The information behaviour of Nigerian digital entrepreneurs: idea generation in start-up businesses.

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The Information Behaviour of Nigerian Digital Entrepreneurs – Idea Generation in Start-Up Businesses

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Abstract

Though a wealth of information behaviour research has been undertaken in a variety of contexts over the years, less has been done on entrepreneurship. In particular, there is a lack of literature around the ideation or business idea generation component in the early stages of business formation. This study seeks to address the theoretical and empirical gap within this research stream, bringing together information, innovation and creativity theory, as lenses through which to explore the phenomenon. Twenty-six semi-structured interviews were conducted with business founders. Participants operated in a variety of segments of the digital technology spectrum, such as financial technology, digital art/non-fungible tokens, cryptocurrency, telecommunication, digital surveillance, and e-commerce. Critical Realism (CR) and Grounded Theory (GT) were used as theoretical and practical data techniques, using abduction in the theoretical redescription of concepts (codes) identified in the empirical data, and retroduction to identify the necessary contextual conditions for a particular causal mechanism to take effect and result in the observed empirical trends. Results show several societal and personal factors play a role in shaping the information behaviour of digital entrepreneurs. These factors include but are not limited to poverty, marginalising, parenting, especially maternal, and mentors. Digital entrepreneurs traverse through various information landscapes with internet as dominant, and employ a composite approach to navigate these environments, depending on their information needs at any given time. Marginalised entrepreneurs especially immigrant and women show sophisticated information behaviour stagiaries in equalising socio-economic adversities. The current research indicates that language, social and economic status can present significant barriers for individuals seeking information, and they can add additional layers of complexity to the already existing barriers.

Keywords: Ideation, Digital Entrepreneurship, Information Behaviour

Contents

Chapter 1: Introduction

Overview

 This research investigates the information behaviour of Nigerian digital entrepreneurs during the ideation phase of their start-up's development. Set against the vibrant and rapidly evolving backdrop of Nigeria's tech ecosystem, the research aims to unpack how digital entrepreneurs in the country seek, process, and use information for generating innovative business ideas. The introduction chapter provides context for the study and explains where the research idea originated. To facilitate comprehension, definitions of key terms are given including "entrepreneurship" (and social entrepreneurship), "digital entrepreneur", "digital entrepreneurship", "information behaviour", and "ideation". Additionally, the research topic, overarching aim, and research questions and justification for the study are established. The chapter highlights the methodology employed in the execution of the research and its contribution. Finally, the thesis structure is outlined.

1.1 Background

The evolution of the conception of entrepreneurship in the 20th century owes a great deal to the work of economist Joseph Schumpeter (McCraw, 2009). Entrepreneurship can be traced to the early days of civilization (Silberman, 1956). The first entrepreneurs were farmers, merchants, and artisans who used resources and ingenuity to create goods and services to meet the needs of the people around them (Rome, 1982). This type of entrepreneurial activity has continued to the present day, with the development of modern technology and global markets allowing entrepreneurs to create goods and services on a much larger scale. In the 20th century, the rise of the internet and technology-driven industry revolutionized the way entrepreneurs operate and the markets they could enter. This has led to the rapid growth of industry sectors such as e-commerce, web-based services, and digital marketing (McAfee and Brynjolfsson, 2017). In the 21st century, the evolution of entrepreneurship is continuing with the development of new business models, such as the sharing economy, blockchain technology, and artificial intelligence and the rise of the Gig Economy (Bernoff and McQuivey, 2013; Cheng, 2016; Zwick, 2018; Vallas and Schor, 2020).

Technology, especially information technology (ITC), has a profound impact on entrepreneurship, including the way that opportunities are created or discovered, by enabling entrepreneurs to access a wide range of informational resources and tools to help them launch their businesses. This also

includes leveraging data and analytics to gain insights into customer behaviour and market trends (Soltani Delgosha et al., 2020). This has also made it easier for entrepreneurs to automate processes; enabling them to free up their time to focus on other aspects of their business (Nambisan 2017). The use of digital technology has enabled entrepreneurs to access new markets, reduce costs, and increase efficiency, and has made finding and connecting with potential customers, partners, and investors easier (Giones and Brem, 2017; Nambisan et al., 2019; Nambisan et al., 2018; Nambisan, 2017). Digital devices include computers, software, the internet, mobile devices, and other tools that are used in various ways, including their use in communication, entertainment, education, business, and healthcare to store, access, and manipulate information (von Briel et al., 2018; Dam et al., 2019; Nambisan et al., 2018).

The first step in the process of becoming an entrepreneur is the nurturing of the intention. Entrepreneurship intention is an individual's desire to start a business and is driven by a combination of individual characteristics, such as skills, knowledge, and motivation, as well as external factors, such as family, education, and the availability of resources (Wibowo et al., 2021; Urszula, 2022; Jorge Antonio, 2022). Individuals with a strong entrepreneurship intention often possess a combination of characteristics, such as a willingness to take risks, self-efficacy and resilience; significant determinants for success (Shamsudin et al., 2017; Shahzad et al., 2021; Krueger Jr et al., 2000; Bird, 1988).

Entrepreneurship intention and entrepreneurship learning are intertwined, given that the latter helps to increase an individual" s intention to become an entrepreneur. Research has shown that learning about entrepreneurship can increase an individual's motivation to start a business, improve their knowledge of the entrepreneurial process, and provide them with the skills and resources needed to succeed (Wazzan et al., 2022; Stuart et al., 2016; Schou et al., 2022; Howorth et al., 2012; Guthrie, 2014). Furthermore, there are also societal and social elements, including parents and mentors that drive both entrepreneurship intention and learning (Maitlo et al., 2021).

Society can affect entrepreneurship learning by providing resources and support networks for entrepreneurs (Pittaway et al., 2011). This can include access to mentors, networking opportunities, and educational programmes. Additionally, societal attitudes towards entrepreneurship can influence an individual's perception of entrepreneurship and their decision to pursue it. Society's economic conditions, such as access to capital and the availability of markets, can also affect entrepreneurship learning. On the other hand, mentors and parents can also play an important role in entrepreneurship learning by providing guidance, knowledge, and advice to entrepreneurs, and additionally parents can

provide emotional and financial support (Robert, 2000). "Knowledge is key to creative entrepreneurial actions such as opportunity recognition and knowledge asymmetry accounts at least in part for why entrepreneurs in the same environment do not all recognize the same opportunities" (Gemmell et al., 2012: 2). Relatedly, Lee et al. (2018) have also identified the relationship between entrepreneurial education and entrepreneurial opportunity recognition. Parents who have experience in running their own business can also provide valuable advice on the skills, knowledge, and mindset needed for successful entrepreneurship through offering insight into the challenges they faced while running their business and how they overcame them (Lindquist et al., 2015). Additionally, mentors and parents can help entrepreneurs build networks, develop a plan for their business, and find resources and support. Therefore, parents and mentors are important information sources for entrepreneurs, especially new ones (Ibrahim et al., 2022).

1.2 Rationale for the Study

In recent years, the proliferation of digital technology has led to a surge in entrepreneurship and the emergence of numerous start-up businesses (Nambisan, 2017). Digital entrepreneurs operate in a fast-paced, dynamic environment, where the ability to generate and utilise information effectively is critical to success (Orrensalo et al., 2022). Digital entrepreneurs aspiring to create their business ideas must be able to access, evaluate, and use information effectively. This includes gathering information from a variety of sources, such as industry experts, mentors, and online databases. Entrepreneurs must be able to critically assess the validity of the information they find and use it to make decisions that are in their best interests, and must be able to effectively communicate the information they find to their customers, partners, and other stakeholders. It can be said that information practice is the substructure that underpins business idea generation. The process of ideation is one such aspect of information behaviour that is vital to the success of digital entrepreneurs. Ideation refers to the process of generating new ideas, concepts, and solutions that can be transformed into successful business ventures (Makri et al., 2019; Kier and McMullen, 2018).

Understanding the information behaviour of digital entrepreneurs and how they generate ideas can help identify the factors that contribute to their success or failure. It is also essential to understand how digital entrepreneurs use information and technology to create innovative solutions. This thesis will examine the information behaviour of digital entrepreneurs and how they generate ideas to launch and grow their start-up businesses.

As the field of digital entrepreneurship continues to grow, research in this area will become increasingly important in understanding the opportunities and challenges associated with this type of entrepreneurship. In terms of research into digital entrepreneurship, Anim-Yeboah et al. (2020: 200) conclude that "a major gap identified, is the limited use of theoretical and conceptual frameworks that would bring the concept of digital entrepreneurship up to par with major areas of academic inquiry in informnation science research". Thus there is a need for research that examines the information landscapes found in the process of idea generation (Ibrahim et al., 2022).

This is particularly relevant within the context of Nigeria's digital ecosystem. Nigeria is making significant progress in digital entrepreneurship and innovation. In recent years, the Nigerian government has taken various steps to promote the Digital Economy and to create an enabling environment for digital innovation. These include the establishment of the Nigerian Digital Economy Commission, the introduction of the National Broadband Plan, and the launch of the Nigerian Digital Transformation Strategy. There have been initiatives to promote digital skills and entrepreneurship, and to facilitate access to digital financial services for citizens (Group, 2019; Tebepah, 2020). Nigeria is making significant progress in the development of its digital economy, and the country has the potential to become a leading digital innovation hub in Africa. Digital entrepreneurship is an important area of research, specifically, start-up. It is, therefore, pertinent that the role of the information behaviour of digital entrepreneurs at this crucial stage be investigated.

1.3 Research problem

Extensive research in information behaviour within the ambit of entrepreneurship has been conducted, even though information science is a relatively new field of knowledge that oversees the production of knowledge across disciplines (Wilson, 2010; Case and Given, 2016). Information science research has been conducted at the intersection of many disciplines, including education (Morgan-Daniel and Preston, 2017), health (Nambisan, 2011) and a host of studies on entrepreneurship (see for example Okello-Obura et al., 2008; Nankinga, 2019; Ikoja-Odongo and Ocholla, 2003; Ikoja-Odongo and Ocholla, 2004). Literature on information seeking and use practice has been the subject of relevant scholarship across domains including entrepreneurship, innovation and business (See for example:Anderson and Nichols, 2007; Lindblom and Olkkonen, 2008; Mackenzie, 2003; Mackenzie, 2002; Shane, 2003).

Even if the pioneering information behaviour work within entrepreneurship came from the developed countries, as evidenced in work by Johannessen and Kolvereid (1994) and Correria and Wilson (1997), most of the studies of information behaviour that pertain to entrepreneurship or business came from developing countries (See for example: Alvarez and Barney, 2013; Ikoja-Odongo and Ocholla, 2004;

Nankinga, 2019; Okello-Obura et al., 2008; Bello et al., 2016; Gunu and Ajayi, 2015; Ihua, 2009), with a handful of literature from these studies focused on information practices related to women (Abdulhamid and Alhassan, 2012; Nankinga, 2019). Even though numerous information behaviour research studies have been carried out in the entrepreneurship domain, t insights regarding the information practices that pertain to ideation are generally lacking. More specifically, ideation in digital start-up has not been researched, and there is an absence of empirical appraisal of the existing information behaviour models.

Information behaviour research lacks a "central theory or body of theories we can view as middle range" (Chatman, 1996, cited in Case 2007: p.148). This means that empirical research has not been adequately integrated within existing models and theories. Tackling the research from the angle of ideation in digital entrepreneurship brings novelty and develops previous work such as that Leslie (2009) explored the information behaviour of UK entrepreneurs, noting challenges in access to relevant information and identifying trustworthy sources. Meanwhile, Johannessen and Kolvereid (1994) studied how Norwegian entrepreneurs gather information, highlighting the use of varied and credible sources. Both studies reveal that entrepreneurs value practical and credible information but Leslie's work further illuminates challenges faced during the start-up phase.

1.4 Impact

This research is expected to be of interest to current start-up founders. It is intended that it will also be thought-provoking for anyone who may be considering entering the digital entrepreneurship arena, by providing insight into the total information activity that may extend beyond the phase of idea generation. This can be accomplished by either emphasising their strengths in their information practices, such as assessing and evaluating the information sources that provide the most value, or by minimizing characteristics that negatively impact their information seeking and use, in particular how it relates to some of the identified information models and theories.

Relevant stakeholders, such as the government and professional organizations, would also benefit from this research. It will assist the government in determining how information demand from users may be satisfied through tailored information provision, services and other information structures. For professional organizations, such as incubators and accelerators, this presents an opportunity for refining existing procedures and creating efficient action plans.

1.5 Research Aim

The aim of the research is to explore the information behaviour of and ideation processes of digital entrepreneurs in Nigeria, by investigating their information-seeking behaviours, identifying barriers to information access, exploring the impact of information overload, and assessing the role of socio-cultural and psychological factors on their entrepreneurial journey. The aim also extends to understanding collaboration practices and trust dynamics among these entrepreneurs, all within the cultural and social landscape of Nigeria.

Understanding how start-up ideas occur might well suggest ways of enhancing their occurrence. Articulating their behaviours will help develop techniques for helping current or future entrepreneurs identify opportunities, remove barriers to existing practices and define new courses of action that will further catalyse innovation and accelerate entrepreneurship.

1.6 Research Objectives

Objective 1: Examine Information-Seeking Behaviours:

- To investigate the various information-seeking behaviours, such as rummaging and foraging, displayed by Nigerian digital entrepreneurs and how these behaviours differ among subgroups like immigrants, university graduates, and socially isolated entrepreneurs.

Objective 2: Assess Barriers to Information Access:

- To identify and assess the socio-cultural and psychological barriers that affect information access among digital entrepreneurs in Nigeria. Specific focus would be given to the role of self-esteem, social class, culture, gender, and language in information-seeking practices.

Objective 3: Explore the Impact of Information Overload:

- To explore how information overload affects Nigerian digital entrepreneurs and to identify strategies commonly employed to mitigate this issue, such as cognitive techniques of filtering and ignoring.

Objective 4: Understand Ideation Processes:

- To investigate the ideation processes among digital entrepreneurs in Nigeria, examining how cognitive, social, and technological aspects interact in the idea generation phase. Special attention will be paid to the experiences of entrepreneurs living a socially withdrawn life or who have suffered from deprivation.

Objective 5: Investigate Collaboration and Trust:

- To study the extent and nature of collaboration and partnership among digital entrepreneurs in Nigeria, including the role of professional engagement in gathering business intelligence and concerns about idea theft and trust issues.

Objective 6: Evaluate Influence of Socio-Cultural Factors on Entrepreneurship:

- To evaluate the role of parental and societal influences, educational qualifications, and mentorship experiences on the entrepreneurial journey of digital entrepreneurs in Nigeria, with a particular focus on entrepreneurs who suffer from greater social exclusion such as women and immigrants.

1.7 Research Questions

Information-Seeking Behaviours

1. What are the predominant information-seeking behaviours among Nigerian digital entrepreneurs?
2. How do these behaviours differ among subgroups such as immigrants, university graduates, and socially isolated entrepreneurs?

Barriers to Information Access

1. What socio-cultural and psychological factors act as barriers to information access among digital entrepreneurs in Nigeria?
2. How do self-esteem, social class, and gender impact the ability to access information?

Impact of Information Overload

1. What strategies do Nigerian digital entrepreneurs employ to cope with information overload?
2. How does information overload impact the decision-making and ideation processes?

Ideation Processes

1. What are the cognitive, social, and technological factors that influence the ideation processes of Nigerian digital entrepreneurs?
2. How do experiences of social isolation or deprivation affect the ideation processes?

Collaboration and Trust

1. What types of collaborations and partnerships are most common among digital entrepreneurs in Nigeria?
2. How do issues of trust and idea theft manifest within these collaborative relationships?

Socio-Cultural Factors and Entrepreneurship

1. How do parental and societal influences shape the entrepreneurial tendencies of digital entrepreneurs in Nigeria?

2. What role do educational qualifications and mentorship experiences play in their entrepreneurial journey?

3. Are there groups within the entrepreneurial community in Nigeria who face higher levels of social exclusion, such as women and immigrants? If so, what additional support do they require?

1.8 Definition of Terms

1.9 Entrepreneurship

According to (Diandra and Azmy, 2020), entrepreneurship is the process of designing, launching, and running a new business venture or enterprise with the aim of making a profit. It involves identifying a business opportunity, assessing its viability, developing a plan to turn the opportunity into a profitable venture, and executing the plan. Entrepreneurship is also characterized by innovation, risk-taking, and a willingness to adapt and pivot when necessary. Entrepreneurs are commonly considered as individuals who create value by combining resources such as capital, talent, and technology to develop new products, services, or processes that meet a market demand or solve a problem. Economic growth and employment creation are frequently associated with successful entrepreneurs (Bastian and Zucchella, 2022).

The biggest challenge in conceptualising the meaning of entrepreneurship has been the absence of a consensus definition. According to Venkataraman (1997), most scholars have identified it as the area of activity primarily relating to who does business and what he or she is doing (cited in Shane and Venkataraman, 2000). The challenge with this approach is that the intersection of two factors concerns entrepreneurship: the emergence of profitable opportunities and the presence of enterprising individuals. By describing the field in terms of its agency (entity), entrepreneurship researchers have created inadequate definitions that do not stand up to other scholars" examination. This ascription of meaning has been changing lately, beginning in the 2000s. As such, the use of the term "entrepreneurship" has been extended to include how and why the individual (or groups) found opportunities, measured and evaluated them as being feasible and then chose to exploit them (Shane and Venkataraman, 2000).

Literature has also identified a spin-off from the broader notion of entrepreneurship, known as "social entrepreneurship", which is birthed by individual or organisations that combine social mission with entrepreneurship. The phenomenon implies a blurring of sector boundaries between for-profit and not-for-profit ventures. This breed of entrepreneurship happens when business aims are pursued

alongside social, environmental or humanitarian aims (Dees, 1998). The new paradigm contextualises the role of entrepreneurs as agents of social change and examines entrepreneurship as a social process of transforming ideas into financial value. However, this form of social exploration of entrepreneurship has been extended to include investigations into the role that entrepreneurs play (Thakur, 2019); in developing an understanding of the entrepreneurial process (Song et al., 2021), in developing frameworks for measuring the impact that entrepreneurship has (Gomez and Lafuente 2021), and most recently, in the development of societies (Terziev and Georgiev, 2018).

1.10 Digital Entrepreneurship

Nambisan (2017: p.1048) describes digital entrepreneurship as a "digitally fuelled entrepreneurial process". Considering the attention DE received from the scholars several definitions were given. Le Dinh et al. (2018) define digital entrepreneurship as reconciling traditional entrepreneurship with a new way of developing and doing business in the digital age. Davidson and Vaast (2010) see digital entrepreneurship as new opportunities created by social media and internet innovations. Digital entrepreneurship is defined by Guthrie (2014) as the creation of an undertaking to produce and generate revenue from digital products through electronic networks. Sussan and Acs (2017) view digital entrepreneurship as business activities that require digital interaction, but which may not be digital in themselves. These definitions show broad connotations of the term "digital entrepreneurship". In the same vein, Zhao and Collier (2016) argue that the conceptualisation and definitions of digital entrepreneurship lack clarity questioning whether digital entrepreneurship should be regarded as a subsidiary field within entrepreneurship; entrepreneurship associated with digital technologies; or a sub-set of digital economics related to entrepreneurship. Recent efforts are beginning to bring conceptual clarity to definitions of digital entrepreneurship. For example, Giones and Brem (2017) observed a varied degree of interrelationship between technology and business and came up with a typology to represent three scenarios. They use three gradations for different business and technology combinations: technology entrepreneurship, digital technology entrepreneurship, and digital entrepreneurship. Some scholars, such as Zaheer and Zaheer (1997) and Nambisan (2017) argue that digital entrepreneurship is sufficiently essential and unique to be recognised as a separate field of scholarship.

