tech Hubs Survey.* Department for Digital, Culture, Media & Sport. https://launchleague.co.za/wp content/uploads/2021/02/Survey-Findings_UK-SA-Tech-Hub-Launch League-Hubs.pdf

UNESCO. (2017). *Cracking the code: girls' and women's education in science, technology, engineering and mathematics (STEM).* https://unesdoc.unesco.org/ark:/48223/pf0000253479

UNICEF. (2012). *Innovation Labs: A Do-It-Yourself Guide.* Innovation Unit. https://s25924.pcdn.co/wp content/uploads/2017/11/Innovation_Labs_A_Do-It-Yourself_Guide.pdf

Walsh, K., Theron, R., Reeders, C. (2021, June 28 – July 1). *Estimating the Economic Cost of Load Shedding in South Africa*. [Conference paper]. Biennial Conference of the Economic Society of South Africa (ESSA). Tshipise, Limpopo, South Africa. https://www.novaeconomics.co.za/be/wp content/uploads/2023/01/ESSA_The-economic-cost-of-load shedding_edit2.pdf

Yin, R. K. (2009). *Case study research, design and method, 4th edition.* Sage Publications Ltd.

APPENDIX A Participant Information Sheet

Dear Sir / Madam,

My name is Mihlali Ntoi and I am a Masters student in Management, specializing in Digital Business at the University of the Witwatersrand, Johannesburg. As part of my studies, I have to undertake a research project, and I am exploring the approaches and success factors of innovation hubs in South Africa under the supervision of Professor Leona Craffert. The aim of this research project is to find out the approaches and success factors of an innovation hub in South Africa.

As part of this project, I would like to invite you to take part in an interview. This activity will involve answering questions during a one-on-one interview and will take around 30-60 minutes. With your permission, I would also like to audio record the interview using a digital device. This recording will be stored in a secure and password protected cloud drive and only the researcher will have access to this recording. It will be deleted after 1 year.

There will be no personal costs to you if you participate in this project. You will not receive any direct benefits from participation but there are no disadvantages or penalties if you do not choose to participate or if you withdraw from the study. You may withdraw at any time or not answer any question if you do not want to. The interview will be completely confidential and anonymous as I will not be asking for your name or any identifying information, and the information you give to me will be held securely and not disclosed to anyone else. I will be using a pseudonym (false name) to represent your participation in my final research report. If you experience any distress or discomfort at any point in this process, we will stop the interview or resume another time.

If you have any questions during or afterwards about this research, feel free to contact me on the details listed below. This study will be written up as a research report which will be available online through the university library website. If you wish to receive a summary of this report, I will be happy to send it to you (optional). The data collected from this research project will be stored in stored in

a secure and password protected cloud drive and will be kept for 1 year. With your permission the data collected from this research project may be used by other researchers in an anonymized format. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za

Yours sincerely,

Mihlali Ntoi

Researcher:

Mihlali Ntoi, 540040@students.wits.ac.za , 0714962566

Supervisor:

Prof Leona Craffert, Leona.Craffert@wits.ac.za

APPENDIX B Participant Agreement form

Research Study Consent Form

Exploring the practices and success factors of an innovation hub in South Africa

Researcher: Mihlali Ntoi (SN: 540040)

I, ……., agree to participate in this research project. The research has been explained to me and I understand what my participation will involve. I agree to the following:

(Please circle the relevant options below).

I agree that my participation will remain anonymous

YES NO

I agree that the researcher may use anonymous quotes in his / her research report

YES NO

I agree that the interview may be audio recorded

YES NO

I agree that the information I provide may be used anonymously after this project has ended, for academic purposes by other researchers, subject to their own ethics clearance being obtained.

YES NO

…… (signature)

…… (name of participant)

…… (date)

…… (signature)

…… (name of person seeking consent)

…… (date)

APPENDIX C Interview Guide

Interview guide for Hub Users

Interviewee identifier	
Role of interviewee:	
Date/time:	
Location:	

A. General

1. Can you tell us a little more about yourself?
2. What is the story and motivation behind starting your business/idea?
3. Why are you a hub user?

B. Approaches

1. What role does the hub play in your entrepreneurial journey?
2. How has your experience as a tenant/user of the hub been?
3. What services and resources that the hub provides do you make use of?

C. Success factors

1. Can you explain why you chose to be a tenant or participate at this particular hub?
2. What do you think the innovation hub does well?
3. Which services or programmes that the hub offers are most useful in your journey? Can you explain why?

D. Challenges

1. What parts of the hub experience as an entrepreneur do you think could be improved?
2. What parts of the hub experience would you change?