For the purpose of current research, digital entrepreneurship is defined as the process of founding, developing, and managing a business venture in the digital environment which often entails identifying, creating, and delivering value to clients through the use of digital technology and platforms. Digital entrepreneurship can take numerous forms, including the creation of a new

software applications, the development of an e-commerce website, or the establishment of a digital marketing firm.

1.11 Ideation

Gemmell et al. (2012) state that idea generation is the process of coming up with new ideas. Idea generation typically involves researching potential markets and customer needs, brainstorming new ideas, and assessing the viability of potential ideas. Creativity is a key part of idea generation, as it helps entrepreneurs think of solutions that are outside of the box (Thi Thu Hien et al., 2019; Palermo and Moneta, 2016; Kenett, 2018; Hocevar, 1980; Birkholz, 2022; Baldacchino et al., 2022).

1.12 Contribution to Knowledge

It believed that the research has accomplished a scholarly feat by attempting to assemble insightful thinking in order to develop a more systematic approach to knowledge concerning the intersection of information behaviour and entrepreneurship ideation. This has helped bring both conceptual and theoretical clarity to knowledge and address the concerns critique about a growing body of information behaviour-based entrepreneurship literature being reliant on anecdotal experience (Case and Given, 2016). The current research is an development of research on the information behaviour of nascent entrepreneurs, particularly brought about by focusing on digital entrepreneurs" idea generation stage of start-up creation. This added dimension brings empirical novelty and theoretical originality in several ways. It is believed the current research effort marks the first important step in understanding ideation through the lens of various information landscapes - family, peers, mentors and the internet. Various information practices of digital entrepreneurs have been examined, and the findings are communicated in detail.

1.13 The structure of the Thesis

The initial chapter presents an introduction to the focus of study with some background as to what is understood by the terms "entrepreneurship", "digital entrepreneurship", "digital entrepreneurs", and "ideation". It defines the research problem and establishes the rationale for the research and its contribution to the knowledge in this area. Chapter Two presents a contextual background of the culture and tradition of the people domiciled within the location in which the data were collected. This is particularly importantly given that the findings would need to be greatly shaped by the culture and social etiquette.

Chapter three is a review of the literature regarding the information behaviour of digital entrepreneurs (DE) through the lenses of entrepreneurial intention and learning, opportunity

recognition and entrepreneurship ideation from the perspective of information behaviour. Chapter four provides the research design and the supporting justification for the choices made. The research adopted Grounded Theory to study the twenty six digital entrepreneurs who recently founded companies not exceeding one year in operation. This was achieved through in-depth semi-structured interviews with the participants from a breadth of IT sectors. By soliciting their views on idea generation, this research offers original insight into how ideas emerge.

Chapter Five presents the findings from this study, taking a Grounded Theory approach across the rich data. These are then subjected to critical evaluation and discussion in Chapter Six and synthesized with the extant literature. Finally, Chapter Seven, draws upon this discussion to present conclusions that demonstrate the achievement of the study's objectives and how consideration of the research questions has contributed to this.

1.14 Research Conceptual Map
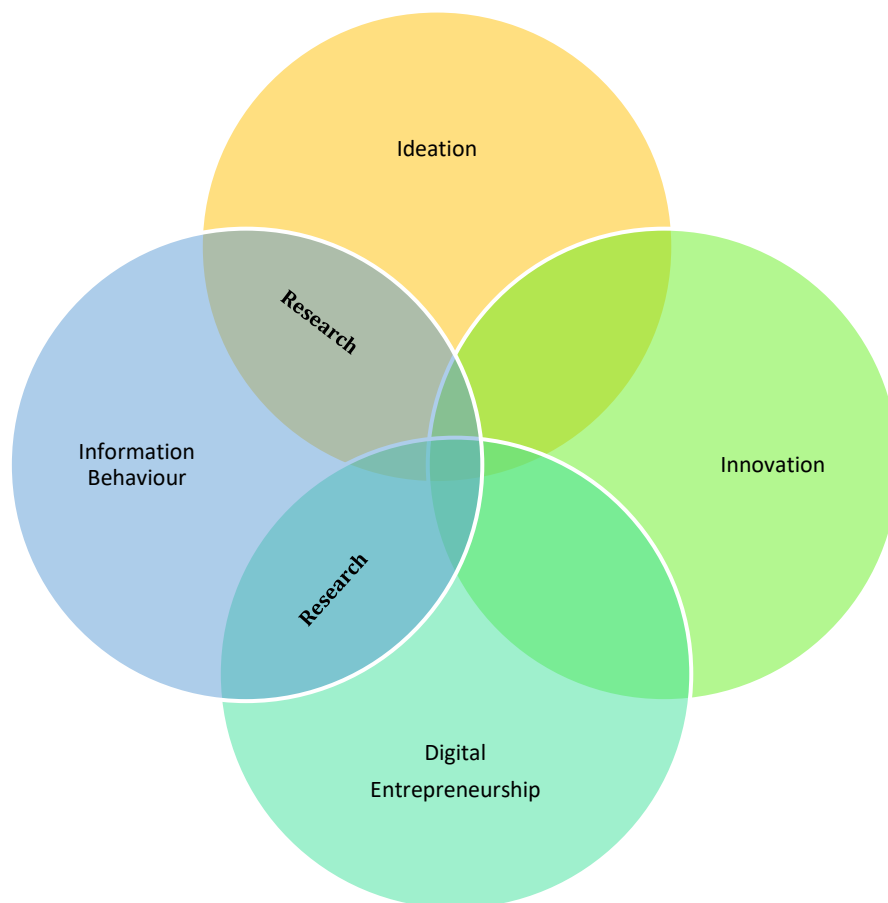
Figure 1: Research Conceptual Map

Figure 1 portrays the implied relationship between the major disciplines and their subordinate fields, which serves as the literature review direction. The major disciplines are Information Science

(information behaviour) and Business (Ideation, Innovation and Digital Entrepreneurship). At the heart of this study, is where the information behaviour sub-field intersects the Ideation and Digital entrepreneurship areas. The studies" research questions emanate from these two intersections or overlaps. However, the concept map also shows an overlap between Information Behaviour and Innovation, but that overlap falls outside the research scope. Nevertheless, a brief discussion is held about innovation, given that it relates to Ideation and Digital Entrepreneurship. This study aims to examine the information behaviour of digital entrepreneurs while ideating. The literature demonstrates that the junction between these two key fields is effectively loose. As such, to properly integrate these apparently related yet disconnected domains, research of this scale and dimension is paramount.

1.15 Chapter Summary

This chapter sets the stage for the current research into information behaviour of digital entrepreneurs during ideation. The aim and objectives of this study have been clearly established, together with a comprehensive set of supporting research questions, and the chapter has also presented a rationale for the research, outlining its contribution and originality.

The researcher's stance of Critical Realism drives the design of the study providing a basis to investigate the experience of digital entrepreneurs in idea generation phase of the start-up creation. The research contributes to knowledge by exploring information behaviour at a critical point in business start-ups that has not before been studied from an information perspective. The study also explores a second new context: the information behaviour of digital entrepreneurs.

Chapter 2: Background

Overview

This chapter aims to provide contextual insights by examining the social, cultural, economic, and political factors that impact entrepreneurs (ship) and their creative capacities in Nigeria. By analysing these factors, the chapter sheds light on how the wider context may influence entrepreneurial behaviour and practices. The chapter also discusses the different policy regimes on entrepreneurship and innovation in Nigeria. This includes an examination of government policies and regulations that may either facilitate or hinder entrepreneurial activities. Moreover, the chapter highlights the sociocultural structure in Nigeria and how it affects vulnerable members of the communities. Without knowledge of the cultural and contextual factors, the reader may miss important nuances in the data and be unable to fully appreciate the research findings.

2.1 Nigeria at a Glance

Nigeria is a diversified country with over 250 ethnic groups speaking a total of around 500 languages and identifying with a variety of traditions. The three biggest ethnic groups, which account for more than 60% of the overall population, are Hausa in the north, Yoruba in the west, and Igbo in the east. The official language is English, which was chosen to foster national linguistic cohesion (Ekakitie and Ekereke, 2019; Falola, 2001). The constitution of Nigeria protects religious freedom, and the country has some of the world's largest Muslim and Christian populations. Nigeria is roughly divided in half, with Muslims in the north and Christians in the south; indigenous religions, such as those of the Igbo and Yoruba ethnic groups, are in the minority (Josephine Para-Mallam, 2006).

Nigeria is both an African regional power and a developing international force. Nigeria has the largest economy in Africa, the 31st largest in the world in terms of nominal GDP, and the 26th largest in the world in terms of PPP (Kunle et al., 2014). Oil accounts for the majority of Nigeria's government revenue and nearly all of its foreign exchange profits (Sanusi, 2010). However, the country ranks very low on the Human Development Index (UNDP, 2020) and faces numerous challenges, including inadequate infrastructure, a complicated and opaque regulatory system, corruption, and a rapidly rising population (Olaseni and Alade, 2012).

Technologically, Nigeria's outlook is promising, and the country is transforming into a prosperous African hub for entrepreneurship activities, particularly technology and digital entrepreneurship, and

has thus become a favourite destination for talent searches by the world's leading technology firms, including Twitter, Google and Meta. "Nigeria has become a magnet for venture capital, a hotbed for start-up formation and a strategic entry point for Silicon Valley. As a frontier market, there is certainly a volatility to the country's political and economic trajectory. The nation teeters between its stereotypical basket-case status and getting its act together to become Africa's unrivalled superpower" (Bright 2020: p. 1).
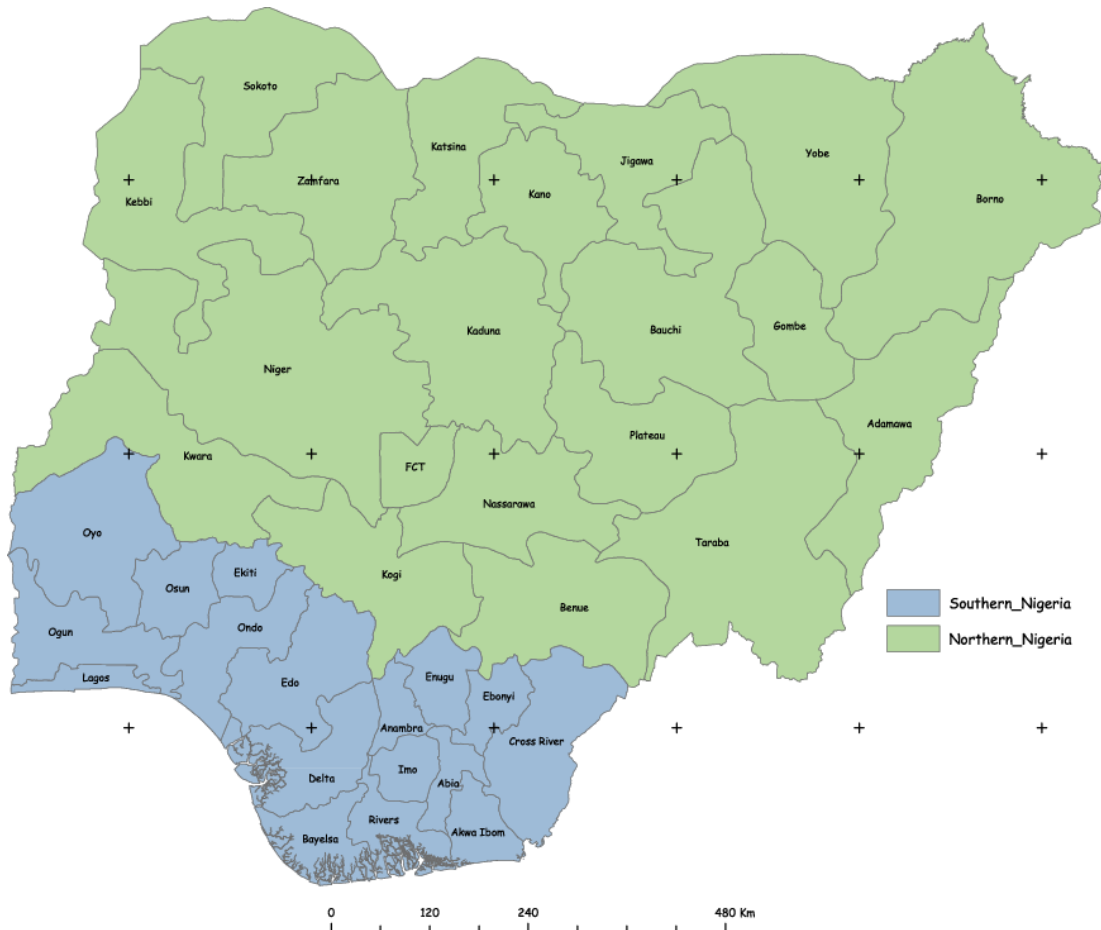
Figure 2: Nigeria Political Map

Source: https://nigerianinfopedia.com/northern-states-in-nigeria/

2.2 Entrepreneurial Policy Regimes

Nigeria has gone through four major national policy regimes in the areas of skills, entrepreneurship, and innovation. The first three models relied on literacy and life skills as a basis for survival. The seemingly prosperous trajectory had a rocky start dating back to the colonial era. Although entrepreneurial policies were not strongly pursued in the early iterations of the policy regimes of the time, they were impliedly carried out through educational programs (Imam, 2012; Fabunmi, 2005).

According to Akinyemi (1987), the colonial educational policy was oriented towards producing literate citizens who would fill positions that would reinforce the colonial administration. As no unique professional or entrepreneurial competence was anticipated in the educational system, the educational institutions, limited as they were, remained factories for producing clerks, interpreters, forest guards, and sanitation auditors. The total lack of entrepreneurship education in educational policy persisted until 1960.

In terms of policy direction, the post-independence agendas differ dramatically in their concentration on large-scale exploration, production, and manufacturing. Thus was born the industrial policy which was implemented following Nigeria's independence in 1960 (Iwuagwu, 2009; Aladekomo, 2004). The approach prioritized the establishment of large industries over small-scale firms. By doing so, the core of small-scale business, entrepreneurship, was accidentally de-emphasized. The combination of indifference toward "education for self-employment" in the educational system and long-term apathy against the development of entrepreneurial skills through small-scale industries in industrial strategy has contributed significantly to the nation's major unemployment crisis (Aladekomo, 2004; Iwuagwu, 2009).

However, by the second half of the 1970s, the government's official attitude toward small scale industries (SSI) began to improve, and both the Federal and State governments have been emphatic on the importance of the small-scale industrial sub-sector to the overall economy in subsequent development plans (Amakom, 2008). Small-scale enterprises have since received increased policy attention, partly as a result of growing dissatisfaction with the results of large-scale industrial plant development on labour absorption, but primarily as a result of the recognition of the potential of SSI in terms of positive contributions to economic development.

Since the 1970s, there has been a significant change in emphasis toward small and medium-sized industries (Akinyemi, 1987; Amakom, 2008). This began with the establishment of thirteen industrial development centres (IDC) during the 1970-1975 National Development Plan, with the goal of providing extension services to small-scale firms (SMEs). At the present, there is a total of twenty three IDCs nationwide (Hassan and Olaniran, 2011). IDCs in Nigeria were designed and built to service small and medium-sized enterprises (SMEs) but unfortunately have been derelict and abandoned (Adejumo, 2011; Olaseni and Alade, 2012; Aladekomo, 2004).

The creation of IDCs was followed by the establishment of financial institutions to provide sources of institutional credit for SMEs, such as Nigeria Industrial Bank (NIDB), Nigeria Bank for Commerce and Industry (NBCI), Nigeria Agricultural and Cooperative Bank (NACB), People's Bank, Community Banks,

and so on. The federal government has continued to promote SMEs since then. Specialized lending programs were also established to expand the reach and productivity of SMEs. Among such schemes are: (i) The World Bank Assisted SME Schemes, (ii) National Economic Reconstruction Fund (NERFUND), (iii) The Export Stimulation Loan Scheme (ESL), (iv) The Rediscounting and Refinancing Facility (RRF) (Evbuomwan et al., 2013; Akinyemi, 1987; Taiwo and Falohun, 2016).

Unemployment did not become a national issue until the civil war ended in 1970. Even then, it stayed at a bearable level until the 1981 economic downturn. As a result, prior to the 1980s, there was no clearly recognized and targeted national policy on unemployment. In the 1980s, policy options for reversing the trend of increasing unemployment focused on creating more employment possibilities in the country, particularly in urban areas, as well as structural change of rural areas to prevent rural-urban movement (Innocent, 2014).

Three significant Acts and Laws have reshaped the national strategy for combating unemployment through entrepreneurship. The establishment of the Directorate of Food, Roads, and Rural Infrastructure (DFRRI) and the National Directorate of Employment (NDE) in 1986 was the first innovative, comprehensive, composite, and integrated package in the national fight against unemployment through entrepreneurship (Anyebe, 2016). The NDE Act, CAP 250 of the Law of the Federal Republic of Nigeria, provides legal authority. The Directorate is in charge of developing and implementing programs to combat mass unemployment in Nigeria. Its programs include, among other things, vocational skill acquisition training, career counselling and placement, entrepreneurial training, and business creation (Ndem et al., 2018; Anyebe, 2016). The Directorate's biggest problem is its inability to deliver post-training resources for job creation, which is due to a lack of commitment from all levels of government (Aladekomo, 2004; Ndem et al., 2018).

Additionally, the authorities intensity their efforts through the establishment of the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), established by the Small and Medium Enterprises Development Agency Act of 2003. The Agency has the mandate to stimulate, monitor, and coordinate the development of micro, small and medium enterprises (MSMEs) in Nigeria by initiating and articulating policies, programmes, instruments and support services for the development of the MSMEs subsector (Oduyoye et al., 2013). So far, SMEDAN has not made any significant impact on the target population, as a result of a lack of awareness. Bureaucratic and tedious procedures have been blamed for keeping away intending entrepreneurs (Adegbuyi et al., 2016).

Entrepreneurship Development Centres (EDCs) were established as a follow-up to the establishment of NDE and SMEDAN in order to provide institutional support for the development of

entrepreneurship; additionally, entrepreneurship development centres have been established in Nigeria's tertiary institutions, and entrepreneurship has become a compulsory course of study in Nigerian universities (Raimi, 2020). However, the success of such academic programs is limited by a gap between the centres and the industry sector, which should give students practical training and experience. Both NDE and SMEDAN were to have an intellectual and academic arm in the form of EDCs. EDC offers capacity-building programs as well as a variety of wrap-around services such as advisory services, mentoring, experts-in-residence, network meetings, market and *information access*, and organizational plan execution. The objective of EDC is to create a network of entrepreneurial leaders by committing to *continual learning*, process improvement, and business integrity (Ademokun and Ajayi, 2012).

While two prior establishments (NDE and SMEDAN) have had relative success over the years, their progress has stalled due to larger factors, such as the growing significance of information technology in entrepreneurial practice. By establishing the Office for Nigerian Digital Innovation (ONDI), a special purpose vehicle (SPV) of the National Information Technology Development Agency, the government has stepped in to provide a foundational digital platform (NITDA) (Abolade et al., 2022). As a Federal Government agency, NITDA is mandated by the Technology Development Agency Act 2007 to develop a framework for the planning, research, development, standardization, application, coordination, monitoring, evaluation, and regulation of information technology practices in Nigeria by developing standards, guidelines, and regulations for that purpose, as well as to grow the Nigerian technology ecosystem for greater impact on job creation and economic growth.

More tailored legislation was recently enacted to deal primarily the establishment of start-ups and the generation of ideas. An act to establish the national council for digital innovation and entrepreneurship, to provide for the creation and development of an enabling environment for the technology-enabled start-ups in Nigeria.

Unlike past attempts at entrepreneurship legislation, the Nigeria Start-up Act of 2022 empowers the National Council for Digital Innovation and Entrepreneurship to particularly address the needs of founders who want to build a technology-enabled enterprise. The council's goal is to stimulate individual creativity by supporting ideas that demonstrate potency and scalability.

The many programs listed above demonstrate indisputably that governments in Nigeria have consistently made an attempt to foster entrepreneurship in the country. However, despite these efforts, the predicted results in terms of resolving the problems of enormous unemployment, high poverty rates, and low economic development rates have remained elusive. Therefore, the

government's entrepreneurship efforts have not yielded the desired results. Idam (2014) identified two significant dimensions: a lack of targeted understanding of entrepreneurs' requirements and a blanket approach to solutions. This makes it impossible for a large number of entrepreneurs to address their issues.

Additionally, the set of problems that constrain the development of entrepreneurship in Nigeria relates to environmental, socioeconomic, political and cultural factors such as insecurities; the weight of high incorporation costs, legal and professional fees, business permits and licences add to other start-up costs to create a heavy burden on small businesses faced with limited access to credit facilities and high-interest rates. The incidence of multiple taxation and levies in different forms at federal, state, and local government levels constitute militating forces for emerging small businesses.

World Bank Doing Business 2019 report showed Nigeria ranking 108 out of 131 economies compared in terms of business environment friendliness, with many Sub-Saharan countries, including Ghana, Mauritius, Botswana, Ethiopia, South Africa and Kenya, scoring higher ratings. Legal and practical clarity is beginning to emerge as a result of complaints and concerns from both local and international stakeholders about the impending collapse of Nigeria's private sector. In response to such concerns, the Nigerian government has amended existing legislation, particularly the Companies and Allied Matters Act (CAMA), and the Petroleum Industries Bill, which became law in 2021, providing some clarity to the private sector (Odeyinde and BL, 2021; Pérouse de Montclos, 2014). Both pieces of legislation have the potential to significantly improve the ease of doing business in Nigeria.

Since the country's independence, SMEs in Nigeria have benefited from several forms of assistance measures (Taiwo and Falohun, 2016). What stands out is the absence of policy consistency caused by a lack of understanding of business demands (Amakom, 2008; Aladekomo, 2004; Akinyemi, 1987; Adegbuyi et al., 2016). Despite the fact that the new digital innovation framework of the newly enacted Nigeria start-up Act, 2022, has immense promise, implementation must be grounded on actual business or start-up realities rather than hypothetical scenarios formulated by politicians.

2.3 Sociocultural Landscapes Affecting Entrepreneurs

Nigeria has a very diverse culture across regions, particularly between the northern and southern parts, where the culture is pro-Arab and west-centric, respectively. But even in these sub-regions, differences still exist in some cases with stark variations (Falola, 2001). Northern Nigeria's dominant culture and religion are Hausa and Islam, and the Hausa people determine the majority of state decisions. In the region, the prevalent culture and beliefs tend to align more with the Hausa tribe and certain religious practices. This has led to the Hausa community having significant influence in Nigerian

politics, especially in the northern region. The area tends to have a more reserved approach towards Western cultures. While some minorities in areas like Benue, Taraba, and Plateau, where they hold significant population concentrations, have managed to maintain their distinct cultural identity, there's a noticeable influence of the dominant Hausa culture across the broader northern region (Mugambi, 2012; Josephine Para-Mallam, 2006; Falola, 2001).

Northern Nigeria, where the researcher hails, is a patriarchal and hierarchical society. Honorifics, such as "sir", "oga", or "madam", are still used to address higher-status individuals (Kastfelt, 1989). This seniority has had an impact on informal information seeking, as it is culturally unacceptable to elicit a response or make a bold query from individuals who are senior in age (Halliru, 2013).

Women often face challenges rooted in traditional patriarchal structures (Kassam, 1996; Lewis, 2002). According to Human Rights Monitor, Nigeria was ranked 123rd out of 146 countries in the 2022 global gender gap index. However, there's been some progress as this is an improvement from its 139th ranking out of 156 countries in 2021 (Egwuatu, 2022). While the World Economic Forum's Gender Gap Index and civil society organizations have expressed concerns over female political and economic participation in the country (Isaack 2021). Despite the fact that the Nigerian Constitution guarantees gender equality and non-discrimination, yet, women occasionally encounter challenges stemming from workplace practices, cultural traditions, gender biases, varying educational opportunities, and the different ways poverty can affect genders women continue to face injustices and marginalization. (Ogugua, 2012; Durojaye and Adebanjo, 2014).

The mother, on the other hand, is held in high regard and commands enormous respect within the family. She has always wielded considerable power in northern Nigeria. Her revered status is supported by religious teaching, which requires children to be dutiful and loyal to their parents, particularly the mother (Last, 2000; Barkow, 1972).

The southern Nigeria is seen as culturally liberal and plutocratic. This could explain why it outnumbers northern Nigeria in terms of business and start-ups. The UK government believes the "Nigerian economy is typified by extreme inequality and considerable economic gaps between the North and the South" (GOVUK, 2022, n.p.). Imam (2012) argues that the western educational divide between Nigeria's north and south has deepened, with the mostly Muslim north trailing behind due to historical antecedents. Furthermore, Mugambi (2012) claims that Northern Nigeria is not well connected with current communication technology.

Nigeria is considered a conservative country (Handcock 2017). The Nigerian legal framework has specific provisions regarding people with non-traditional sexual orientations. In May 2013, Nigeria's

House of Representatives passed a bill that limits the rights associated with same-sex relationships and marriages. This legislation sets certain restrictions on same-sex marriages, public displays of affection between same-sex couples, and associations related to the LGBT community. Public sentiments have varied, with some segments of the population expressing reservations about same-sex relationships (HRW, 2016). In addition to legal repercussions, openly homosexual individuals face public hostility and violence (HRW 2010; HRW, 2008). The embodiment of both social and institutional discrimination was captured during the 0ctorber 2022 national honour day when the president, Muhammadu Buhari while presenting the award to the awardee, Ezra Olubi, put on a contemptuous look and a rather scornful face (Oduah 2022). Ezra Olubi, a gender-fluid, co-founded Paystack- a Nigerian financial technology company offering payment processing services to businesses and was acquired by Irish-American financial services company Stripe for $200M in 2020 (Bright 2020).

As the noose of queer phobia continues and is legally enabled, socio-cultural and religious tropes which are woven into the public discourses around queerness have further polarised and alienated people with alternative sexual preferences and identities. Unsurprisingly, Nigeria is often noted for its conservative views on this matter. However, this marginalised community is defying the odds of institutional persecution and sociocultural exclusion through new forms of identity reincarnation supported by digital platforms such as Instagram. Onanuga (2022) argues that while the identification of marginalisation and repression of people who present as queer is not restricted to the Nigerian socio-cultural space, advocacies have contributed to the recognition of these alternative sexual identities and non-binary gender identifies, to the legalisation of queer existence in many hitherto queer-phobic spaces.

2.4 Conclusion

Entrepreneurial policies dating back to the colonial era have been traced. Four entrepreneurial policies have had various degrees of success. Recent policies, particularly the establishment of NDE, SMEDAN, and EDC, have caused a significant overlap of mandates and functions. This could explain why their impact has been so limited. Because of the highly focussed purpose it pursues, the most recent legislation on start-ups presents new prospects for both policymakers and start-up founders. Minorities, especially women and LGBT people, are likely to encounter challenging and interrelated levels of social and legal discrimination.

Chapter 3: Literature Review

Overview

This study presents itself as an information science-based investigation of digital entrepreneurs, focusing on their information practices during the idea generation process. Due to the interdisciplinary nature of the topic, the literature reviewed crosses disciplinary boundaries and results in a multifaceted examination of resources. To aid readers in better comprehending the factors that influence the entrepreneurial process in the digital age, a theoretical framework is provided as a useful foundation for studying the information behaviour of digital entrepreneurs during the idea generation phase. Hence, concepts and theories related to entrepreneurship, social cognition, and information-seeking and use are discussed to show the integration of the separate but related disciplines. Overall, the literature review is organized into key themes which are central to the research questions, paying particular attention to key elements from information behaviour. The summary provides a synopsis of the topics that were investigated and serves to illustrate the knowledge gap that this study addresses.

3.1 Introduction

In the context of entrepreneurship, the generation of new business ideas is a crucial step that can have a substantial impact on the success of a new venture. Both the utilisation of digital technologies and the sheer amount of online information have revolutionized how entrepreneurs acquire, process, and use information to produce new business ideas in the digital age (Martzoukou, 2005; Recker and Von Briel, 2019). The topic of the information behaviour of digital entrepreneurs during idea generation aims at understanding how digital entrepreneurs search, process, and utilize information to generate new business ideas (Orrensalo, 2020). Digital entrepreneurs have access to a variety of digital information sources which can assist them in identifying new opportunities, gaining insight into client wants, and accruing knowledge of industry trends. Some of these sources include search engines, online communities, social media, blogs, and other online platforms. In addition, digital entrepreneurs may utilize their social networks and personal experiences to gain access to information pertinent to their entrepreneurial endeavors (Nikou et al., 2020; Orrensalo and Nikou, 2021).

Understanding the information behaviour of digital entrepreneurs during ideation is important for a variety of reasons. First, the process of idea generation is vital to the success of an entrepreneurial

endeavor, and effective information behaviour as part of that process is a significant aspect that can influence the quality of the generated ideas. Secondly, the use of digital information sources has revolutionized the manner in which entrepreneurs access information and generate new business ideas (Orrensalo et al., 2022). Research into the information behaviour of digital entrepreneurs during ideation reveals how digital technologies and the variety of digital information sources influence the entrepreneurial process:

- Entrepreneurship intention
- Entrepreneurship learning
- Opportunity recognition via idea gneration

3.2 Literature search

This chapter reviews the cache of related literature in innovation, creativity, and digital tehnology entrepreneurship within the ambit of Information Behaviour (IB). The review thematically aligns with the overall aim of the study, which is to investigate the information behaviour of digital entrepreneurs during idea generation and to determine whether the use of existing information theories can adequately explain such behaviour.

In order to eficiently and effectively identify and synthesize relevant literature, and to ensure that the findings of the research are reliable and valid, guidance was taken from two related studies by Levy and Ellis (2006) and Snyder (2019). This is important in order to keep away from commnon dangers most novice researchers face by assuming that literature review is a summary collection of interested manuscripts or an elaborated annotated bibliography. Hart (1998: p. 1) defined the literature review as "the use of ideas in the literature to justify the particular approach to the topic, the selection of methods, and demonstration that this research contributes something new". "An effective and quality literature review is one that is based upon a concept-centric approach rather than chronological or author-centric approach" (Levy and Ellis, 2006: p. 184). In order to achieve the concept-centric standard, a Frequency Search query (in Nvivo – a qualitative research software) was used and was found to be a useful tool for identifying potential themes in a literature review, especially when combined with other techniques. A frequency search involves identifying the most frequently occurring words or phrases in the literature relevant to your research question or topic. Preliminary analysis of the pilot data allowed additional important themes to be explored further in the literature review. Therefore, identification of the key terms and concepts associated with the research progressed quickly.

It is important to note that a frequency search was not all that was utitilised to provide a comprehensive understanding of the literature on the topic. The most significant task that aided an in-depth analysis of the literature, including reading and critically evaluating individual studies, came from a comprehensive survey of research on information-seeking, needs, and behaviour conducted by Case and Given (2016). The authors examine research in a wide range of fields, including library and information science, psychology, and communication, to provide a broad understanding of how people seek information and what factors influence their information-seeking behaviour.

Case and Given (2016) further argue that information-seeking is a complex and dynamic process that is influenced by a range of factors. For example, people"s information needs can be shaped by their personal characteristics, such as their age, gender, education level, and occupation, as well as by the specific context in which they are seeking information. The authors also highlight the importance of understanding people"s motivations for seeking information, such as to solve a problem or to learn about a topic of interest. The authors discuss various models and theories that have been developed to explain information-seeking behaviour, such as Kuhlthau's Information Search Process Model, which proposes that information-seeking is a cyclical process that involves a range of emotions, from uncertainty and confusion to sensemaking and resolution.

Another important theme in the book (Case and Givens, 2016) is the role of technology in information-seeking. The authors note that the widespread availability of digital technologies has fundamentally changed how people seek and access information, and has opened up new opportunities for information sharing and collaboration. Their survey, provides a valuable overview of the state of research on information-seeking, needs, and behaviour, and highlights the need for continued interdisciplinary research in this area. The insights and frameworks presented in the article can be useful for information professionals, researchers, and others who are interested in understanding how people seek and use information.

Over time, significant changes have occurred since Case and Given"s (2016) review that shaped research in the field. One such change is the growing interest in transitional information behaviour. This refers to the information-seeking behaviour of individuals as they move from one life stage to another. For instance, entrepreneurs transitioning from one trade to another or individuals changing careers may have different information needs than they did previously (Bronstein, 2019b).

In addition, the concept of marginality and intersectionality has been drawn into the contemporary discussion on information behaviour. Marginality refers to individuals who are on the fringes of society and may face social, economic, or political exclusion. Intersectionality, on the other hand, considers how different social identities intersect and influence an individual's experiences and behaviours. This has led to a greater understanding of how information behaviour may differ based on factors such as race, gender, sexuality, and socioeconomic status (Kitzie et al., 2022; Aderogba, 2022; Lillard, 2002; Willson and Given, 2020; Willson, 2019).

Overall, these changes highlight the evolving nature of research in the field of information behaviour and the need to consider a wider range of factors that may influence how individuals seek and use information.
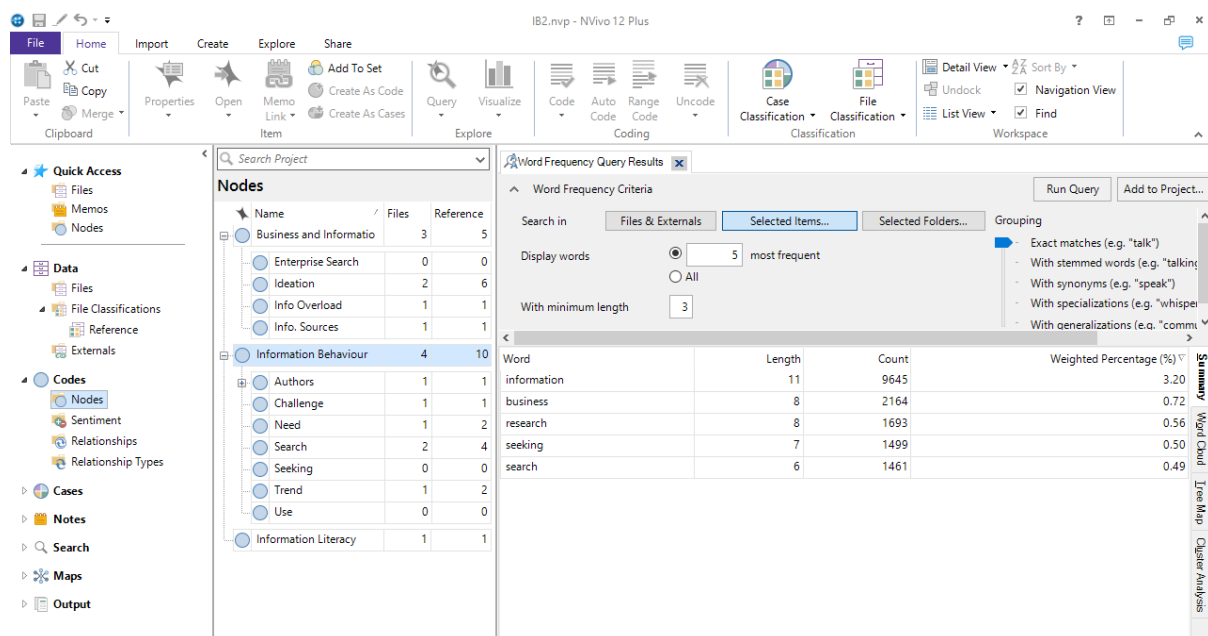
Figure 3: Frequency Search

Information science, or specifically information behaviour, is a discipline in the service of others, cutting through several domains and knowledge disciplines (Wilson, 2020), and hence the identification of the relevant literature comes with its own challenges which could be a result of the peculiarity of the research topic (information behaviour of digital entrepreneurs during idea generation in start-ups), which is at the junction of broad subjects: entrepreneurship, innovation, creativity, and information science. Several key databases were utilised, such as:

- The Library Literature and Information Science;
- LISTA (Library, Information Science and Technology Abstracts);

- Information Science & Technology Abstracts (ISTA);
- Web of Science;
- Scopus;
- ACM Digital Library.