E. Closing comments

1. Do you have any last comments on anything we have discussed or on your experience here at the hub?

Interview guide for Hub Management and Executives

Interviewee identifier	
Role of interviewee:	
Date/time:	
Location:	

A. General questions

1. Please can you tell me a little bit more about yourself and your role at the hub?
2. What is your educational background?
3. What are your professional years of experience?

B. Hub description

1. Please give a brief history of the hub
2. Please describe your organisation's activities?
3. Please describe the hubs mission and objectives?
4. What is the size of the hub and how many users do you assist?

C. Approaches

1. Please explain the role the hub plays in it's ecosystem?
2. How do you ensure sustainability of the hub?
3. What are your sources of revenue?
4. Where are the areas of opportunity for the hub?

D. Challenges

1. What challenges do you face in operating the hub?
2. What do you think the hub could do better of?

E. Success factors

1. Please describe what success looks like to your organisation?
2. How do you measure success?

F. Closing questions

1. Any lessons learnt during the process of opening and operating the innovation hub?
2. Any pertinent things and what else do I need to know about

APPENDIX D Interview Register

Participant	Date of Interview	Interview Duration
WHU1	15 September 2022	23:22 min
WHM1	29 September 2022	14:06 min
WHE1	29 September 2022	12:08 min
WHE2	05 October 2022	13:34 min
WHE3	05 October 2022	20:17 min
WHU2	05 October 2022	12:30 min
WHE4	05 October 2022	12:13 min
WHU3	05 October 2022	10:50 min
WHU4	25 October 2022	21:12 min
WHU5	25 October 2022	29 min
WHM2	03 November 2022	27:50 min
WEX1	10 November 2022	31:06 min

APPENDIX E Interview Transcript Samples

Interview Hub user WHU1

Interviewer: Okay, so first question is, can you tell us a little bit more about yourself?

Hub user: My name is [retracted]. And I am the chief innovator of [retracted]. We are a company that produces an indigenous beverage called gemere, as well as the renowned chakalaka. So, yes, that's what we produce. But we've pivoted over the pandemic to now become not only a producing company or manufacturer. But also, marketplace where we white label products that we do source from other entrepreneurs and are now selling on our platform

Interviewer: Interesting. And so, what is the story or the motivation behind starting your business or your idea?

Hub user: There really isn't one in particular. Yeah. Actually, it started because, One my mom was diagnosed with diabetes so couldn't have carbonated drinks. And the drink, I was actually taught by my ex mother-in-law. So I then started making it for at home. And then I also had what we call our suburbian friends that don't know how to make gemere. Because their grandmother's either didn't teach them or they didn't have time. So, when their in-laws would visit then they would then ask me us, me, Tsholo would you please brew this for us. At first, it was for free. And then when I went through my divorce, they then said no. You can't do this for free. We have to pay you. And voila, [retracted] was born

Interviewer: Sorry, can I just detract is gemere like an African beer?

Hub user: No, I actually should have brought you some. There's some in my car. It's a, it's a, I don't know if you know. A ginger drink, it's a ginger drink. It's a ginger drink, basically.

Interviewer: Nice. So why are you a hub user? Why do you use [retracted].

Hub user: This particular one or.

Interviewer: Yes. This one and if you use others, You can say,

Hub user: I guess when you, first of all, let me just maybe speak about [retracted].

For me, when I, when I then read their profile to say they're a woman owned accelerator program. First of all, I was intrigued that it is women run.

Yeah. And secondly, I was also , pulled in by the fact that they are engineers. And I understood that in the business that I'm growing. Definitely I will need industrial engineer that will need chemical engineers. , process engineers. You know, on board. And that's how actually I joined. Oh, I applied for [retracted].

But essentially accelerator programs or innovation hubs for me are to, you know, dive deep into the idea that you have so that it is then unpacked. Systematically to then understand what do you need when. And what exactly do you need to do to ensure that you get from point a to B, to C D.

Interviewer: So it's not your first hub?

Hub user: No. It's the first of this kind. Yeah.

Interviewer: I think you alluded to it a bit. But, in terms of the role the hub plays in your entrepreneurial journey. Can you explain?

Hub user: Yeah, definitely it would be.

They are very instrumental in aligning you with, for example, industry specific mentors. Did that, but then understand for me it would be the FMCG. So people that understand that I have a vole-based business.

I need food technologist on board. And these are the certain criteria of maybe what do you call compliance bodies that I need to belong to that I need to then subscribe to and just understanding the entire value chain. How it works and how it affects my business.

So that was brought forth a lot and also addressing me personally, as an entrepreneur. Because we don’t realize that the personal [retracted] can actually affect [retracted] Yeah.

Interviewer: Okay. And your experiences of the hub. How has it been so far?

Hub user: Nothing short of magical. Nothing short of magical and no, they don't pay me.

I put them to task on a lot of things. Especially because I had been on other programs and I just felt that they more, a box ticking exercise for them. And it's also a very blanket approach and you cannot use a blanket approach when you're dealing with entrepreneurs.

So, for [retracted] for me. It was almost like they had you know, tailor-made, or chosen that specific people that would be on the program to align with my business because most of the people that were on the program. We ended up collaborating with in different spaces of business. Like, I'm still talking to the chemical engineer because there's a product we're working on.

I still work with the process engineer to help me with the processes, of the factory. By the time we build one. And I am still speaking to the lady that does the legal, you know, she's got an app that gives you access to contracts, SLA's, NDA's. And that's very helpful for an entrepreneur because as you start, it's better to have such processes in place. So it's been very exciting for me. I mean, [retracted] has opened so many doors. They've stretched me a lot as an entrepreneur. Which is great because anytime there's growth, there's going to be discomfort.

And they, yeah, they made sure that there's a lot of growth in our space. Yeah.

Interviewer: So what services and resources that [retracted] provides do you make use of? So you said, you mentioned you are on their program. So do you make use of their facilities at all?

Hub user: Most definitely. So definitely when I have meetings that I need meeting space for, I am able to use the facilities. Whether on the program or as an alumni. I'm still able to use their facilities, which are very professional and very equipped, in terms of boardroom space, in terms of working space, Wi-Fi access and so forth. And, what else did you ask?

Interviewer: It was just about services and resources you use. Any mention of the resources. I don't know if they have any services that you may use?

Hub user: Services in terms of?

Interviewer: I don't know, maybe bookkeeping services that they had, for example. I am not sure what kind of services they have, but like services that you could use in your business as well.

Hub user: Marketing and branding stuff. So, we, are, in the process of actually white labelling our own chocolate brand. So I've sourced a lady that actually makes chocolate. And now we're going to have a chocolate brand under the eat some brand. So I guess that's very beneficial for us because it's services that we know we can reach out to in the same hub. So it's very, very beneficial.

Interviewer: Awesome. Thanks. So now I am moving on to success factors. The next question would be, what do you think this innovation hub does particularly well? Especially because you have experience now with others.

Hub user: They pay attention to detail. They make sure that they have a clear understanding of where you are. Where you're trying to get to. And then they start helping you to fill in the gaps of the, how you will do that. And I found that for me was life-changing. Because as I say most of the ones that I been on more box ticking. Which means they're trying to tell me what I need and I don't need somebody to tell me. I am the business owner. I know the pain points of the business. I know what are urgent factors I know things that, are like I can't do without. And need those things to happen. And also having an ear to listen on the foresight. You know the vision of the business. And already trying to piece certain

spaces where you are able to fit in your vision. With whoever they have contacts with.

Interviewer: Which services on the program that the hub offers are most useful in your journey, and why?

Hub user: Which services and products?

I would definitely say the program where we did what they call a data file. So a data file is what you would put together as an entrepreneur. Let's say for me in my space, it would be quotes of the machinery that I actually need.

What an industrial engineer would cost to set up the space. What a financial person would cost whether outsourced or in-house. HR services. So ensuring that by the time you actually reach out for funding of any sort. Everything that you want, that you need is in check. So for me, that was highly beneficial because it's actually proving to be something that I'm actually using now that I'm preparing myself to be funding ready.

So that was very So, [inaudible] and also, I guess just the pitch training. The pitch training was really, really powerful because, one, it got me out of my cocoon. You'd be surprised I talk a lot, but when it comes to presenting the business, I was out of words, but structuring what they call an elevator pitch, being able to just speak to what the business offers. Speak to the numbers. And also just closing out. That for me with magical because I still use it everywhere. And I just sound like magic

Interviewer: So the last part is around the challenges. So, I think what part of the hub experience as an entrepreneur, do you think could be improved?

Hub user: Improved? Well, I think we could have, I think we could have more... More should I say strategy sessions? But more sessions that are primarily for the business.

I'll tell you what I mean.

So as a group, right. I feel that we should have had maybe a camp of some sort whereby on each day, we'd be able to brainstorm about five businesses. Where for two hours or five hours, the entire group is problem solving for this business. Because whilst you're the business owner. I've looked at [retracted] for five years. I kid you not. There's probably stuff that I don't see and that someone is thinking, but why haven't you done this? Because I've looked at it for so long, but when you have fresh eyes and fresh thoughts and everybody's on board.

I kid you not, I think that would just be magical. I think you'd come out of there with clear action plans and you know, and also just being accountable to the group because giving status reports to say guys, from what we came up with, these, these are the action points. Where the sixth, where the three month mark, six month mark. And this is where I am. I'm struggling with this because of this, because I then think then you're able to track it properly. And everybody's involved.