Other information retrieval services such as Elsevier, Emerald Insight, and EBSCOhost, were used to source papers. EBSCOhost, Emerald Insight, and Elsevier are all electronic databases that provide access to academic literature and research materials.
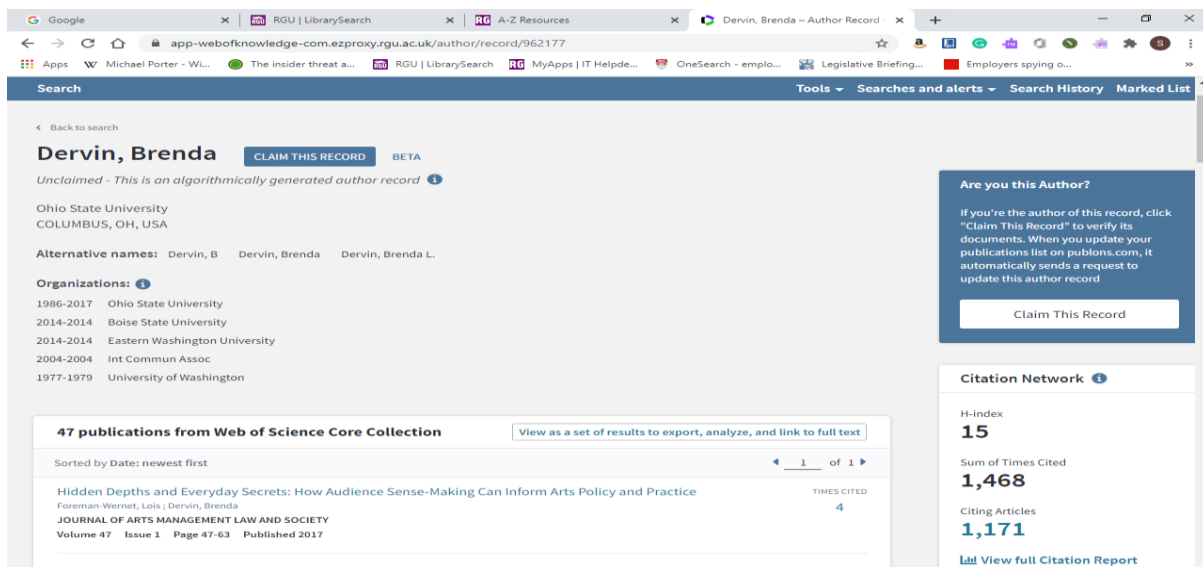
Figure 4: Citation Chasing and Author Discovery

Two additional literature search software packages were utilised to find related publications, namely ResearchRabbit and Google Scholar. ResearchRabbit is a web application designed to help researchers find and organize academic literature more efficiently. It provides a centralized platform where researchers can search multiple databases at once, manage their search results, and create a personalized library of articles. ResearchRabbit also offers various features like saved searches, alerts for new publications, and citation management tools. It is a useful tool for researchers who want to streamline their literature review process and stay up-to-date with the latest research in their field. While ResearchRabbit and Google Scholar both serve the purpose of helping researchers find academic literature, they differ in several ways. Google Scholar is a free search engine that searches across scholarly literature, including articles, theses, books, and conference papers. In contrast, ResearchRabbit is a paid service that provides a centralized platform for researchers to search multiple databases at once and manage their search results more efficiently. Google Scholar provides a more comprehensive search that covers a wider range of academic sources, whereas ResearchRabbit focuses on selected databases and sources that are relevant to the user's research needs (Jacsó, 2005).
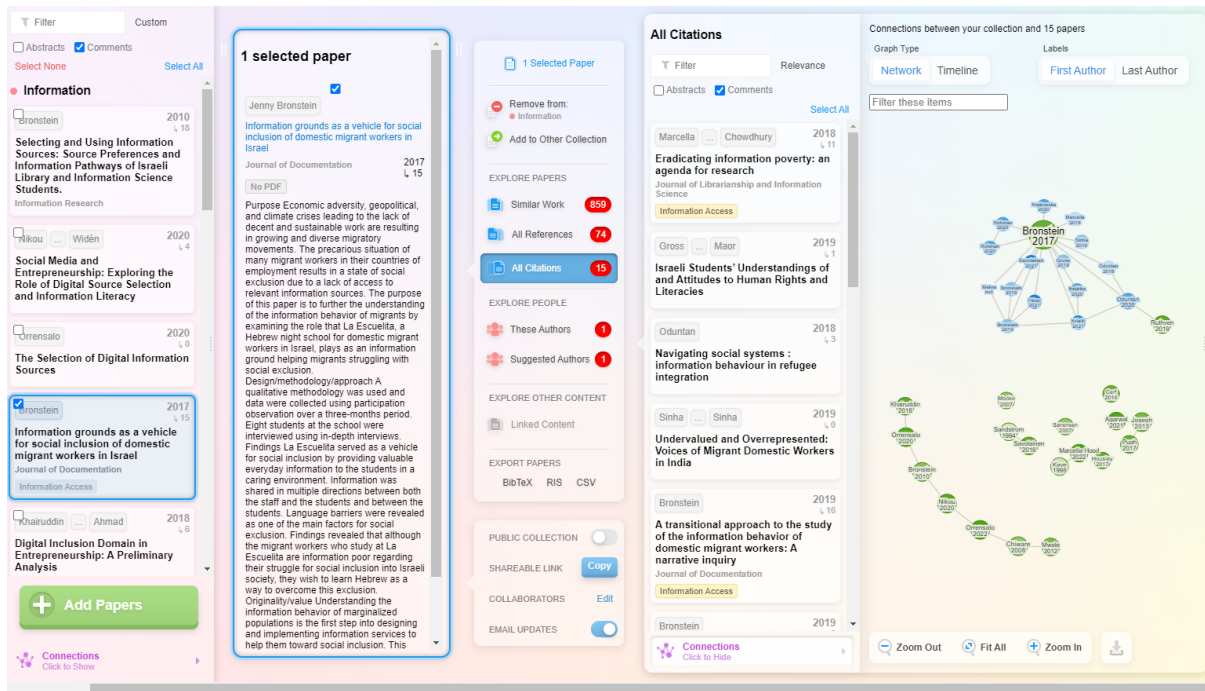
Figure 5: Literature Mapping

The use of backward and forward literature searches has been used to enhance the literature search process (Levy and Ellis, 2006). The process of moving backward in the literature can be broken down into three distinct sub-steps: searching for backward references, backward author search, and previously used keywords. Backward author search refers to the practice of reviewing the author"s previous works. Backward references search refers to examining the citations of the articles returned by the keyword search described previously.

Forward search can be broken down into two distinct sub-steps: forward references search and forward authors search. Forward references search entails examining subsequent papers which have cited the article in question. Forward authors search refers to examining which writers have published subsequent to the article. Adopting this technique has yielded insightful discoveries: for example, Orrensalo (2020), Orrensalo and Nikou (2021) and Orrensalo et al. (2022) were identified through this procedure.

The quality of the literature review was assessed using tools provided by Snyder (2019). These guidelines suggest assessing the quality of a literature review in four phases: design, conduct, data abstraction and analysis, and structuring and writing the review. Snyder discusses several types of literature review, including narrative reviews, systematic reviews, and meta-analyses, and outlines the

key steps involved in conducting a literature review, including defining the research question, identifying relevant literature, and synthesizing and analyzing the findings. Therefore, a systematic review and structured methodology to identify, evaluate, and synthesize all the available evidence on a specific research question were used.

3.2.1 Searching Process

Literature texts are systematically sourced using procedural techniques employing a combination of technologies: for example, Google Scholar and the Social Science Citation Index. The first step in identifying relevant and seminal materials is to identify prominent authors within the rubric of information behaviour (henceforward IB). Keywords such as "information-seeking", "information needs", "information use" and "information searching", "ideation", "start-up or innovation" were used. Google Scholar is utilised in this regards, and authors such as Brenda Devin, Carol Kuhlthau, Timothy D. Wilson, Nicholas Belkin, and Case and Given were identified. Each profile was then used within the Social Science Citation Index to populate authored articles along with the associated publications, citing the articles. This technique is very helpful in showing recent publications alongside the discipline/journal from which the paper comes, simplifying the filtering task.

A Boolean search strategy was used, a type of search allowing users to combine keywords with modifiers (operators such as AND, NOT, and OR) to produce more relevant results. For example, a Boolean search could be "information behaviour " AND "start-ups". This would restrict the outcome of the query only to documents containing the two keywords. Based on the topic of "information behaviour of digital entrepreneurs during ideation generation," some keywords that were used are presented in the table below:

Key terms used in this research

Focus	Search terms
Entrepreneurs	("entrepreneur*" OR "entrepreneurship" OR "SME*" OR "micro-enterprise*" OR "startup*" OR "start-up*" OR "small business")
Digitalization & Innovation	AND ("digital technology* OR "digitalization" OR "digitalisation" OR "digital transformation" or "digital innovation")
Information-seeking behaviours	AND ("information behaviour*" OR "information-seeking behaviour*" OR "digital information source*" OR "information source*" OR "information need*" OR "information service*" OR "information practice*" OR "information search")
Critical literacies	AND ("information literacy*" OR "digital literacy*" OR "digital competence*" OR "digital skill*" OR "ICT literacy*" OR "ICT skill")
Cognitive Information Processing	AND ("creative process" or "entrepreneurial cognition" OR "ideation process" OR "Idea generation")

Table 1: Keywords Formulation

3.2.2 Inclusion and exclusion criteria

A range of criteria were applied in the selection of the journal papers. However, most significantly, a rule was applied in the deselection of some journal articles which did not comply with the criteria laid down. This rule is important given the quantity of literature on information behaviour that has been published across disciplines. The two main determinants are currency and relevance, with the latter having the highest priority. All identified texts which discuss one or more of the subsidiary elements of information behaviour are considered to be very important, particularly when they relate to entrepreneurship, or more specifically to ideation. This category of journal articles is chosen without reference to their currency as it is important to illustrate the thematic and historical evolution of study in this segment. The second category of papers, still important although of lower priority, is concerned with the general themes within the theoretical framework of this study, such as concepts, innovation, entrepreneurship, digital entrepreneurship. However, their generic nature precludes the inclusion of those texts which have no logical bearing on the objective of this research. The conditions for the

deselection are thus set.

3.3 Information behaviour and digital entrepreneurship - definitions

Information behaviour refers to the way individuals seek, use, and share information (Wilson, 2000; Wilson, 2010). In the context of digital entrepreneurship, information behaviour plays a critical role in the process of identifying and assessing potential business opportunities (Kreuzer et al., 2022; von Briel et al., 2021). Entrepreneurs rely on information to identify potential business opportunities, assess their feasibility, and make decisions about how to launch and scale their businesses. Steininger (2019) argues that entrepreneurs with effective information-seeking behaviours are more likely to find and capitalize on new business opportunities, especially those who engage in active information-seeking behaviours, such as conducting market research, gathering customer feedback, and monitoring industry trends (Hägg and Politis, 2014; Perry-Smith and Mannucci, 2017). This will further enable them to achieve a better understanding of the market and customer needs, which can help them to develop products and services that meet the needs of their customers. Successful business decisions are more likely to be made by entrepreneurs who can properly assess and use the information at their disposal (Sharon and Simon, 2009; Davenport, 2009).

Indeed, opportunities are some of the key concepts that define the boundary and conditions of the entrepreneurship field (Busenitz et al., 2003). However, identification of opportunities must be preceded by intention (Jorge Antonio, 2022). Entrepreneurial intention refers to the strong desire and motivation of an individual to start and run their own business. It is a concept that attempts to explain why some people decide to become entrepreneurs and start new ventures, while others do not. Entrepreneurial intention is a crucial factor that can influence the success of a new venture, and is determined by various factors such as an individual's personality, background, skills, knowledge, experience, and perceptions about the opportunities and challenges of entrepreneurship (Kolvereid, 1996).

3.3.1 Entrepreneurship intention

Early studies into the elements that drive one to make a decision to form a business concentrated on the attributes or personality traits of individuals (David, 1961; Robert, 1976; Krueger Jr et al., 2000). According to Daryl (1989), entrepreneurs are people who have particular psychological characteristics such as a commitment to their profession, a need for ultimate control, a liking for unpredictability and challenge, and a desire to take on new and difficult tasks. Hian Chye (1996) argues that certain psychological characteristics such as the need for achievement and resilience are commonly attributed to business owners. Stefanie et al. (2005) discovered that some psychological

characteristics can be used to predict an individual's entrepreneurial attitude. Research, both theoretical and empirical, has linked certain psychological traits to entrepreneurial behaviour, as is evident from both of these lines of inquiry (Kennedy et al., 2003; Narendra, 2006; Juan et al., 2007). For instance, William (1989) proposed a model that includes the need for achievement, internal locus of control, tolerance for ambiguity, and risk-taking tendency as drivers of the intention to engage in entrepreneurial activity. In addition, Peter et al. (1991) discovered through their research that achievement, innovativeness, a sense of where control lies, and self-confidence may be used to predict entrepreneurial attitudes. Psychological attributes related to entrepreneurship can be culturally acquired (Miruna and Renaud, 2008; Joakim and Daniel, 2009).

The intention to engage in entrepreneurial activity is the antecedent that has been most frequently discussed and investigated in relation to new business creation. This method makes use of an extensive body of research that links intentions to later behaviours ((Ajzen, 1991), and it has been suggested on multiple occasions as the most accurate method for predicting entrepreneurial behaviour (Benson, 2004). According to Kolvereid (1996), the likelihood of a person becoming self-employed increases in proportion to the degree to which they think they have control over their own behaviours. This apparent control, on the other hand, corresponds to perceived feasibility, which is one of the primary components of self-efficacy and agency. According to Alain (2005) and Jill et al. (2008), self-efficacy has been discovered to significantly influence entrepreneurial behaviour. As a result, supporting entrepreneurship students" self-efficacy is seen as a key tool in entrepreneurship education to enhance students" entrepreneurial intentions (Hao et al., 2005; Mário et al., 2008).

It has been said that entrepreneurial purpose is a conscious state of mind that directs attention, and consequently experience and behaviour, toward a particular object or road to accomplish it (Daniel Yar et al., 2008). Daniels et al. found that innovativeness had a significant impact on the inclination to engage in entrepreneurial activity. It was believed that creativity is a concept that is more proactively oriented than elements such as perceived behavioural control, perceived social standards, and the tendency to take risks. However, Daniels et al. propose conducting more research on the creative inclinations shared by students of entrepreneurship in order to validate that influence. Additionally, they discovered that students who participated in academic entrepreneurship programs had a greater desire to launch their own companies in the near or distant future. Daniels et al. argued that it would be beneficial to investigate entrepreneurial role models in each educational context, given that those results indicate significant differences between the degrees to which individuals intend to pursue entrepreneurial endeavours in the various educational fields.

Research in the field of entrepreneurship has shown that entrepreneurial intention is a strong predictor of actual entrepreneurial behaviour. Entrepreneurial intention is often studied as a precursor to entrepreneurial action and is seen as a necessary but not sufficient condition for entrepreneurial success. According to Jarna (2007), there is a growing need to develop entrepreneurial skills including information literacy in order to deal with the challenges that are present now, and the uncertain future that lies ahead. Even though the concept of entrepreneurial behaviour has become common knowledge, there is still a growing need to develop these abilities.

3.3.2 Entrepreneurial opportunities

Research on entrepreneurship has placed a significant emphasis on gaining a deeper comprehension of the opportunity concept, which has ultimately resulted in the development of an extensive body of knowledge (Davidsson, 2015; Short et al., 2010; Nambisan, 2017). Shane and Venkataraman (2000: 451) have defined opportunity as a way "to bring into existence new items, services and raw materials that allow outputs to be sold for more than their cost of production". The initial stage of the entrepreneurial process is opportunity recognition, and the opportunity recognition theory is the primary framework for researching and understanding entrepreneurial ventures (Baron and Ensley, 2006; Tumasjan and Braun, 2012). Various theoretical perspectives on opportunity recognition have arisen so far, each covering a unique focus (Mary George et al., 2016). Research on opportunity recognition theory chronologically followed a defined path, beginning with a description of its essential elements from a process perspective, such as in studies conducted by Shane and Venkataraman (2000) and Shane and Eckhardt (2003). The conceptualization of opportunity recognition in terms of *activities, input,* and *output* from a *process* viewpoint reflects the conceptualization of digital innovation literature, which maps opportunity recognition to the initiation phase of the digital innovation process (Kohli and Melville, 2019). As the beginning point for the creation of new processes, goods, services, or business models, the opportunity recognition process requires an actor, i.e. an organization and/or an individual (Damanpour and Wischnevsky, 2006; Davidsson, 2015). From a process viewpoint, Alexandre et al. (2003: 108-110) defined opportunity as the "potential to address a market need (or interest or demand) by combining resources creatively to produce higher value". In this way, they separated opportunity recognition into three discrete activities: *perception*, or "feeling or detecting market demands and/or underutilized resources", *discovery*, or "discovering a fit between specific market demands and specified resources," and *creation*, or "forming a new match between previously separate needs and resources in the shape of a firm". Alexandre et al."s conceptualisation of *discovery* and *creation* of opportunity reflect Nambisan and Zahra (2016) demand narratives approach to business opportunity, which is an interactional, feedback-oriented, consumer-based discussion cycle that assesses the latent demands of consumers,

aiming to provide improved service or entirely new service. However, they warn that intense consumer narratives have the potency to derail opportunity formation and enactment. This is because highly varied, conflicting, and competing demands can delay decisions or consume considerable entrepreneurial resources. It is important to recognize that opportunity recognition, the process of identifying and capitalizing on new business opportunities, is a complex phenomenon that contains a number of information-specific elements. While many studies have examined factors which contribute to successful opportunity recognition, such as prior knowledge, experience, and cognitive processes, there may be other important factors that have not yet been fully explored (Baron, 2007). The role of information and its management in opportunity recognition should not be overlooked. Information such as market trends, customer needs, and technological advancements can all provide valuable insights and opportunities for entrepreneurs and innovators. However, the quality and accessibility of this information can vary widely, and the ability to effectively gather, process, and utilise information may be a critical determinant of successful opportunity recognition.

For opportunity recognition, according to Alexandre et al. (2003), an actor must utilize both the market-based view (MBV) and the resource-based view (RBV) input from the external environment (Shepherd et al., 2019). The MBV is an outside-in strategy, as it assumes that a company's market conditions, such as its competitors, drive the initiation of opportunity recognition (Zhou et al., 2005). The RBV exemplifies an inside-out strategy. It views internal resources as the starting point for opportunity recognition and the inability of competitors to replicate them as a source of competitive advantage (Barney, 1991).

This served as the impetus for the development of the *behavioural* perspective (Hulbert et al., 2015), which is also known as the cognitive perspective (see for example: Lorenz et al., 2018; Tumasjan and Braun, 2012). This perspective focuses on the cognitive ability and behaviour of an actor who is engaged in opportunity recognition. This covers research that investigates the role of factors such as knowledge, awareness, intuition, or creativity, as well as actions conducive to opportunity detection which stimulate associated cognitive processes, such as the studies conducted by Baron (2007) and Dyer et al. (2008). These opportunity recognition perspectives also reflect on the various metatheories in the information science discipline. Library and information science researchers have adopted a number of different metatheories in their research, including the *cognitivist*, *Constructionist,* and *Constructivist* approaches (Bates, 2005). Metatheory is described as a set of assumptions which orient and direct theorizing about a given phenomenon.

According to Kuckertz et al. (2017), the process perspective and the behavioural perspective are intricately intertwined and difficult to disentangle. This is due to the fact that the majority of the

activities associated with the process of opportunity recognition, such as perception (Alexandre et al., 2003), are cognitive in nature and are therefore influenced by an actor's cognitive abilities and behaviour. As a consequence of this, research on entrepreneurship has developed both views simultaneously in order to increase knowledge about opportunity recognition (for exampleDenis et al., 2010). Process perspective refers to how activities, input, and outcomes are related to the process of opportunity recognition, whereas behavioural perspective refers to how an actor is able to carry out corresponding activities based on his/her cognitive ability and information behaviour. The behavioural viewpoint is implicitly represented in the construct actor due to the fact that the behavioural perspective places a great emphasis on the persons who are engaged in opportunity recognition.

3.3.3 Ideas and Opportunities in Digital entrepreneurship

The advent of digital technology (DT) paves the way for innovative business opportunities (Oberländer et al., 2021; Holmström, 2018; Ciriello et al., 2018). It permits the digitalization of functions and the addition of digital capabilities to physical products (Yoo et al., 2010), as well as new channels of communication between customers and businesses (Lokuge et al., 2019). Digital technology refers to the use of electronic devices, such as computers, smartphones, and the internet, to store, process, and transmit information. It encompasses a wide range of products, services, and tools that are used to support various aspects of modern life, including communication, entertainment, education, commerce, and many others (Kreuzer et al., 2022; Ting et al., 2020; Giones and Brem, 2017).

Identifying opportunities in a digital age is very challenging, despite the lengthy history of entrepreneurship, because the unique characteristics of DT (e.g., re-programmability, data homogenization, self-referential nature) differ from those of other technologies (Yoo et al., 2010). Existing assumptions are put to the test and reshaped by DT in terms of agency and opportunity (von Briel et al., 2021). There is a "progressive shift in the conceptualisation of entrepreneurial agency— from one that considers it to be located in specific individuals to one that considers it to be an outcome of an ecology of interactions between humans and artefacts" (Alvarez and Barney, 2013: 157). Thus, agency is diffused among diverse players and by dissolving barriers between customers, companies, goods, and industries (Oberländer et al., 2021; Yoo et al., 2010). Because DT has such widespread implications for society and the economy (Baskerville et al. 2020), it is becoming increasingly challenging for research and practice to apply and draw from the knowledge of opportunity recognition that is traditionally associated with conventional forms of entrepreneurship (Steininger, 2019; Nambisan, 2017). Therefore, "researchers have taken on the challenge to study opportunity

recognition in a digital world, engaging in the comparably new research stream digital entrepreneurship (DE)" (Kreuzer et al., 2022: 47).