So, for me, that that would be the only thing they can add everything else was amazing. Oh, and they'll kill me for this. The stipend. They could triple that. They'll kill me for that. But it came in handy. An entrepreneur will always accept a stipend, but I think what was most beneficial about this one was you were accountable. And you are to give feedback as to what exactly was that money used for in the business. How did it help you scale up or improve systems or processes.

For us, we were actually able to launch our peanut butter brand that we had always had in the back end that it should happen at some point. And with the stipend, it actually came to life.

Interviewer: That's amazing. Where can we find your product?

Hub user: Currently we're online. We haven't gone into any store as yet. I'm not particularly keen on the mainstream retail space.

I'm very much for Spar shops. I feel Spar supermarkets are more entrepreneurial. They understand entrepreneurship more than your Pick 'n Pay and Checkers.

They are already just full blown, huge, it's a numbers game for them more than the entrepreneur.

And, also, we, especially for the gemere, we've ensured that we package it both in glass and plastic to cater for the different LSMs. Because we're after a very niche market in terms of the offering. We want to go for your hotels, your lodges, your resorts, your airlines. That's where we're going.

Interviewer: I was about to say, like, your airline lounges they always have like local goodies.

Hub user: In fact, before the COVID saga, we were actually piloted on an airline. So we supplied Airlink with gemere. It actually was around this time, heritage month that we were actually onboarded.

Interviewer: Okay. Thank you, that's the end. That's the end of our interview. Thank you so much for your time.

Hub user: Can I go back to my life?

Interviewer: Yeah. If you have any last words this is the time or last thoughts that you would like to share.

Hub user: About?

Interviewer: About anything, about your experience, about your business. About your journey.

Hub user: Last thoughts for me, I guess it would be…Once the [retracted] journey is well on its way, and I'm rolling in cash, joking.

No I'm not joking about the cash. It should happen.

But I do have a vision. To actually run this type of innovation accelerator hub. In the townships. It was very beneficial for me to be able to come all the way from the township, but also to be part of this here.

But I feel that they don't have the means to reach to the grassroots people. And because I'm from the township. I know exactly how the township functions and works. Their people. Everything for me, this type of model of a program would create magic.

Interviewer: Have you heard of the other ones. There are a few township ones.

Hub user: There are, but you know as I tell you, they do this box ticking thing. It does not work. Because for me, I would do exactly as [retracted] does. Very, very close-knit group. Very small number that you can manage. There's no point taking a big chunk that you cannot fully service. So, for them it was a very intimate.

They knew us by name. They knew us by our problems. They knew what we need. Because it's not a huge number that they cannot manage. So, I feel that everybody else, they just want to take a huge number on board. But then not provide them the support that actually the entrepreneur needs.

Interviewer: All right. Thank you.

Interview Hub Manager WHM2

Interviewer: Can you tell us a little bit more about yourself and your role here at [retracted]?

Hub Manager: Okay, I've been working here at [retracted] for about two and a half years now. I started working in 2019. End of 2019. Yeah.

And so basically here I manage the hub, manage all our service providers. I manage all the people that are using the hub. Also, I coordinate the, so we have in person projects, in person sessions where people from, like, we have a cohort of, of people from like different projects that come in and we do seminars, we do webinars, we do workshops, where we assist women who are starting up their businesses in the STEM field.

So we facilitate all of that. And yeah, also just the general planning around these projects. So that's my role here.

Interviewer: All right. And what is your educational background?

Hub Manager: So I have a degree in project management and also I went on to do another degree in tourism management at the University of Pretoria. And an honours degree.

Interviewer: And in terms of professional experience, is this your first job or?

Hub Manager: No, this is actually my fourth job, yes.

Interviewer: What were you doing before?

Hub Manager: So before I was a logistics coordinator for a transporting company. And then before that I dabbled in the tourism industry. So I was working for a travel agency. And then I was also a PM, project manager in a consultancy kind of company in teaching people how to invest in property and stuff like that.

Interviewer: Okay. Thanks. And can you please give us a brief description or brief history of the hub?

Hub Manager: The hub, so the reason why they had the hub, from my understanding was they wanted a space where these women can physically meet and actually network and, and gain as much knowledge about building a company or building a business in the STEM industry. So, they actually thought about this just before Covid and then as they got the keys for the hub, then we had a lockdown.

So they wanted to just have a physical space where women can actually come and connect, you know, gain knowledge and, and be able to also run their businesses.

Because a lot of these women when they start up their companies, obviously they don't have the capital to either buy a building or rent a space.

So they wanted to open it up to women so that they'd be able to have a place where they can actually conduct business and run their meetings and do everything here.

Interviewer: And how long has it been in existence for

Hub Manager: The physical hub?

Interviewer: The company and the hub.

Hub Manager: So, the hub was opened in 2019, but [the hub] as a company has been in existence for about, what, 15 years now?

Interviewer: Okay. And what were they, how were they operating before having a physical space?

Hub Manager: So they were renting space at Investec, I think. Yeah, it was Investec.

Interviewer: Okay. All right. And please describe your organization's activities.

Hub Manager: So, I'd say it's just a physical space where women can come in, conduct their business, run their meetings, and also it's a place where we actually

run our workshops. So basically that's what we do. And also host the team as well.

Interviewer: Host the team. Run what kind of workshops?

Hub Manager: So, it's workshops where we have experts in different fields in the industry come in and facilitate these workshops where they teach women about certain aspects of business. So for example, next week we going to be having a session on, is it, how to run your books.

A lot of these people obviously can't afford accountants to come and, you know, look at their books and make sure that they comply with all the things that they need to comply with. So we have different people from different industries come in. We have lawyers, we have accountants. We have people that talk to them about, the requirements for starting up a business, how to get funding, that's normally run by [retracted] cause she's very big on trying to get funding for these people.

So that's basically what the sessions are about.

Interviewer: And how do you get those professionals to, you know, come and work with you guys?

Hub Manager: So most of them are already in our network. It's people that, for example, [retracted], meet in this space, because they travel a lot. So they are the ones that meet all these industry experts. And they kind of make a connection with them and always keep them in our network. And then when we do run these sessions, they are able to reach out to them. And also we use them well, we give our cohort, so our founders, access to them as well because already they're vetted. We know that they're good at their job and they'll be able to help them out. So that's also another plus on our side.

Interviewer: Please, can you describe the hubs missions and objectives?

Hub Manager: So from my understanding it's all about bridging the gap in the STEM field. We have a lot of men that dominate that field. So I think the whole

mission behind it is to empower women. To get into the industry and be successful in these industries. So that I think is the whole point of what we do as [retracted].

Interviewer: And in terms of like the size, not physical size, but how big the organization is, can you give us an indication?

Hub Manager: The organization is actually quite big and [retracted] is actually, the one was going to be able to give you that information because it's not about the physical people here, it's about the, the, the touch points as we call them.

So we operate in so many different countries. I mean, we, okay, we have this physical hub. We're opening a hub in Cape Town in March. We also have a hub opening up in Namibia. Um, it's a project that we are working on with the First Lady of Namibia. There's also one happening in Nairobi, Kenya in 2023.

Those are just the physical spaces, but the people that we work with, the women that we work with, come from all over, like all over the continent. And also now we've branched out to different countries.

Interviewer: If you were to give a number, what would you say?

Hub Manager: I think we operate 54 countries.

Interviewer: 54?

Hub Manager: Yes.

Interviewer: Wow.

Hub Manager: I'll have to just double check that would [retracted]. But yeah, she's the one that has that map of the places

Interviewer: Is it mostly Africa?

Hub Manager: Yeah, majority of it is Africa. Yeah. Majority of it is Africa outside. But I know we also work with, um, agencies in Canada because, um, one of my colleagues is going to Canada next month.

Yeah, it's Canada.

Yeah my colleague is going to Canada next month. They're going to Canada and then they're also going to London, I think. And then [retracted] is going to Kenya also next month. And then we've been doing Botswana and Namibia for a couple of times this, this year. So yeah, it's different countries, but mostly Africa.

Interviewer: Okay. Can you please explain the role that hub plays in within the ecosystem that it exists in?

Hub Manager: How can I explain this? So, I think what we do is. We do provide a physical space where women can come, network, run their business, have access to industry experts and all of that. But basically I think what we do is we bridge the gap between entrepreneurs and experts in the field and also helping them like get funding and making sure that the companies are a success. So we play that middle man making sure that they connect.

Interviewer: Okay. And from your experience, how does the organization ensure its sustainability so that it can, you know, continue

Hub Manager: Well, obviously it's all about money. We won't be able to survive without money. So, yeah, we do get a lot of funding from different organizations and now we've started actually working with a lot of government departments.

So as like our hub in Cape Town is being funded by the Western Cape Government. So we do have a lot of projects that we are working with different companies that actually pay us. And we also obviously source, but, well, let me not say we, [retracted], they also source funding from different organizations that also want to help women, you know, in the STEM industry.

Interviewer: Okay. So it's, It's public and private?

Hub Manager: Private, mostly private. Mostly going to private, but now we've started opening up to government as well.

Interviewer: What are the sources of your revenue, if you have insights of that , Is it mostly the funding?