Important findings about opportunity recognition in DE come from classic entrepreneurship research, in which scholars argue that opportunities are critical to entrepreneurial undertakings (Shepherd et al., 2019). For example, research has employed the entrepreneurial nexus theory in an effort to understand the emergence of opportunities (Davidsson, 2015). More recently, the transition from classic entrepreneurship to DE research changed the focus towards exploring the nature of opportunities facilitated or impacted by DT. This movement came about as a result of a shift in emphasis from traditional entrepreneurship to DE research (Recker and Von Briel, 2019). Research interest on how DT is shaping opportunities is steadily growing (for example:von Briel et al., 2021; Nambisan, 2017). One of the relatively few submissions that looked specifically at digital opportunities, Oberländer et al. (2021) conceptualized the digital opportunity space for incumbents, while Secundo et al. (2021) explored the potential of digital technology to open up new doors for entrepreneurial education. Although it has been acknowledged that there is a distinction between DE and entrepreneurship, research has not yet properly investigated and comprehended the transition from classic entrepreneurship to DE (von Briel et al., 2021; Nambisan, 2017).

A significant gap exists in the scholarly community's comprehension of how DT influences the ability to recognize opportunities (von Briel et al., 2021) despite opportunity recognition being one of the most influential schools of thought in the field of entrepreneurship (Baron and Ensley, 2006; Shepherd et al., 2019). Therefore, many DE studies have called for a better understanding, such asRecker and Von Briel (2019: 5), by asking "how do digital technologies assist with the discovery or creation of opportunities?". In spite of this, neither the fundamental constructions of opportunity recognition nor the more detailed features of the *process* and *behavioural* perspectives have been explored with a particular emphasis on the impacts of DT (Steininger, 2019; Recker and Von Briel, 2019). This is the case not just in the DE sector, but also in allied fields like digital innovation, where opportunity recognition - as the initial step in the innovation process - is still regarded as under-researched. The impacts of DT on opportunity recognition are of special interest (Holmström, 2018; Ciriello et al., 2018; Abrell et al., 2016). Insufficient knowledge is impeding scientific advancement within this domain, and practitioners are left without direction on how opportunities are identified in the digital age (Svahn et al., 2017). Against this backdrop, that understanding of the effects of DT on opportunity recognition is essential to advance DE research and practice (Nambisan, 2017), and offers insightful commentary on the transition from entrepreneurship to DE. Efforts to understand the effects of digital technology on opportunity are starting to spring up (see for example: Kreuzer et al., 2022). The current research,

"information behaviour of digital entrepreneurs- ideation generation of start-up businesses", will advance our understanding in this domain. This is because current knowledge regarding how information practices support ideation in digital space is incomplete.

3.3.4 Entrepreneurship Learning

When applied to the concept of entrepreneurship, learning has frequently been concerned with learning how to recognize and act on opportunities (Shane and Venkataraman, 2000), as well as learning how to overcome conventional challenges when coordinating and handling entrepreneurial ideas, i.e. dealing with the liabilities of newness (Dean et al., 2000). In reality, most entrepreneurs engage in both activities at the same time, as they are frequently active in multiple ongoing projects at various levels of development (Shane, 2003). Organizing a new venture, on the other hand, is based on an entrepreneurial opportunity that must have been identified and pursued previously. Thus, from a theoretical standpoint, dealing with creation is impossible without prior opportunity recognition (Politis, 2005).

Entrepreneurial learning research has incorporated a variety of theoretical viewpoints. Two theoretical views in particular, experiential and organisational learning, play a significant influence. Drawing on the work of Kolb (1999, 1976, 1984, 1985) and his colleagues (Russ, 1998; Kolb, 2005; Kolb and Kolb, 2001), multiple articles build on experiential learning (Bart et al., 2004; Jason and Jason, 2003; Dimo, 2007). Entrepreneurial experiential learning refers to the process of acquiring knowledge and skills through hands-on, practical experience in starting and running a business. It is a form of learning by doing, where individuals learn through the challenges and opportunities of starting and managing a business. This type of learning often involves trial and error, testing and iterating on ideas, making decisions, and taking calculated risks. Experiential learning allows entrepreneurs to gain valuable insights, build resilience, and develop a unique set of skills which can be applied to future business ventures.

Secondly, several articles have drawn on theories of organizational learning, including exploratory and exploitative learning (James, 1991). Organizational learning (consisting of four constructs: knowledge acquisition, information distribution, information interpretation, and organizational memory) and organizational learning have significance in terms of information processing and decision-making (Wang and Chugh, 2014).

Experts in the field of entrepreneurship have written about how important experience, networks, and mentorship are to the learning process of entrepreneurs (Robert, 2000; Hägg and Politis, 2014).

Notable examples include Audretsch and Vivarelli (1995), who emphasized the significance of experience and networks in the development of new firms; Shane (2003), who discussed the role of mentorship in supporting entrepreneurs and their businesses; and Ro Ber and Osw (2008), who explored the role of networks and mentorship in entrepreneurial learning and success.

The role of parents in entrepreneurial learning and intention has been discussed and noted by a number of scholars, including Baumol (2002), in that parents play an important part in the process of moulding their children's attitudes and beliefs regarding entrepreneurship and business. In addition, Amofah and Saladrigues Solé (2020) and (Lindquist et al., 2015) have emphasized the impact that parents have on the development of an entrepreneurial mindset in their children, as well as the influence that parents have on the types of opportunities and experiences that are available to their children. This was done in the context of children's access to opportunities and experiences. In addition, Philippe and Pierre-Xavier (2021) and Au and Kwan (2009) have conducted research into the role that parents play in supplying their children with social capital and resources, which can be extremely important in the process of starting and building a successful business.

The relationship between formal education and entrepreneurial activity has been explored (see, for example: Arminda do et al., 2015; Raposo and Paço, 2011; Ricardo Gouveia et al., 2010) . Debarliev et al. (2022) have examined the influence of formal and informal education in the development of entrepreneurial abilities. In addition, Edwards and Muir (2005) investigated the connection between formal and informal learning and the launch of new businesses. They discovered that both types of education play significant roles in the growth of entrepreneurial knowledge and abilities. Other researchers, such as Dehghanpour Farashah (2013) and Jiménez et al. (2015), have also looked into the role that formal and informal education play in the process of encouraging entrepreneurial behaviour.

Several scholars, such as Bjorvatn et al. (2020) and Van Gelderen and Verduyn (2003), have weighed in on the impact that entertainment has. Vanevenhoven et al. (2021) demonstrated the effect that movies can have on one's ability to develop business skills. Baron (2004) investigated the ways in which people"s ideas and attitudes about entrepreneurship might be influenced by the depiction of entrepreneurs and entrepreneurship in popular culture, such as in movies. Specifically, he looked at how these depictions can occur. Dyer (2007) conducted research into how movies and television shows might serve as sources of inspiration, motivation, and instruction for those who are interested in starting their own businesses.

The current research stream on entrepreneurship learning focuses on several key areas, including entrepreneurial education and training programs, their effectiveness and impact; the role of experience, networks and mentorship in entrepreneurial learning; and the role of technology in facilitating and enhancing entrepreneurship learning (Hafeez et al., 2018). These research streams aim to improve our understanding of how individuals learn to become successful entrepreneurs and how to enhance the effectiveness of entrepreneurship education programs.

Social cognition plays a critical role in entrepreneurship and idea generation, particularly when it comes to understanding how individuals develop, process, and act on information about themselves, others, and their environment. Social cognitive theory provides a framework for understanding the underlying cognitive and social processes involved in idea generation and entrepreneurial behaviour, and how they are shaped by individual, social, and environmental factors (Shepherd and Krueger, 2002). Bandura (1986) emphasized the importance of social factors in shaping human behaviour. His theory suggests that human behaviour is influenced by personal, behavioural, and environmental factors, and that behaviour can be modified through self-regulation and social modelling. Social cognitive theory, or SCT, can be applied to the study of information behaviour during idea generation by examining how social factors, such as social norms, role models, and social support, influence the information behaviour of digital entrepreneurs. SCT has been included in the current research to guide the presentation of data and the discussion of results, as well as to assist with the review of literature.

3.4 Entrepreneurship, Innovation, and Creativity

Innovation and entrepreneurship are closely linked and often interdependent concepts in the business world (Johnson, 2001; Schumpeter, 2000; Williams, 1983), given that the former has significance in several disciplines, from engineering through management and entrepreneurship, resulting in varied or inconsistent definitions. Baregheh et al. (2009: 1334) conducted a content analysis on over fifty definitions from different disciplinary traditions and paradigms to arrive at what seems to be a consensus definition. They describe innovation as a "multi-stage process whereby organisations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace". Thompson (1965: p. 2) sees innovation as "the generation, acceptance and implementation of new ideas, processes products or services." According Du Plessis (2007), innovation can be defined as "the process of creating something new or significantly improving on something that already exists, resulting in a positive impact on the organization and society as a whole." This definition emphasizes the importance of both novelty and impact in innovation, as well as the role of knowledge management in supporting the innovation

process. Innovation involves a multi-stage process of idea generation, development, and implementation, with the goal of advancing, competing, and differentiating in the marketplace.

On the other hand, entrepreneurship research seeks to understand the processes and practices of creating, managing, and growing new ventures. It involves the study of the attitudes, behaviours, and decision-making processes of entrepreneurs as they develop and commercialize new products, services, and business models (Robert, 2007). Innovation is central to entrepreneurship research as it represents a key factor in the success of new ventures. Entrepreneurs must continuously generate new and creative ideas in order to stay ahead of the competition and meet the changing needs of customers (Perry-Smith and Mannucci, 2017; Fowosire and Idris, 2017; David et al., 2016; Maritz and Donovan, 2015; Gielnik et al., 2014). This requires a deep understanding of the innovation process and the various challenges and opportunities that arise at different stages of development. Furthermore, innovation and entrepreneurship are interconnected in that entrepreneurs often create new and innovative products, services, and business models which disrupt existing markets and create new ones. This process of disruptive innovation drives economic growth and job creation, and has a significant impact on the broader economy (Ciriello et al., 2018; Alexander et al., 2018; Howells, 2000).

Even though innovation and entrepreneurship revolve around the same idea of creating value using ideas underpinned by creativity, there is a subtle practical and theoretical difference (Maritz and Donovan, 2015). Therefore, it is crucial to understand this nuance. In terms of practicality, entrepreneurship is grounded in the systematic tasks of locating, evaluating, and exploiting opportunities using a set of predefined resources; all of these revolve around the individual actor known as the entrepreneur: "innovation is contextualised on the innovation process, from idea generation through product development to commercialisation" (Maritz and Donovan, 2015: 77). However, this contextualisation of innovation seems rather simplistic and constrictive by overlooking other important process-related details. This challenge is addressed by Baregheh et al. (2009: 1332), who classify innovation into six attributes: *nature, type, stages, social context, means,* and *aim of innovation.* The relevant features which are pertinent to this study are the stages of innovation and the *nature of innovation*. The stages of innovation means "all the steps taken during an innovation process which usually start from idea generation and end with commercialisation", while the *nature of innovation* describes whether the innovation outcome is an improvement or entirely novel.

In terms of theory, both innovation and entrepreneurship belong to separate theoretical perspectives, or rather habitually incline towards specific types of theorising (Maritz and Donovan, 2015). Ajzen (1991) and Ireland et al. (2005) respectively argue that the entrepreneurship phenomenon can be

adequately explained through the lens of the theory of planned behaviour (TPB). TPB, which is an evolution of the Theory of Reasoned Action (TRA), is used specifically to determine how people will respond based on their pre-existing behaviours and behavioural goals. A person's choice to participate in a specific action, such as starting a business, is based on the consequences that the individual believes will come from the action, such as making a profit. Therefore, "entrepreneurial action is related to certain individual and social characteristics of the entrepreneur" (Sahut and Peris-Ortiz, 2014: 666).

The theoretical perspective of innovation refers to the various theoretical frameworks, models, and theories that have been developed to explain the innovation process and its underlying mechanisms. These theoretical perspectives provide a deeper understanding of how innovation occurs and the factors that influence it, and are used to guide and inform innovation strategies and practices (Maritz and Donovan, 2015). Smith (2002) argues that one of the most widely used theoretical perspectives on innovation is the *stage-gate model*, which posits that innovation is a structured process that involves several distinct phases, including idea generation, concept development, and commercialization. Another theoretical perspective is the *open innovation model*, which proposes that innovation can occur both from within an organization and from external sources, and that organizations can leverage a variety of channels and mechanisms to tap into external knowledge and ideas and thus information.

As Johnson (2001: 136) posits, "if an organisation does not adopt a proactive attitude towards innovation and the creation of new ventures it is unlikely to survive in an increasingly aggressive, competitive and dynamic market place". Johnson captures this seemingly contradictory but nonetheless possible combination under the banner of corporate entrepreneurship. He identifies three action-oriented attributes within this concept: *intrapreneurship, dispersed entrepreneurship,* and *corporate venturing*. Intrapreneurship involves a search for additional ideas before the organisation turns them into a product and services. Dispersed entrepreneurship, on the other hand, awards some degree of autonomy to the employees to pursue and implement entrepreneurial ideas which conform to the overall aim of the organisation. The third, a collaborative form of corporate entrepreneurship, involves creating a network of partnerships with other organisations, usually smaller but specialised firms, in undertaking a particular business line. For example, Qualcomm, which is known for developing semiconductor components or software for vehicles, watches, laptops, and other devices, mainly produces these products through other companies in a fabless manufacturing arrangement (Asmar and Fernandez, 2012). In the same vein, Sahut and Peris-Ortiz (2014) advocated for this type of mutually beneficial relationship.

Furthermore, a more practical view which can further distinguish innovation from entrepreneurship is the concept of macro and microeconomic perspectives. Often researchers interpret innovation from a macroeconomic perspective, while entrepreneurship is often seen from a microeconomic perspective. This resonates well with a microeconomic base of the theory of effectuation, peculiar to entrepreneurship, where one set of alternatives will lead to a series of different outcomes (Maritz and Donovan, 2015; Sarasvathy, 2001). Sarasvathy (2001) argues that effectuation theory provides a more realistic and useful framework for understanding entrepreneurial decision-making than traditional causation-based approaches. By embracing uncertainty and ambiguity, and by focusing on the creation of new opportunities rather than prediction and control of outcomes, entrepreneurs can more effectively navigate the complex and rapidly changing business environment.

While the theories are good at explaining complex terms like innovation and entrepreneurship, they have not succinctly addressed the nuances between them. Literature shows the two cannot be discussed in total isolation because the separation of the concepts may limit their usefulness. Therefore, it is essential to note that not only does "innovation appear as an inherent characteristic of entrepreneurship, but innovation and entrepreneurship must go hand in hand" (Sahut and Peris-Ortiz, 2014: 665).

3.4.1 Entrepreneurship Ideation

Entrepreneurship is often characterized by the need for creative thinking, as entrepreneurs must continuously generate new and innovative ideas to create and grow their businesses (Baron, 2007). This requires a deep understanding of the creative process and the factors that contribute to it. The findings of Benedek and Neubauer (2013) study provide valuable insights into the role of associative hierarchies in creative thinking, and have implications for entrepreneurship research. The study suggests that the ability to make novel connections between seemingly disparate ideas is a key component of creative thinking, and that this ability is related to the structure of associative hierarchies in the brain. The study builds on Mednick's (1962) seminal theory concerning the role of associative hierarchies in creative thinking. Mednick proposed that creative individuals have a more complex network of associative connections, which enables them to make more unusual connections between seemingly disparate ideas. He developed a psychometric measurement of creativity to test the potential of creativity amongst his respondents. The model assumes that creative people (digital entrepreneurs in this context) have flatter associative hierarchies – "an idea that for any given concept, there is a set of associations which can be arranged in the order of their associative strength, and as a consequence, can more fluently retrieve remote associative elements, which can be combined to form creative ideas". Even though Mednick"s study has not purposely highlighted the

role of information in creativity, this finding from the study is important because it links cognitive information processing approaches to the psychometric measurement of creativity. It also underscores that adoption of the information processing perspective can be an effective tool in the understanding of creativity.

Benedek and Neubauer's study aimed to test Mednick's theory and provide evidence for the role of associative hierarchies in creative thinking. They conducted a series of experiments to measure the associative hierarchies of creative and non-creative individuals, and found evidence to support Mednick's theory. The results of the study showed that individuals with higher levels of creativity tend to have more complex associative hierarchies, allowing them to make more unusual connections between ideas. Benedek and Neubauer (2013) also demonstrate that high and low creative people show the same general organisation of associative memory; however, creative people follow a common path to uncommon thought, but they do so at a much higher speed.

Thomas (2007) argues that individuals come across new ideas as a result of how information is systematically organised in their long-term memory. He argues that information is arranged in various frameworks, categories for objects or events that are somewhat similar. For example, the category of personal gadget may include a smartphone, smartwatch, and digital navigation device. Any subsequent information related to a device that performs similar functions to such devices will be tagged as a personal gadget. According to Baron (2007: 169), such "concepts offer the important benefit concerning creativity" given that "they permit ready access to vast amounts of previously stored information that can facilitate processing such information in various way".

Divergent thinking and lateral thinking are two important concepts in the field of creativity. Both involve the ability to generate new ideas and to approach problems from unconventional perspectives. Divergent thinking refers to the ability to generate multiple and varied solutions to a single problem or prompt. It involves exploring many possible options and imagining a wide range of possibilities. This type of thinking is essential for coming up with new and original ideas. It requires the ability to think beyond the obvious, to challenge assumptions, and to consider multiple perspectives (Runco, 2010; Michael et al., 2005; Ames and Runco, 2005). For instance, Airbnb was founded in 2008 by Brian Chesky and Joe Gebbia, who were struggling to pay their rent and came up with the idea of renting out air mattresses in their living room to attendees of a design conference in San Francisco. They were able to make some extra money and saw the potential for a new type of accommodation service. Chesky and Gebbia took their idea and expanded it, creating a platform for

homeowners to rent out their homes or spare rooms to travellers. At the time, the concept of staying in someone else's home was unusual and many people were sceptical of the safety and reliability of the service. However, Chesky and Gebbia persisted and used their divergent thinking to create a successful business model. One of the key factors in their success was their ability to think creatively and come up with new ideas for improving the user experience (Aznar et al., 2016).

Lateral thinking, on the other hand, refers to the ability to make connections between seemingly disparate ideas in order to find new and innovative solutions. This type of thinking involves re-framing problems and finding connections between seemingly unrelated concepts (Atkinson, 2011). It requires a flexible and open-minded approach to problem-solving, and the ability to see things from multiple angles.

Both divergent thinking and lateral thinking play important roles in the creative process. Divergent thinking provides the raw materials for creativity by generating a large number of ideas and possibilities. Lateral thinking then takes these ideas and combines them in new and innovative ways to produce novel and useful solutions. Overall, divergent thinking and lateral thinking are two essential components of creative thinking. By fostering these abilities, individuals can enhance their capacity for creative problem-solving and innovation (Runco, 2010).