Hub Manager: It's mostly the funding. So we bid for projects. And then obviously when we get the projects, they will pay us. And then obviously we need to be, we need to kind of do what they require us to do. And then obviously we, no, we don't make a profit out of it, but obviously we will need some operating costs to cover.

Interviewer: What, what do you mean by you bid for projects? What kind of projects are those?

Hub Manager: For example, with government, they put out tenders for companies that are able to run workshops and stuff like that. So we bid for those and then obviously when we get accepted, we win them and then we conduct these programs.

Yeah. But with some, we actually reach out to organizations and yeah, we kind of tell them what we do and if it's possible for them to fund the specific project, then we get it. That's from the little bit of knowledge that I know, but yeah.

Interviewer: Okay. And where do you see areas of opportunity for the hub?

Hub Manager: For the hub? I think we could open up more hubs across South Africa. I mean, we do work with a lot of ladies that come from different parts of South Africa, we fly them in. Even now, next week Tuesday and Wednesday we're running a workshop and we're flying in people from Durban, from Cape Town, from Kimberley, all of those places.

So instead of us having to fly them in all the time, we can actually have a physical space in each province. And I think that's also the goal, to have a physical hub in each province. So that's an area of growth.

Also, I think, I know this would go, because I know we focus on women mainly, mostly, but then I think we could open it up to men as well. So I think that's another area of opportunity too

Interviewer: Why do you say that?

Hub Manager: Because I feel like there's, how can I say this? We do have a lot of industry experts that are men. And I feel like if we could open it up to them as well, it would help these, these female founders also because we're limiting our sources of knowledge, if we are only focusing on trying to get women to come in and assist these women that are starting up their companies, it doesn't necessarily have to be only women that have the knowledge to assist them. We can also open it up to other men as well.

Interviewer: Oh so are you saying that the people that you guys call are mostly women?

Hub Manager: Mostly women, majority of them are.

Interviewer: Oh, okay.

Hub Manager: Yes.

Interviewer: Is that a conscious thing that you guys do or is it just a coincidence?

Hub Manager: I'm not sure if management has decided to just go that route or something, but from my experience being here, it's mostly been women.

Interviewer: That's interesting.

Hub Manager: But I think we can open it up.

Interviewer: It's not a bad thing though.

Hub Manager: It's not. But I feel like we're limiting ourselves and our source of knowledge

Interviewer: That makes sense. Okay. And what, what challenges do, does the hub face in your opinion, Um, as the hub and then maybe you can also speak about the, in the role you are doing, what challenges you face.

Hub Manager: So the hub in general, sourcing funding is always an issue, with government. Government can give you a project for this year and then next year they'll be like, no, but we have to open it up to other companies as well. So you don't have a steady stream of income. That's always very worrisome for our company cause we need to have a steady stream of income. So I think sourcing income is always a challenge.

Yeah, also with, well now we're fine but I think covid was always an issue. Because I mean, most of our workshops, we want to run them physically here. We don't want to be doing everything virtual all time. But I think with that it's eased up bit because obviously there's little pieces of covid now. So it should be fine.

And what other challenges do we have? Well money is always a problem. Challenges. I think for now, those are the challenges. I think those are the major challenges that we have. Having to source funding from different places.

Interviewer: And what, what do you think, in your opinion, that hub could do better? You can be honest.

Hub Manager: What do you think the hub could do differently or can improve on?

Interviewer: Yeah, could do better in terms of whatever

Hub Manager: Pay us more. I'm just kidding.

I think in terms of, the projects that we run, I feel like we need to tailor them to each company's issues. So I mean, you come in with your company, you have maybe you, the challenges that you're facing is probably accessing the market. And then another person will come in and say the challenges that they're facing is sourcing funding, another person telling us that their issue is getting the right staff.

But our programs or our workshops are very general. It doesn't focus specifically on each person's problems. So, I feel like as, yes, you gain a lot of knowledge and you gain a lot of access to other things when you come here, but I think it would be better for us to actually sit down and look at each company individually

and be able to tailor each workshop according to the challenges that they have, so that we can actually help to mitigate or work on those challenges so that you can be a success in your business. So I think that's something we need to look at.

Interviewer: How do you choose the business or the companies? The cohorts.

Hub Manager: So it's based on the clients. The clients will give us specific specifications on the type of cohorts, that they're looking for. So for example, we have a program called EGA Amplifier and it's Economic Growth Amplifier. So it is with the Western Cape government and they specifically said they want women owned businesses in STEM that are based in Cape Town. They don't want to fund companies outside of Cape Town. So it's according to specific issues of the client mostly.

Interviewer: And anything else you think the hub could do better?

Hub Manager: Well with the hub, I think we can invest more on the physical space. I mean, when we have loadshedding, yes, we do have WIFI, but we don't have lights.

And that becomes a problem if you're coming here to have meetings. It's an issue. You know, I think we need to also look at physically making the hub better for people that want to use it, need to understand that.

And I mean, there's a lot of coworking spaces around Joburg. I mean, when I started working here, we did some research and we looked at all these different coworking spaces and the services that they offer is, it's amazing.

It's amazing. So, I think we also need to be able to tap into that market because I think we focus more on the projects that we are running and just making sure that we have a physical space for the women to come and meet up. But we don't, we are not tapping into the co-working space.

Interviewer: What kind of services do you think you could offer?

Hub Manager: For example, we only have one boardroom, which has a tv. If we have four or five different people that want to host meetings it's not conducive, you know? And, the space, we need to have more private spaces, more offices, because women want to come in and have a private area where they can run their business.

And if you have maybe four, four or five people working for you, you need to have that space. But if you're going to book a hot desk, situation, that can't happen. So, I think we need to open it up and make it more conducive for people that actually are running businesses.

Interviewer: And these?

Hub Manager: These are just meeting rooms. You can't set this up as an office, basically. It's just a meeting room. So, I think we need to look at how other co-working spaces have structured their physical space, and maybe we can also do the same.

Interviewer: Okay. Yeah. Can you please describe what success looks like for your organization?

Hub Manager: What success looks like?

Success looks like having the women that come in here, who have started up their companies come back and say, you know, I found funding here and my company's growing, or I'm employing now 10 people in my company and I'm making a revenue stream of 10 million, you know, we want to see growth. Most importantly, we don't want you to come here and five years down the line, you're still facing the same challenges that you were facing when you came.

So that's the, that's how we see success. It's when we see other people becoming success because of what they gained from us.

Interviewer: And how do you guys measure success in the organization?

Hub Manager: In the organization? Yeah. So, once our programs are done, we have, what we call diagnostic reports.

Okay. So you conduct the diagnostic report in the beginning when you start in the program. In that diagnostic report we ask you certain questions about the challenges that you're facing. How much money have you raised in your company, what is your current revenue stream, all of those things.

And then after the program, we ask you the exact same questions and we want to see if there's been any growth. Since you started working, since you started joining the projects that we have. So that's how we measure our success.

And obviously once you're done with the project, it's not like, okay, we're done bye, we have a community. We have a community leader that still communicates with you, engages with you.

And whenever we have like information sessions or like any other workshops that we might be able to invite you to come and, you know, meet people, network, you know, still continue growing your business. So it's not like you just come here, stay with us for six months and then you go, you know? So that's how we measure success.

Interviewer: And do you have any, let's say, lessons learnt since you started, let's say, if you of two years ago, the lady that came and you were sitting in the room with her, what, like lessons learned would you tell that person?

Hub Manager: There's a lot that I've learned in my two years working here because we work for perfectionists. So, you have a, a level of standard that you conform to, but then you come and you work here and it's like. It's like they want you to be here. Yeah. So I think they push us to, to excel, to be excellent.

Like they don't want mediocracy. They want you to be the best. So, yeah. I think I've learned a lot. I've grown a lot. I've grown a thick skin, you know? I think and also just being patient with myself, that's the most important thing that I've

learned, being patient with myself, to not be too hard, but also not to be too relaxed.

So, it's just a mixture of things that you learn here. It's a lot, but most importantly a thick skin. You need to grow with thick skin when you're in the industry.

Interviewer: Why do you say that?

Hub Manager: Because sometimes if you take things too personally, it's going to start affecting you as a person and then you start doubting yourself.

But, you mustn't always take it too personally. You must look at it as a learning experience and something that you can grow from and trust me it will help you in the future. I mean, I look back at my first boss, I used to hate her, I used to hate that woman cause I used to feel like she was always on my case.

Like all the time and she used to push me too hard. But now that I've worked in different companies, I'm glad that she pushed me to that because I was able to succeed in those companies. Because if she didn't, I wasn't going to last at all. At all. So, yeah, it's just about having a thick skin and just, learning as much as you can.

Interviewer: Okay. And any lessons about maybe the hub environment in innovation Hub environment? Any lessons there?

Hub Manager: In the Innovation hub. I'd say when I started working here, we did not have a lot of the things that we have now because it was also new, so it was our first time opening up such a hub. So obviously it's like learning as you go. So we did have a lot of teething problems in the beginning, but we learned from those things.

And now I could say that most of our projects we running them very smoothly, so. Yeah. There's a lot of things that we, even now, we're still learning a lot of things. you know, um, it's not like we've perfected this whole thing. We're still learning as much as we can and yeah. I think we've grown a lot.