Michael et al. (2005) examined the relationship between ideation (the process of generating new ideas), divergent thinking (the ability to generate multiple and varied solutions to a single problem or prompt), and entrepreneurship. Entrepreneurship is defined as the process of starting and managing a new business venture (Aderogba, 2022). Michael et al. (2005) used a series of tests to measure ideation and divergent thinking in a sample of university students by comparing the results of these tests with the students" self-reported likelihood of starting their own business. The results showed a significant positive correlation between ideation and divergent thinking and the likelihood of starting a business. This suggests that individuals who are skilled at generating new ideas and approaching problems from unconventional perspectives may be more likely to become entrepreneurs. The authors note that their findings may have implications for the selection and training of individuals interested in entrepreneurship, as well as for the development of programs aimed at promoting entrepreneurship. The study highlights the importance of ideation and divergent thinking in the field of entrepreneurship by suggesting that these abilities may be useful predictors of an individual's likelihood of starting a successful business venture.

The relationship between divergent thinking and creative potential is investigated by Runco and Acar (2012). The authors define creative potential as the capacity for producing creative ideas, not necessarily the actual production of creative works. The results showed a significant positive correlation between divergent thinking and creative potential. This suggests that divergent thinking may be a useful indicator of a person's potential for creativity. The authors note that their findings may have implications for the selection and training of creative individuals, and for the development of interventions aimed at enhancing creative potential, while highlighting the importance of divergent thinking in the evaluation of creative potential and providing evidence for the validity of divergent thinking as a measure of creative ability.

Wang (2012) examines the relationship between creative thinking and reading and writing. Wang argues that reading and writing are important skills for promoting creative thinking. He cites research which has found that reading and writing can increase **individuals'** exposure to new ideas, which in turn can foster creative thinking. Additionally, reading and writing can help individuals to organize and express their thoughts, leading to an increase in creativity. Wang also notes that there is a reciprocal relationship between reading, writing, and creative thinking. That is, engaging in reading and writing activities can increase creative thinking, and vice versa. He argues that this is because reading and writing can help individuals to develop their creative skills, while creative thinking can also stimulate their interest in reading and writing. The current study provides valuable insights into the importance of reading and writing for promoting creative thinking, and highlights the need for individuals to engage in these activities regularly to foster their creative skills.

Various studies explore the relationship between creativity and entrepreneurship from a number of perspectives. One study by Ana Paula et al. (2019) found that emotional intelligence and spirituality play a role in understanding creativity and entrepreneurial intention in higher education students. Another study by Gielnik et al. (2012) argues that creativity is positively related to the diversity of information used in the opportunity identification process, which in turn is positively related to the quality of the opportunities identified. They also propose that diversity of information moderates the relationship between creativity and opportunity quality. A study by Jill (2006) explored the role of social relationships in facilitating individual creativity. Yet another study by Perry-Smith and Mannucci (2017) investigated the social network drivers of the four phases of the idea journey, from creativity to innovation. They argue that creativity is only the first step towards innovation and that social networks play a crucial role in transforming creative ideas into successful innovations. Some studies also looked at the relationship between creativity and various other factors such as intelligence

(Hocevar, 1980; Roberta Louise Mariano et al., 2022), personality traits (Liang et al., 2019), and reading skills (Roberta Louise Mariano et al., 2022). Other studies, such as that undertaken by Qin et al. (2022), investigated the potential drawbacks of entrepreneurs" creativity. The authors argue that while creativity is often seen as a positive trait in entrepreneurship, it can also have negative consequences when entrepreneurs pursue opportunities that have a negative impact on the environment. This study contributes to our understanding of the complex relationship between creativity, opportunity identification, and environmental sustainability in entrepreneurship. Overall, the studies highlight the importance of creativity in entrepreneurship and its interplay with various individual and situational factors.

3.4.2 Entrepreneurship creativity models

A more closely aligned mental model that has been used predominantly in innovation and entrepreneurial studies is the concept of cognitive framework and pattern recognition (Akgün et al., 2003; Fabritius, 1998; Paletz and Schunn, 2010; Baron, 2007; Xu, 2011). Cognitive framework and pattern recognition are closely related to entrepreneurship as they play a significant role in shaping the decision-making and problem-solving processes of entrepreneurs. Cognitive framework refers to the mental models, thought processes, and beliefs that shape an individual's perceptions and approaches to decision-making (Paletz and Schunn, 2010). The importance of information to decision-making has also been a focus for IB studies for decades (Popoola, 1970).

In entrepreneurship, these mental models and thought processes play a critical role in shaping an entrepreneur's risk-taking behaviour, problem-solving approaches, and overall success. Pattern recognition, on the other hand, refers to the ability to identify patterns in data, information, and experiences. This ability is critical for entrepreneurs as they often need to make decisions based on incomplete or uncertain information. By recognizing patterns in the market, industry trends, and consumer behaviour, entrepreneurs can identify opportunities, anticipate challenges, and make better decisions (Yasuyuki et al., 2018; Krikelas, 1983; Chiware and Dick, 2008). Baron and Ensley (2006) argue that entrepreneurs with strong pattern recognition skills may be able to identify a gap in the market and quickly develop a product or service to fill that gap. On the other hand, an entrepreneur with a cognitive framework that prioritizes stability and minimizes risk might be less likely to take advantage of that opportunity (Camp, 2015; Fabritius, 1998; Akgün et al., 2003). Cognitive framework and pattern recognition are both critical components of the entrepreneurial mindset. Understanding and leveraging these skills can help entrepreneurs make better decisions, identify opportunities, and achieve success. However, it is also essential to recognise the paradoxical

or ironical nature of cognitive framework because it can stifle creativity subconsciously by discouraging individuals from thinking about diverse concepts.

3.5 Theories and Models in Information Behaviour

According to Case and Given (2016: 120), models and theories are "versions of reality" which aim to analyse and explain scenarios which predict likely individual actions for the purpose of finding information. Models are often defined in relation to theories. Models, unlike theories, are usually more specific (Robson and Robinson, 2013). Even though both theories and models are an illustration of reality, models usually use a diagram of some type to make their content more concrete. Models make it easier to see if theories are compatible with what we experience in real life by explaining causal processes; Reynolds, 1971). Causal processes in models of information behaviour refer to the cause-and-effect relationships between variables that explain how and why individuals engage in information-seeking activities. These processes describe the factors that influence information behaviour, and how they interact with one another to produce certain outcomes. For example, in the Information Search Process (ISP) model, the causal processes describe the relationships between the different stages of the information-seeking process and the factors that influence them. The initiation stage is influenced by the individual's information need, while the selection stage is influenced by the individual's information goals and preferences.

Information science researchers are championing a debate regarding a growing number of theories that guide the study of information behaviour, information users, or information use. The lack of standardisation in theorising has the potency to create conceptual ambiguity, and intellectual comparison and synthesis between studies problematic (Krikelas, 1983). Even though this sentiment is registered in the literature of the early eighties, recent studies (see for example, Fisher and Julien, 2009) have reaffirmed the need to relate or position research output in relation to specific contexts due to sheer breadth of information behaviour. Research communities such as the Information-Seeking in Context (ISIC) conference, the academic home of the Information Behaviour research community, promotes and encourages contextualised information research activities, expressed in different forms such as "information behaviour", "information practice", "information-seeking", "information experience" and others (Smith et al., 2021). The suggestion is that context and positionality are important elements in qualitative research because they allow researchers to understand their own background and biases, which may influence their interpretations of data.

Library and information science researchers have adopted several different metatheories in their research. A metatheory is described as "a set of assumptions that orient and direct theorising about a

given phenomenon" (Rioux, 2010: 9). The most apparent metatheories are the Cognitivist, Constructionist, and Constructivist approaches.

The field of Psychology provides intellectual and logical support for the cognitive approach to information behaviour. It is believed that the thinking style of an individual affects the way information is found, processed, and used. Researchers who approach the information behaviour from this perspective aim to understand what someone thinks when they engage in information behaviour, and how those thoughts affect their behaviour (Bates, 2005). This type of approach is internally driven and disregards the role of external elements such as society or individuals.

On the other hand, Bates (2005) argues that the Constructionist approach to information behaviour is more useful in that it recognises that IB is influenced by the social experiences a person holds. Such Constructionist perspectives are tied to the field of Humanities and Social Sciences. The Constructionist approach to information behaviour research provides a space for contextualising behaviour based on the participant's social history. In other words, to fully articulate the information behaviour, Constructionist scholars must first understand the social discourse that surrounds actions. The study by Prigoda and McKenzie (2007: 91) demonstrates the Constructionist approach to information behaviour. The authors, while relying on the collectivist theory to guide their research, reject the universality of information behaviour and focus on "understanding the ways that discourse communities collectively construct information needs, seeking, sources, and uses".

According to (Bates, 2005: 8), the constructivist approach is born out of the field of Education and Sociology, in which "individuals are seen as actively constructing an understanding of their worlds, heavily influenced by the social world (s) in which they are operating". Constructivist approaches to information behaviour research generally treat the individual's reality as constructed within their own mind rather than built by the society in which they live (Talja et al., 2005). The constructivist metatheory accommodates the role of culture and society with social constructivism, "which argues that, while the mind constructs reality in its relationship to the world, this mental process is significantly informed by influences received from societal conventions, history and interaction with significant others" (Talja et al., 2005: 81). In essence, the constructivist approach is a cross between the cognitivist and Constructionist approaches, given that it combines both the internal factors which exist in the mind as well as externally driven elements such as the culture and environment. The information behaviour models developed so far have either one of or a combination of both approaches. For example, the Wilson models, which have "been elaborated over many years [have taken] into account many of the elements ... including contextual, role-related and personal (psychological and demographic) factors" (Robson and Robinson, 2013: 178). Accommodating both

external and internal factors makes the model a pan-metatheoretical one. However, Wilson's approach has preconditioned understanding of information behaviour on the understanding of the cognitive need of an individual. This has broadened its usability. Both approaches are important to the exploration of information behaviour in the current research, although the constructivist approach offers flexibility and utility and thus appeals best to the current research.

3.5.1 The Wilson Model

Wilson's work on user studies and information needs has been influential in the field of information science. In his 1981 article, Wilson argued that user studies should be the foundation of information science research. He emphasized the importance of understanding the information needs and behaviours of users in order to design effective information systems and services.

Wilson's (1981) model of information behaviours suggests that there are three main stages in the process of seeking information: opening or initiating, browsing or scanning, and searching or systematically seeking. The opening stage involves the individual becoming aware of an information need and being motivated to seek out information to meet that need. This stage may be triggered by a problem or question, or it may be more exploratory in nature. The browsing stage involves the individual scanning various information sources to get a general sense of what information is available. This may include looking at titles, abstracts, or other information that provides a high-level overview of the available information. The searching stage involves the individual seeking out information that is relevant to their information need more systematically. This may involve using specific keywords or search terms to find relevant information, and could entail using different types of search tools such as databases, catalogues, or search engines.

According to Wilson's (1981) model of information behaviour, information-seeking activities are triggered by a specific need which he categorised as being either physiological needs (for example, sleep, food and shelter); affective or emotional needs (such as the seeking of fame, desire to achieve); and cognitive needs (for example being knowledgeable or skilful). Wilson's categorisation of needs tallies with Maslow's theory of human motivation: "Maslow believes that human needs arrange themselves in hierarchies of prepotency (i.e. predominance) and that the appearance of one need usually rests on the prior satisfaction of another more prepotent need" (Maslow, 1958: i). However, Wilson's models are silent about this prioritisation but acknowledge that these needs can either be partially or fully satisfied, and that seeking may even fail completely to assuage an identified need.

In his 1997 article, Wilson further developed the concept of information behaviours, on how people seek, use, and share information. He argued that information behaviour is an interdisciplinary field

which draws on psychology, sociology, and other disciplines to better understand how individuals interact with information. His transdisciplinary view of information behaviour tallies with the theoretical framework of the current research.

Wilson's (1997) model of information behaviours builds upon his earlier work and provides a more comprehensive framework for understanding the complex and multifaceted nature of information behaviours. The model consists of three main components: the individual, the situation, and the information need. The individual component includes factors such as personality, motivation, and knowledge, which can influence how individuals seek, use, and share information. The situation component includes factors such as the social, cultural, and institutional context in which information behaviour takes place. The information need component includes factors such as the specific information need or problem that the individual is trying to address.

Wilson's model also includes four main stages of information behaviour: opening, navigating, information-seeking, and using. The opening stage involves the individual becoming aware of a need for information and becoming motivated to seek it out. The navigating stage involves the individual exploring and understanding the available sources of information, and developing a strategy for seeking out information. The information-seeking stage involves the individual actively searching for and gathering information to address their need. The using stage involves the individual making use of the information they have gathered, which may involve processing, organizing, and applying the information in a way that addresses their need.

Wilson's model recognizes that information behaviours are complex and multifaceted, and can be influenced by a variety of factors such as cognitive processes, affective states, and social and cultural norms. The model also highlights the importance of context in shaping information and emphasizes the need to consider a wide range of factors when designing effective information systems and services.

Wilson produced a revised general model of these models (Wilson and Walsh, 1996; Wilson, 1997). He identifies different types of information-seeking:

1. Passive attention: this entails gaining information without deliberate searching. For example, watching over advertisement billboards.
2. Passive search: this happens when information is discovered coincidentally while looking for other information.
3. Active search: this is enthusiastically looking for relevant information.

4. Ongoing search: this arises when an information seeker wishes to update or extend his or her awareness while relevant information has already been or is identified.

In his 1999 article "Models in information behaviour research," Wilson proposed a framework for understanding information behaviours. He suggested that information behaviours can be conceptualized as a cycle of activities which includes initiation, selection, exploration, formulation, collection, presentation, and dissemination.

3.5.2 Kuhlthau

Kuhlthau (1991) work focuses on the experience of the user during the information search process, and offers a detailed and nuanced account of the different stages and emotions that users go through when seeking information. Kuhlthau's model consists of six stages: initiation, selection, exploration, formulation, collection, and presentation. Kuhlthau also emphasizes the role of emotions and uncertainty in the information search process, and argues that information behaviour is shaped by both cognitive and affective factors. In contrast to Wilson's model, Kuhlthau's model focuses more on the individual user experience and is less concerned with the broader social and cultural context in which information behaviour takes place.

Kuhlthau (1993) principle of uncertainty further develops this idea by suggesting that the information search process is characterized by a high level of uncertainty and ambiguity, which can lead to anxiety, frustration, and other negative emotions. Kuhlthau argues that uncertainty is an essential aspect of the information search process and can be both a source of motivation and a barrier to effective information-seeking. This principle adds another layer to Kuhlthau's earlier model and provides a deeper understanding of the psychological and affective dimensions of information behaviour.

In contrast to Kuhlthau's focus on the user experience, Wilson's (1997) model takes a broader interdisciplinary approach to understanding information behaviour. Wilson's model emphasizes the importance of context in shaping information behaviour and recognizes the role of social and cultural factors in shaping the ways in which individuals seek, use, and share information. Wilson's model also includes a greater emphasis on the role of technology and information systems in shaping information behaviour.

3.5.3 The Dervin Metatheory

Since the early seventies, the progress of the theory of sense-making has been very closely linked to Brenda Dervin's study, which has its roots in American communication studies (Savolainen, 1995). Dervin's work on sense-making theory has had a significant impact on the field of information science. In her 1983 article, Dervin introduced the concept of sense-making and described how it can be used

to understand information behaviours. Sense-making theory is based on the idea that people engage in an ongoing process of interpreting and making sense of information based on their experiences, values, and goals.

In her 1998 article, Dervin further developed the concept of sense-making and discussed its relevance for understanding knowledge-seeking and use behaviours among users. Dervin argued that sense-making is a complex and dynamic process that involves not only seeking and using information but also understanding the context in which the information is used.

Dervin (1992) further developed a methodology for studying sense-making, proposing an approach that combined qualitative and quantitative research methods to better understand how users make sense of information. The methodology involves collecting both quantitative data, such as survey responses and usage data, and qualitative data, such as interviews and observation data, to gain a more complete picture of Users' information behaviours.

According to Savolainen (1993: 16), the sense-making theory of Dervin originates mainly from the scholarship of Richard F. Carter and Jerome Bruner. Sense-making is the means of generating a mental framework out of circumstances experienced so that it guides behaviour and makes it meaningful (Akbari-Zardkhaneh et al., 2018; Dervin and Foreman-Wernet, 2012). The theory's philosophical foundations rest on constructivist assumptions, and it has incorporated elements from a variety of concepts and theories from various disciplines. Many of these contributions highlight the importance of the human actor, taking a critical stance against objectivism and positivism. Dervin (1992) attempted to articulate the concept of information needs from the point of view of the observer and the user. She sees the sense-making approach as providing "alternative approaches to the study of human use of information and information systems" (Savolainen, 1993: 61; Dervin, 1992). Blummer and Kenton (2014) argue that sense-making theory is a metacognitive strategy which aims to provide insight into **individuals'** metacognition during the search process. Metacognitive behaviours have been described as a part of the information-seeking actions of individuals.

One of the strengths of Dervin's work is its focus on understanding the context in which information-seeking and use occurs. Sense-making theory recognizes that individuals have unique experiences, values, and goals that influence how they interpret and use information. By understanding these contextual factors, information professionals can better design information systems and services that meet the needs of their users.

Dervin's work on sense-making theory has had a significant impact on the field of information science. Her focus on understanding the context of information-seeking and use is a valuable contribution to

the field. However, her heavy reliance on qualitative methods has been criticized, and there is ongoing debate about the usefulness of the concept of sense-making. Nonetheless, her work provides a valuable framework for understanding the complex and dynamic process of information-seeking and use (Savolainen, 2018; Savolainen, 2007b).

3.5.4 The Taylor Theory

Taylor's theory works on the process of asking questions, and how question-negotiation in information-seeking has had a significant impact on the field of library and information science. In his study, Taylor (1962) focused on the process of asking questions and how it can be optimized to improve information-seeking. Taylor argued that effective questioning involves not only asking the right questions but also asking them in the right way. He identified four stages of the question-asking process: formulating the question, obtaining the answer, understanding the answer, and using the answer. He resolves this by creating a series of four stages or levels that begins with a "conscious or even unconscious need for information … a vague sort of dissatisfaction … probably inexpressible in linguistic terms" (1968: p. 182). Taylor calls this the visceral need - an unexpressed need for information. The next step a person enters is "a conscious mental description … an ambiguous and rambling statement", which often ends in a dialogue with another person about it. The inquirer will be able to create a formalised and logical statement of the need at this stage. However, the individual does not know if any accessible individual or information system may respond to the need in that form. The question is checked in anticipation during the fourth and final stage. Taylor believes the final question must have been compromised to fit into the rigid structure of information resources. information need is not always a conscious and logical expression of need which many of the others assume – but actually it can be an underlying need or even a need that the user is unaware of

Taylor stressed the importance of properly phrasing questions and suggested that the way in which a question is asked can impact the answer received. Case and Given (2016) argue that the consequences of this conceptualisation of information need are multiple, given that the definition of need can be somewhat different from the final expression.

Taylor (1967) expanded on this idea and explored the concept of question-negotiation. He argued that information-seeking is a social process that involves negotiation between the questioner and the information provider. Taylor proposed that the questioner must engage in a negotiation process to obtain the desired information, and the information provider must be willing and able to provide the information in a manner that is useful to the questioner.

One of the strengths of Taylor's work is that it emphasizes the importance of the social context in information-seeking. Taylor recognized that the process of seeking information is not a one-way street, but rather a negotiation between the questioner and the information provider. He also understood that the way in which questions are asked can significantly impact the quality and usefulness of the information obtained. Even though Taylor's (1968) work was seminal and pioneering, several scholars have criticised its focus on traditional, face-to-face information-seeking contexts, as well as its empirical weakness (Naumer, 2013). In today's digital age, the process of asking questions has changed dramatically, and novel technologies have provided new ways for people to seek and obtain information. While Taylor's work remains relevant, it may not fully capture the nuances of information-seeking in the digital age. Nonetheless, his work could perhaps be translated into a digital age, and that would arguably be an interesting and important line of research given that some theorists have ignored certain of his claims.

Taylor's emphasis on the social context of information-seeking can also be useful in the study of entrepreneurs who are seeking information from other individuals or organizations. In entrepreneurship, it is often necessary to negotiate with suppliers, customers, and other stakeholders to obtain information or resources. Taylor's ideas about question-negotiation can help entrepreneurs understand the importance of building relationships and establishing trust with others to facilitate effective information-seeking.

3.5.5 Belkin Theory

In the *Canadian Journal of Information Science*, Belkin (1980a) published an influential study presenting a novel perspective on the nature of information retrieval, arguing that a user's quest for information is motivated by their awareness of an "anomalous state of knowledge" (ASK): a gap or deficiency in their current knowledge. The ASK model, according to Belkin, comes from a mismatch between a user's present knowledge and their information needs. When users encounter an ASK, they get hesitant and seek knowledge to fill the void. This method of gathering information is known as "anomalous information-seeking" (AIS).

Belkin (1980) classified ASKs into three types: epistemological, work-task-related, and emotive. Epistemic ASKs occur when a user recognizes a knowledge gap about a specific topic. Work-related ASKs occur when a user encounters an issue or task that they are unable to deal with, owing to a lack of information. Affective ASKs occur when a user has an emotional reaction which prompts them to seek information.

Belkin's paradigm has significant implications for information retrieval system design. It implies that such systems should be built to assist users in their search for information based on their queries, similar to Taylor's information need statements. An information retrieval system, for example, may analyse a user's search history to find trends in their ASKs and recommend new sources of information. Belkin's concept had a significant impact on the field of information retrieval. It has resulted in a stronger emphasis on user-centred design, and an appreciation of the significance of understanding the user's perspective in the design of information retrieval systems. However, the model has also been criticized. Several scholars have claimed that it is overly simplistic and fails to account for aspects such as user preferences and biases in the information-seeking process (Case and Given, 2016).

Belkin's model of anomalous states of knowledge and the concept of anomalous information-seeking can be highly relevant to understanding the information behaviours of entrepreneurs. Entrepreneurs, like other users of information, experience ASKs when they realize a gap in their knowledge that needs to be filled. In the context of entrepreneurship, these knowledge gaps may arise in several ways, such as identifying new opportunities for business, understanding market trends, analysing competition, identifying customer needs, and more.

In addition, the concept of affective ASKs can be highly relevant to entrepreneurship. Affective ASKs arise when a user experiences an emotional response which motivates them to seek out information. In the context of entrepreneurship, these emotions could be driven by factors such as fear of failure, excitement about a new opportunity, or a sense of urgency to make a decision. Entrepreneurs need to be aware of their emotional responses and how they might influence their information-seeking behaviours.

3.5.6 Wai-yi

Wai-yi (1998) presented a non-linear model which allows for flexibility in its use in various employment circumstances. It considers the unexpected and idiosyncratic nature of information-seeking and usage, which was found to be an important element of the process. The model provides a framework for systematizing the uncertainty of information-seeking and use, as well as predicting results. The constructivist approach also emphasizes the iterative nature of the information-seeking and using process. Wai-yi's model contribute to our understanding of how individuals engage with information in various contexts, highlighting the complex and multifaceted nature of information behaviours. Wai-yi's model includes three phases: problem recognition and formulation, information-seeking and selection, and information use and evaluation. His works focus on understanding information behaviours in various contexts.

Because Wai-yi's information-seeking and using process model in the workplace is a constructivist approach, the constructivist approach will provide valuable insights for entrepreneurs seeking to make informed decisions given that the approach emphasizes the iterative nature of the information-seeking and using process. Entrepreneurs can revise their understanding of business information as new information becomes available. By doing so, entrepreneurs can stay adaptable and responsive to changes in the market and other external factors.

However, some have argued that it places too much emphasis on individual cognitive processes and neglects social and institutional factors which shape the information-seeking and using process. Others have argued that the approach places too much emphasis on the individual's role in constructing knowledge and neglects the role of external factors such as power and influence. Despite these criticisms, the constructivist approach remains a valuable framework for entrepreneurs seeking to make informed decisions. By taking into account contextual factors, building on prior knowledge, incorporating diverse perspectives, and continuously iterating, entrepreneurs can improve their ability to make informed decisions and stay ahead of the competition.

3.5.7 Summary

Research into information behaviour has evolved over the years and attracted scholars from disciplines such as management, computer science and education, as well as Information Science. The focus of information behaviour research has also shifted from the system approach perspective to user perspectives. This contemporary perspective has seen the development of models and theories which aim to analyse user information behaviour from diverse contexts.

These studies focus on the information-seeking behaviours of users and the different factors that affect the process of searching for and using information. Taylor (1962, 1967) and Kuhlthau (1991, 1993) propose models that describe the process of asking questions and the search process from the user's perspective. They suggest that information-seeking is an active and iterative process, involving a range of emotions and uncertainties.

Dervin (1983, 1992, 1998) and Wilson (1981, 1997, 1999, 2006) also emphasize the importance of understanding the user's perspective and interests in information-seeking. Dervin's sense-making theory suggests that users seek information to resolve discrepancies in their understanding of a situation or to make sense of new information. Wilson's models propose different dimensions of information behaviour, such as information needs, seeking, and use, and the different factors that influence these behaviours.

Belkin (1980) introduces the concept of anomalous states of knowledge (ASKs) as a basis for information retrieval. ASKs refer to the situations where users realize a gap in their knowledge that needs to be filled, and Belkin suggests that information retrieval systems and information-seeking behaviours should be designed to support the user's search for information based on their ASK. Cheuk Wai-yi (1998) proposes an information-seeking and using process model in the workplace based on a constructivist approach. The model emphasizes the user's active role in seeking and using information and suggests that the user's previous knowledge, experiences, and social interactions play a critical role in the information-seeking process.

Wilson's model of 1999, which according to Case and Given (2016) is the most elaborate, sort of general user orientation to information. This genericity is both powerful and problematic as well. The challenge comes from the lack of adaptability in specific or narrow contexts. This specificity issue has merited the attention of scholars such as Leckie (2005), Ingwersen (1996) and Marchionini (1997) who proposed a model meant to be applied to narrow contexts. While there are numerous information behaviour models, most of them are "narrowly focussed along some dimension" (Case and Given, 2016: 122). This will raise the issue of their reusability and effectiveness.

3.6 Information Behaviour in entrepreneurship studies

Research into the information behaviour of entrepreneurs has been a growing area of interest in recent years. The trend in this field is to understand how entrepreneurs find, access, and use information to make decisions and drive their businesses forward. Studies have explored the role of online (Schou et al., 2022) and offline sources, personal networks (Okello-Obura et al., 2008; Zimmer and Henry, 2017; Tamura et al., 2007), and experience in shaping the information behaviour of entrepreneurs (Setini et al., 2020; Hafeez et al., 2018). There has also been an emphasis on the importance of context, including the stage of business development and the specific needs of individual entrepreneurs (Lillard, 2002; Keshavarz, 2021).

The studies on small and medium-sized enterprises (SMEs) have explored the information needs and information-seeking behaviour of SMEs in various countries and industries. The study by Larry et al. (1988) found that small businesses have limited resources for environmental scanning and rely on informal methods for collecting information. Margaret et al. (1994) applied marketing models to understand the provision of business information in China. Shokane (2002) investigated the information needs of SMEs in Acornhoek. Banda et al. (2004) conducted an information needs assessment for small-scale businesses in Zambia. Peter Onauphoo (2012) explored the barriers to

accessing agricultural information in Tanzania from the perspective of small-scale sugar cane growers. Lillard (2016) compared the information needs and information-seeking behaviour of entrepreneurs in SMEs in developing and developed countries. The study by Denizcan et al. (2021) investigated the information source preferences of small-scale fishers in Turkey. These studies highlight the importance of understanding the information needs of SMEs and provide insights into how they access and use information to support their operations and growth in various communities, contexts and aspects of the entrpreneurship experience.

There seem to have been very few studies over the past ten years, and most of the research outputs have come from developing countries, especially in Sub-Saharan Africa (Ikoja-Odongo and Ocholla, 2003; Ikoja-Odongo and Ocholla, 2004; Nankinga, 2019; Okello-Obura et al., 2008; Jorosi, 2006; Underwood, 2009; Chiware and Dick, 2008; Shokane, 2002; Mooko and Aina, 2007). The study conducted by Duncombe and Heeks (1999) focuses on the impact of information and communication technologies (ICTs) on small enterprises in Botswana. The authors present findings from their research on how ICTs are being used by small businesses in the country and the challenges they face in adopting these technologies. The paper provides insights into the role of ICTs in the development of small enterprises in Botswana and the potential for these technologies to drive economic growth in the country. Jorosi (2006) and Mooko and Aina (2007) examine the information-seeking and needs of managers and artisans respectively. Both studies highlight the importance of understanding the information needs of these groups in order to improve the provision of relevant information and support their business success. Managers are reported to have higher information need and more often than not utilise both formal and informal sources of information. In contrast, artisans were said to have less pf a disposition towards the usage of formal sources of information. Perhaps this can be explained when their educational level is factored into consideration. Chiware and Dick (2008) investigated the information needs, information-seeking patterns, and the nature of business information services available to small, medium, and micro enterprises (SMMEs) in Namibia. Findings show that managers require a wide range of information for daily business operations. Nonetheless, their information-seeking habits show a preference for informal channels. Surprisingly, their findings contradict the study conducted by Jorosi (2006), even though both studies" participants have identical characteristics. However, the difference between the participants' country information services available to businesses might have played a role.

Several related but separate studies by Ikoja-Odongo and Ocholla (2004) and Nankinga (2019) provide insights into the Ugandan informal sector of the economy. Ikoja-Odongo and Ocholla interviewed over

six hundred (600) small business owners and a smaller number of market participants to investigate the types of information obtained by entrepreneurs, the techniques used to search for information, and the sources, channels and information systems used by them. Consistent in their findings is that low skilled business owners prefer to use informal or interpersonal information channels. However, they also point to reasonably low literacy levels among their respondents which strongly influence their preference for sources of information, a consideration that needs to be taken into account when considering African research literature. The Tanzanian study by Mosha et al. (2013) agrees with the submission of Ikoja-Odongo and Ocholla (2003).

Information behaviour research in business conducted in Asian countries is scarce (Wang and Guo, 2015). The research studies by Kassim (2010) and Kassim et al. (2016) examine the information needs of entrepreneurs and small to medium-sized enterprise (SME) managers in Malaysia. The first study looks at the information needs of would-be entrepreneurs in Bumiputera, while the second study expands the scope to examine the business information needs of SME managers. Both studies found that the information needs of these groups are diverse, and they seek information from various sources to support their business activities. These findings highlight the importance of providing access to relevant and timely information to support the development of entrepreneurship and SMEs in Malaysia. Jee et al. (2017) explore the information-seeking behaviour and information use of small business owners in South Korea, showing that small business owners there primarily seek information from their personal networks, followed by the internet and government organizations. The study also found that small business owners in South Korea use the information they gather for various purposes, including market research, product development, and decision-making. Most of the research from this region aligned with the position of African studies into information behaviour.

On the other hand, literature from developed countries has also been reported, including Chalmers (1995) on New Zealand, Rickards et al. (1989) on Australia, and Bouthillier (2003) on Canada. Bouthillier explored the approaches and beliefs associated with obtaining information for small business managers, aiming to understand how small business managers access information and the values they hold when seeking information. The results of the study help to identify the factors that influence the information-seeking behaviour of small business managers and how they make decisions when it comes to accessing information.

 Correia (1997) used a grounded theory approach to examine the process of scanning the business environment for information, in order to develop a theoretical model that explains the behaviour of

businesses in acquiring and using environmental information. The study used a qualitative research design and data was collected through in-depth interviews and observation of businesses in various industries. The results of the study showed that the process of scanning the business environment for information was complex and influenced by various factors, such as the type of information being sought, the source of the information, and the motivation for acquiring the information. The findings of the study have implications for information professionals and researchers in the field of business information behaviour. Harrington and Blagden (1999) investigated information management practices in the UK aerospace industry, focusing on the importance of considering information as a valuable asset. The study found that despite the critical role of information in the aerospace industry, information management was often neglected. The authors suggest that information management should be given more attention and resources in order to improve overall competitiveness and efficiency.

These studies indicate that entrepreneurs in Asian and Western countries have diverse information needs and seek information from a variety of sources, including the internet, other entrepreneurs, and government agencies. The studies also highlight the importance of understanding the information needs and behaviours of entrepreneurs and how the behaviour would support their success.

3.6.1 Information Poverty of Entrepreneurs

The notion of information poverty is crucial to the debate within the current research given that it can impede idea generation and the growth of digital entrepreneurship in deprived contexts. Limited access to information can hinder innovation and creativity, making it difficult for entrepreneurs to stay competitive in their industries. The lack of information resources can also contribute to a knowledge gap, where entrepreneurs from deprived contexts may not have access to the same level of information as their counterparts in more affluent regions or communities.

A study conducted by Potnis and Winberry (2022) explored the concept of information vulnerability and how it can impact individuals, regardless of factors such as socioeconomic status, gender, age, education, and geography. The study provides a novel review of the first research artifacts which guide individuals in alleviating information vulnerability through the use of seven conscious, intentional, repetitive, and transferable information practices. The authors conclude that information literacy is part of the solution to reducing information vulnerability, and information professionals play a key role in addressing this issue. However, the authors also emphasize that systematic efforts at the societal and organizational level are necessary to address pre-existing inequalities which contribute to information vulnerability. Information vulnerability and information poverty are interconnected

concepts. Information vulnerability often contributes to information poverty, as those who are vulnerable are more likely to lack access to essential information resources. Both concepts highlight the importance of addressing digital divides, improving digital literacy, and ensuring equitable access to information and communication technologies to promote inclusive socio-economic development.

Britz (2004: p. 194) has defined information poverty as "that situation in which individuals and communities, within a given context, do not have the requisite skills, abilities and material means to obtain efficient access to information, interpret it and apply it appropriately".
According Marcella and Chowdhury (2020), there are several causal factors that result in information poverty. These include human and behavioural factors, social and cultural factors, and trust factors relating to politics and propaganda. Within each of these categories, factors such as lack of literacy, skills, and social structure, as well as increasing skepticism and lack of public trust, contribute to the issue of information poverty. The authors argue that information poverty is a serious issue that needs to be addressed through research and action, via a coordinated effort from researchers, librarians, and policy-makers to improve access to information for all.

Martzoukou and Burnett (2017) explore the role of libraries in facilitating the resettlement and inclusion of refugees in the host community, and the ways in which refugees navigate the information landscape in their everyday lives. In another study, Martzoukou & Burnett (2017 b) highlight the importance of information literacy in enabling refugees to navigate their new environments, access services and support, and engage with their new communities. The authors argue that information literacy can be a critical tool for empowering refugees and enabling them to participate fully in society.

In a similar study, Bronstein (2018) explored the experiences of migrant workers in Israel and the challenges they face in terms of social integration and access to information. She emphasised the role of weak ties in facilitating social networks and integration among migrant workers. Weak ties are defined as social connections between individuals who do not have strong emotional bonds but may still provide valuable information and resources. Bronstein argues that weak ties can be particularly important for migrant workers who may face isolation and limited access to social networks due to language barriers and their work environments. Bronstein (2020) further explores the challenges that migrant workers face in accessing information and the strategies they use to resist information marginalization. Information marginalization is the exclusion of individuals or groups from access to information and knowledge, while information resistance refers to the active efforts made by individuals to overcome these barriers. She discusses the ways in which migrant workers resist information marginalization through information practices such as creating their own information

networks, relying on personal connections, and using social media to connect with others in their community. By engaging in these practices, migrant workers are able to circumvent some of the barriers imposed by information marginalization, and better integrate into Israeli society.

Lupač (2021) explores the issue of information inequality and the potential for information policies to deepen these inequalities. Even though the author"s findings seem to be based on a solid theoretical foundation, they argue that a contextual approach is necessary for understanding and addressing information inequality, rather than a one-size-fits-all policy. The author demonstrates that a focus on digital literacy which does not take into account the contextual factors that influence information access and use could potentially deepen information inequality. For example, if internet access is only available in wealthier urban areas, this can deepen the information divide between urban and rural populations. The research suggests that information policies should be designed with an understanding of the social, economic, and political contexts in which they are implemented, and should take into account the different needs and experiences of diverse populations. Therefore, information policy can either deepen or alleviate information inequality, depending on its design and implementation.

Chatman (1996) study is important in considering information poverty and exclusion. Her study, "The Impoverished Life-World of Outsiders," finds that individuals who are excluded from mainstream society are also often excluded from information and knowledge, leading to a poverty of experience and a limited understanding of the world. Specifically, Chatman argues that information behaviour is shaped by **individuals'** social position and culture, and suggests that this has important implications for understanding information poverty. Chatman"s research focuses on low-income African American women in urban areas, who she finds often rely on informal networks and personal contacts rather than formal information sources like libraries or government agencies. This is due in part to a lack of trust in these institutions, as well as a sense of alienation from the dominant culture that shapes these institutions. Chatman"s work highlights the importance of understanding the social and cultural dimensions of information poverty, rather than simply assuming that lack of access to technology or other resources is the primary cause.

Lingel and Boyd (2013) find that information poverty is often accompanied by information norms and stigma, leading to a reluctance to seek information and a fear of being judged for not knowing. Overall, these studies suggest that information poverty is a complex issue which affects individuals and communities in various ways, and that addressing it is crucial for improving access to information and knowledge.

The information behaviour of women entrepreneurs in rural areas in Nigeria and Uganda was investigated by Abdulhamid and Alhassan (2012) and Nankinga (2019). While relating to different countries, both studies found that women face difficulties in meeting their information needs. Unfortunately, the studies have not explored the causal factors behind the difficulty. A further study by Gebremichael and Jackson (2006) notes how the lack of digital inclusivity in the region worsens the problem of information poverty. Fan and Fichman (2022) found that there is a significant difference in access to information among entrepreneurs in rural China, with those in urban areas having greater access. Spink and Cole (2001) find that low-income African American households often have limited access to information and are dependent on traditional information sources, such as family and friends, leading to a lack of exposure to diverse perspectives and limited opportunities for learning and growth. Van Dijk (2005) argues that inequality in access to information is increasing, leading to a divide between those who have access to information and those who do not.

Information poverty remains an important element within the information practices of digital entrepreneurs for the current research, given that most of the research participants are operating in deprived contexts. This means that they come from regions or communities that face significant economic, social, or political challenges. In such contexts, access to information resources may be limited due to factors such as a lack of infrastructure, low literacy levels, and limited financial resources. As a result, digital entrepreneurs in these contexts may face additional barriers when it comes to accessing and utilising information, especially if they rely heavily on digital technology and the internet.

3.6.2 Information Overload of Entreprenurs

The nature of information access and consumption has changed dramatically over the past few decades, particularly for entrepreneurs. Where once a scarcity of information was a major barrier to success, today entrepreneurs are often faced with information overload (Bhambri, 2021). This shift has had a profound impact on the way entrepreneurs operate and make decisions. In the past, access to information was limited, and entrepreneurs often struggled to find the information they needed to start and grow their businesses. The limited information available was often out-of-date or unreliable, making it difficult for entrepreneurs to make informed decisions (Strother and Ulijn, 2012). However, with the advent of the internet and the proliferation of digital technology, entrepreneurs now have access to an overwhelming amount of information. They can easily find data and insights into their competitors, customers, and market trends, as well as access tools and resources which can help their businesses. This abundance of information has created a new challenge for entrepreneurs: how to effectively navigate and make sense of the overwhelming amount of data (Hallowell, 2005; Bhambri,

2021).