I mean, when I started working here, we only had about two projects that we were working on and we were only a staff of about four or five. And in those two years we've grown to now 15 people. And I don't know how many projects we're running. You can see I'm like running three different projects right now.

So I think, yeah, we've learned a lot. We've learned about conducting certain workshops and how to tailor make them to the client's needs. And also the, we, I think we've also learned the types of things that these cohorts need. Like, I know we're looking at creating what do you call this? A science lab, sort of, but the problem is with finding space.

So we are actually looking at maybe, I don't know if they will because we've been talking about purchasing the building next door because the whole building is empty. Yeah. So, because this space is too small for us now, so we need a space for a coworking space. We need a space for the team. We need a space for events. We need a space for the science lab that they want to create.

So we are just now also just learning as much as we can and also trying to now implement a few things.

Interviewer: I think my last question is around, It's just an open question really on your experience. Any last comments? Any last words about your experience here working, as a management, or hub manager and just generally. Any final words? Any parting thoughts?

Hub Manager: Oh, final words. Yeah. It's been a journey working here. But it's been a very rewarding journey because, we become, we create a relationship with these ladies and it's great when they WhatsApp you and they're like, oh, I just got this big contract to do this, or, I've now employed two more people in my company.

So it's very nice to kind of see that you're actually making a change in people's lives and you're doing something to contribute positively to them. So, you know, besides yes, we all work because we need a salary. We all need, we have bills

to pay, but it's also nice when you're doing something that's actually helping other people.

So I think that's the one thing that's keeping most of us here, is being able to do that and actually, you know, enjoy what you're doing. Because you can see that it's helping other people.

Interviewer: Okay. Anything else?

Hub Manager: That is, I think that's it.

APPENDIX F Consistency Table

Table 4. Consistency table: research questions, propositions, data collection and data analysis

RQ #	State Research Question or Objective	Prop/hyp #	State Proposition or Hypothesis	Data collection detail	Data analysis method
1	Explore the principles underlying the particular approach and business model of the innovation hub	1	Innovation hubs play the role of fostering communities and offering structures that support the advancement of entrepreneurial activity.	Interview guide questions Hub users: B 1, 2, 3 Management: C 1, 2, 3, 4	Thematic analysis
2	Identify and explore the typical challenges that the hub experiences and needs to overcome	2	The key challenges facing hubs include access to funding and sustainability of the hubs in the long term, access to the right level of skilled labour resources and ensuring that they serve the communities they exist in.	Interview guide questions Hub users: D 1, 2,3 Management: D 1	Thematic analysis

RQ #	State Research Question or Objective	Prop/hyp #	State Proposition or Hypothesis	Data collection detail	Data analysis method
3	Uncover the principles the hub applies in defining and measuring success	3	The success factors of innovation hubs include its geographical location, its linkages to external players, fostering community participation and offering a good balance of resources and services.	Interview guide questions Hub users: C 1, 2, 3 Management: E 1,2	Thematic analysis

APPENDIX G Qualitative Coding

Accelerator	Belonging	Complete The Job
Access To Market	Business Description	Connectors
Access To Services	Business Development	Convenience
Access To Utilities and Services	Business Model	Development
Accessibility	Business Motivation	Discrimination
Accountability	Business Support	Ease Entrepreneurial Journey
Affordability	Challenges	Enablers
Agile And Flexible	Clear Roles and Responsibilities	Expansion
Alternative Sources of Power	Client Specific Requirements	Experienced Hub User
Application Of Knowledge	Comfortable	Facilitators
Attention To Detail	Communication	Fellowship Program

Awareness	Community Builders	Complete The Job
Awareness Of Company Processes	Community Support	Loadshedding
Funding	Hub Facilities	Mentorship
Geographic Presence	Hub Role	Monitoring And Evaluation
Governance Structure	Hub User Role	Motivated Employees
Graphic Designer	Impact	Network Facilitators
Growth Catalysts	Improvements	Outreach Program
Growth Opportunities	Inclusion And Diversity	Participants
High Growth Phase	Incubate	Partnerships
History	Incubator Success	Perception
Hub Activity	Internal Recognition	Permanent Work Spaces
Hub Experience	Internal Team Size	Physical Hub
Leasing Model	Professional Background	

Program Content	Size Of Hub	Work Environment
Program Facilitators	Size Of Hub Intake	Work Experience
Project Co Ordinator	Skills	NPO
Purpose Statement	Space To Conduct Business Operations	Subscription Membership
Qualification	Success Definition	Teamwork
Relationships	Unique	University Program
Retention Rate	Venture Capital Fund	Welcoming
Revenue Sources	Women In Stem	Women Owned
Role	Self-Re-Invention	Security
Role Description	Same Vision	Safe Spaces