Edmunds and Morris (2000) conducted a literature review on the issue of information overload in business organizations, and noted that the increasing amount of information being generated and made available through various channels had resulted in a situation where individuals were often inundated with more information than they could handle. They argue that information overload could result in negative consequences such as decreased productivity, stress, and burnout. Jacoby (1984) concurs that information overload can have negative effects including increased cognitive effort, decreased recall, and poorer decision-making. He suggests that these effects are due to the limited capacity of the human brain to process information. On the other hand, he points out that information overload can also have positive effects, such as increased motivation and satisfaction. He argues that the key to avoiding the negative effects of information overload is to engage in selective attention and processing of information by filtering out irrelevant information, prioritizing information, and focusing on the information that is most relevant to their needs.

Similarly, Bawden and Robinson (2009) explore the potential negative consequences of information overload. The authors argue that while information has the potential to empower people, it can also lead to anxiety, confusion, and even decision paralysis. The article reviews the negative effects of information overload, including its impact on attention, memory, and cognitive load. In addition to discussing the potential negative effects of information overload, Bawden and Robinson explore the paradoxical nature of information. For example, while information is often seen as a solution to problems, it can also be a source of new problems. The authors argue that an awareness of these paradoxes can help people better navigate the information landscape and avoid some of the negative consequences of information overload.

In a study based on a sample of 68 participants from various age groups, educational levels, and professions, Savolainen (2007) explored the coping strategies individuals use to manage information overload in their everyday lives. The author identified two main strategies for coping with information overload: filtering and withdrawing. Filtering refers to the process of selectively choosing which information to engage with and which to ignore. Participants used various methods of filtering, including setting search limits, relying on trusted sources, and using keyword searches. Withdrawing, on the other hand, involves actively disconnecting from information sources to reduce the amount of information received. Examples of withdrawing strategies include avoiding certain types of information or media, not using technology in certain situations, and delegating information management to others. Savolainen also found that individuals may switch between filtering and

withdrawing strategies depending on the situation and their personal preferences. Additionally, the study highlights the importance of considering individual differences in coping with information overload, such as personality traits, cognitive abilities, and past experiences.

He (2020) investigates the distinction between information overload and interaction overload in the context of what they term Information Overload Syndrome (IOS). The author conducted a survey of Chinese entrepreneurs and found that while both information and interaction overload contribute to IOS, they have different effects on work-related outcomes. Specifically, information overload was found to negatively impact information processing and work satisfaction, while interaction overload was associated with decreased interpersonal relationships and work-life balance. The study suggests that IOS is not solely caused by the volume of information, but also by excessive interactions, and that future research should distinguish between these two constructs. Karia et al. (2020) explored the relationship between information overload and entrepreneurial behaviour, concluding that information overload can negatively impact an entrepreneur"s behaviour. However, this impact can be mitigated by the mediating role of entrepreneurial self-efficacy, which is the entrepreneur"s belief in their own abilities to start and run a successful business. They argue that entrepreneurs who have high levels of self-efficacy are less likely to be affected by information overload and are more likely to exhibit successful entrepreneurial behaviour. This research provides insights into the importance of self-efficacy in overcoming the challenges of information overload in entrepreneurship.

Tunney et al. (2021) examine the relationship between fear-inducing news topics and news overload, exploring factors such as fear intensity, perceived news topic importance, self-efficacy, and news overload. Indeed, the abundance of information has also created a new challenge for entrepreneurs in terms of how to effectively navigate and make sense of the overwhelming amount of data. Strother and Ulijn (2012) argue that in order to succeed in this new environment, entrepreneurs must develop the skills and strategies to manage information overload. They must learn to be selective about the information they consume, and focus on the sources that are most relevant and reliable. They must also develop the ability to quickly process and analyze information, in order to make informed decisions.

While the abundance of information presents new challenges, it also provides new opportunities for entrepreneurs. By developing the skills and strategies needed to effectively manage information overload, entrepreneurs can take advantage of this wealth of information and achieve success in their ventures.

3.6.3 Ideation studies

Digital technlgy has played a role in entrepreneurs" information-seeking behaviour (ISB) by providing various digital information sources such as search engines, web portals, social media, and public services (Orrensalo and Nikou, 2021). For example, an exploratory study of information use online among eBay entrepreneurs conducted by Lillard (2002) provides insights into the information needs and behaviour of eBay entrepreneurs and informs our understanding of how technology affects information-seeking and use in a business context.

With the continued growth of technology and the internet, there is a growing need to understand the information behaviour of entrepreneurs in the digital age (Orrensalo, 2020; Orrensalo and Nikou, 2021; Orrensalo et al., 2022). Existing literature explores various aspects of information need, information-seeking behaviour, and the information literacy of different groups of people in different countries. Some of the studies focus on specific groups such as rural women, fishers, and artisans, and cover topics such as access to information, information source preferences, information overload, information use, and information needs in different contexts (Nankinga, 2019; Ikoja-Odongo and Ocholla, 2003; Pinto et al., 2020; Charlotte and Philip Kwaku, 2019; Steyn, 2018; Ijiekhuamhen Osaze et al., 2016; Peter Onauphoo, 2012; Adam Gambo and Fatima Ibrahim, 2011; Conaway, 1995). Some of the studies also compare information behaviour between developing and developed countries. In general, the studies highlight the importance of information literacy and access to information for various groups in different contexts and the need for more research in this area. Very few studies explore information behaviour at the intersection of entrepreneuship and digital technology.

Research on ideation from an information behaviour perspective is lacking. The first recorded scholarship is almost three decades old and examines the information search behaviour of entrepreneurs during the business gestation period (Johannessen and Kolvereid (1994). The study is based on a survey of 102 Norwegian entrepreneurs who were in the process of starting a new business. It found that the entrepreneurs used a wide range of information sources, including personal networks, business advisors, and government agencies, to gather information during the gestation period. The study also found that the entrepreneurs tended to seek out information which was relevant to their specific business idea and were most likely to use information sources that were perceived as credible and trustworthy. As the business idea matured, entrepreneurs turned to more official information sources, such as business counsellors and government institutions. This is an intriguing implication of this study. The findings show that entrepreneurs should seek reputable and

trustworthy information from a range of sources to boost their chances of success. The Entrepreneurial Information Search Behaviour Model of Johannessen and Kolvereid (1994) is a commendable effort; nonetheless, the model has not incorporated the entire findings. For example, the scepticism the authors found among entrepreneurs towards seeking information has not been highlighted. Trust issues regarding the choice of information sources which appear to be notable findings in information behaviour research are also not featured. This significantly undermines the model's efficacy as trust is an essential aspect of the use of public information sources (Marcella and Illingworth, 2012).

The most theoretically and methodologically sophisticated study into IB during enterprise ideation and gestation was conducted by Leslie (2009). Central to her work is Dervin's metatheory of sense-making, a mechanism through which people collect and arrange external information within their internal database to create rationality. The study explores the information behaviour of new entrepreneurs during the start-up phase of their businesses. It is based on a qualitative research methodology which involved interviews with 11 entrepreneurs in the UK and found that these new entrepreneurs faced a number of information-related challenges during the start-up phase, such as a lack of access to relevant information, difficulty in identifying trustworthy sources of information, and a lack of time to search for information. In response to these challenges, the entrepreneurs relied on a variety of information sources, including personal networks, industry associations, and government agencies. One of the key findings from the study is that the entrepreneurs valued information that was practical and relevant to their immediate needs. They preferred information which could be used to make decisions and solve problems quickly, rather than information that was more theoretical or general in nature. The study also found that the entrepreneurs preferred to obtain information from personal networks, as they perceived these sources as more trustworthy and relevant to their specific needs. Despite the relatively small number of interviewees, Leslie"s study has indeed added novelty to the methodological options available to business research in information behaviour, shedding light on the information behaviour of new business owners.

Gemmell et al. (2012) explored the cognitive and social processes that underlie the generation and evaluation of entrepreneurial ideas. Drawing on cognitive psychology and social psychology theories, the authors propose a model of entrepreneurial ideation which emphasizes the role of cognitive processes such as creativity and problem-solving, as well as social processes such as socialization and group interaction. The authors argue that successful entrepreneurial ideation involves a complex interplay between individual cognitive processes and social dynamics. For example, individuals must

be able to generate novel ideas and think creatively, while also being able to evaluate the feasibility and potential of these ideas in a social context. The authors suggest that group interaction can play an important role in this process, by providing feedback, support, and alternative perspectives which can help to refine and develop initial ideas. They also highlight the importance of considering the broader social and cultural context in which entrepreneurial ideation takes place. For example, the authors discuss how factors such as industry norms, cultural values, and social networks can influence the types of ideas that are generated and the ways in which they are evaluated.

These three studies focus on different aspects of the entrepreneurial process and employ different research methods to investigate them. While Gemmell et al. (2012) emphasise the importance of social interactions and cognitive processes in generating new business ideas, Leslie (2009) highlights the role of information-seeking, use, and sharing in the start-up phase of a business. Conversely, Johannessen and Kolvereid (1994) emphasise the importance of the information search in reducing uncertainty and increasing the likelihood of success in new ventures.

Entrepreneurship literature focuses mostly on opportunities such as venture or start-up creations (Wolter, 2004; Ramoglou and Tsang, 2016; Nicolai Juul and Peter, 2009; Jonathan and Scott, 2003; Ahmet Murat and Dilek, 2013), despite the fact that the creative endeavour (for example entrepreneurship learning) which drives opportunity recognition is dependent on the user's information practices (Ru-Mei et al., 2016; Paul et al., 2009). Given that traditionally, information practices are investigated within the discipline of information science, or more precisely information behaviours, it became important to conduct research that will enhance our understanding of how digital entrepreneurial ideas develop from an information behaviour perspective.

3.7 Summary

In the field of entrepreneurship, the role of information-seeking and use in the generation of new ideas and opportunities has been largely ignored. Instead, the focus has been on the outcome of information practices and the theoretical and empirical integration between the information science and entrepreneurship domains has been lacking. This is particularly evident in the literature, where the majority of research has focused on the conceptual and theoretical aspects of entrepreneurship, while neglecting the practicalities of information behaviour given that the overwheming number IB studies are largely emperical.

One of the main reasons for this lack of attention to information behaviour in entrepreneurship is the interdisciplinary nature of the topic. To fully understand the role of information in idea generation and

opportunity recognition, researchers must draw upon literature from a range of fields, including entrepreneurship, innovation, creativity, and information behaviour. However, this can be challenging as the literature in these domains is often separated and disjointed, making it difficult to identify common themes and insights.

Despite these challenges, recent research has begun to shed light on the importance of information behaviour in entrepreneurship. Studies have shown that digital entrepreneurs rely heavily on information-seeking and use during the idea generation process, utilising a range of sources such as online search engines, social media, and networking events (Orrensalo et al., 2022; Orrensalo and Nikou, 2021; Orrensalo, 2020; Nambisan et al., 2019; Steininger, 2019). Furthermore, information behaviour has been shown to play a key role in opportunity recognition, enabling entrepreneurs to identify gaps in the market and develop innovative solutions to meet customer needs.

However, despite the growing recognition of the importance of information behaviour in entrepreneurship, there is still much work to be done to fully integrate the information science and entrepreneurship domains. This requires a more nuanced and interdisciplinary approach to research, which takes into account the information behaviour in the context of entrepreneurship. It also requires researchers to move beyond the theoretical and conceptual aspects of entrepreneurship and to engage more closely with the practicalities of information behaviour in the context of digital entrepreneurship (see appendix 15 for a list of strongly related studies). The current research will address two fundamental research gaps as categorised by (Miles, 2017). They are gaps in knowledge and gaps in practice. Gaps in knowledge refer to areas where the current knowledge is incomplete or inadequate, while gaps in practice refer to areas where the application of knowledge is insufficient or ineffective. These macro categorisations are further broken into theoretical gaps, empirical gaps, methodological gaps, and conceptual gaps.

The research "Information behaviour of digital entrepreneurs - idea generation in startup business" aims to provide a more in-depth understanding of the ways in which digital entrepreneurs seek out and utilize information during the idea generation phase of their startup businesses. While there has been some research conducted on information behaviour in the context of entrepreneurship, there has been little attention paid specifically to the unique information-seeking and information-use behaviours of digital entrepreneurs, who heavily rely on technology and digital platforms for idea generation.

As the world becomes increasingly digitized, it is essential to understand how digital entrepreneurs are utilizing the vast amounts of information available to them in the development of innovative and successful startup ideas. By shedding light on the specific information sources and strategies used by digital entrepreneurs during the early stages of their ventures, this topic aims to provide valuable insights into the information behaviour of this growing population of business leaders.

To address this gap in knowledge, research into the information behaviour of digital entrepreneurs will explore questions such as: What specific digital tools and platforms do digital entrepreneurs use to gather information during the idea generation phase of their startup businesses? How do they assess the credibility and relevance of the information they find? What role do social networks and online communities play in the idea generation process?

By examining the information behaviour of digital entrepreneurs, this research will provide a more complete understanding of the complex processes involved in developing successful startup ideas. The results of this research will be valuable not only to digital entrepreneurs themselves but also to researchers, educators, and policy makers who seek to support and foster the growth of innovation and entrepreneurship in the digital age.

Chapter 4: Methodology

> Overview
>
> This chapter describes the mechanics and procedures of conducting the research, as well as the lessons learned while executing it. First, it covers the major philosophies - positivism, interpretivism, postmodernism, pragmatism, and critical realism - and then it discusses in detail the selected philosophy, critical realism, and the justification for its use. The chapter also addresses the strategies and procedures employed on data operations. The evaluation of the research process and the ethical challenges encountered are also presented. The chapter presented the lessons learned and the evolution of the researcher while carrying the investigation.

4.1 Research Philosophy

Research or enquiry is guided by a set of beliefs known as a paradigm or worldview. The term paradigm comes from the Greek word *paradeigma* which means "pattern", that is "a theory or group of ideas about how something should be done, made or thought about" (Merriam-Webster, 2013 p. np). A paradigm is fundamentally a way of seeing or thinking about the world. Paradigms are also frameworks that scholars use as the foundation for all they undertake. Thomas Kuhn, an American philosopher, and physicist, is credited with giving this phrase its modern definition, using it to characterize fundamental sets of ideas and practices that scientists agree on at any given period (Kuhn, 1996).

A paradigm is analogous to the coloured lens of a pair of glasses which determines he outcome of the sight. For example, red spectacles would make everything appears red. Guba and Lincoln (1994) define paradigms as "basic belief systems based on ontological, epistemological, and methodological assumptions" (p. 107). Simply stated, diverse types of research are based on different sets of beliefs; to understand research, one must examine the philosophy behind it. However, before talking about the specific components of the philosophies within various paradigms, it is important to understand the following terms: ontology and epistemology.

4.2 Ontology

Ontology is defined by the Merriam-Webster (2013) dictionary as "a particular theory about the nature of being or the kinds of things that have existence". Beliefs or views of the world around us have been debated since as far back as the ancient Greeks. Aristotle called ontology the first philosophy. Originating from the Latin word *ontologia* as well as from the Ancient Greek word for "to be" (Killam, 2013). Ontology focuses on what genuinely exists in the world that humans can obtain knowledge about. In research, ontology refers to the researcher's beliefs about the nature of reality. In

philosophical terms, it refers to the study of our existence and the fundamental nature of reality or being. Beliefs about what is real or true determine what can be known about reality. Ontological questions include what exists; what is true; how we can sort existing things. Ontologically speaking, researcher needs to ascertain whether he/she believes in one reality that context-free and be discovered or multiple mental construction of reality that are context-bound (Guba and Lincoln, 1994).

4.3 Epistemology

The term epistemology, is derived from two Greek words: *episteme*, which means knowledge; and *epistanai,* which means to understand or comprehend (Killam, 2013). Epistemology explores the intricate interplay between knowledge and the researcher throughout the research process. The researcher's ontological beliefs play a critical role in determining the objectivity of the relationship between what can be known. As a result, it encompasses the methods by which we acquire knowledge. Researchers who delve into epistemology must consider whether their interaction with the participants ought to be objective or subjective (Guba and Lincoln, 1994).

4.4 Methodology

Methodology refers to the systematic approach to knowledge discovery. It is more focused and practical than epistemology. The researcher's ontological and epistemological ideas drive the methodology. Methodology answers the questions about how knowledge is acquired (Killam, 2013).

According to Guba and Lincoln (1994), the ontological, epistemological, and methodological assumptions within inquiry paradigms are interconnected in such a way that addressing one question influences how others can be answered. For example, if a researcher feels that reality can be quantified, he or she will prefer to have an objective relationship with participants. Simply put, it comes down to congruence.

4.5 Selected paradigm - Critical Realism, CR

Critical Realism, CR, is a philosophical system developed by Bhaskar in the 1970s and 1980s and has also been developed by other scholars like Archer and Archer (1995), Sayer (2000) and Fleetwood and Ackroyd (2004). Bhaskar (1998) criticisms of positivism and constructivism led to the development of CR. He contended that reality is not solely about what is empirically discovered, and that because the nature of the world is not reducible to our understanding of reality, it is not possible to make inferences using experiments, as in natural science. In response to constructivists, he argued that reality is not totally formed through the knowledge or discourses of social actors and argued that reality exists independently of our perception and understanding of it, but that it is not accessible to direct observation. According to CR, our knowledge of the external world is made up of subjective

interpretations that are unreliable because they are shaped by the conceptual frameworks within which the researcher operates (McEvoy and Richards, 2003; Bhaskar, 1998).

Having gained prominence over the last 30 years, CR is offered as an option to the positivism and interpretivism paradigms (Bhaskar, 2013; Archer et al., 2013). This study is being steered by the philosophy of Critical Realism. Easton (2010: 188) makes a strong case for critical realism not because it is gathering momentum in its applicability in evolving research domains but due to its "coherent, rigorous and novel philosophical position" with great potentiality for theory development and research undertakings.

Critical Realism combines elements of positivist scientific forms dealing with regularities, regression-based variable models, and the search for law-like forms; and derives from the strong interpretivist or postmodern turn that opposed explanation in pursuit of interpretation, with a strong emphasis on hermeneutics and description at the expense of causation. The reason is to offer novel approaches to knowledge production by acknowledging the role of subjective knowledge of social actors in a particular context while also taking into account the independent structures that inhibit and facilitate these actors" ability to carry out certain tasks in that context (Sayer, 2010).

CR is seen as a philosophy of social structures and human agency, and their interaction is employed as a foundation for the investigation of complex phenomena in order to theorize the relative interplay of structures, culture and agency (Hjørland and Wikgren, 2005). Easton (2010) argues that Critical Realism provides researchers with innovative options to investigate complex and dynamic events in a holistic manner. Despite its tested potentiality in addressing and investigating social issues that are structurally embedded, Yeung (1997) asserts that its application is methodologically underdeveloped.

Although CR acceptance and usage are still being developed, it has proved to be an effective alternative to the extreme philosophical worldviews at the opposite ends of the spectrum - positivism and interpretivism by building on the strengths of both of its rivals by recognising that the world exists, and that knowledge production is imperfect, theory-dependent, but not theory-determined. This could be the reason why Sayer (2000) argues that CR provides a more compatible interface to research methods than most philosophies, including positivism and Interpretivism. This implies that CR supports various methodological strategies because of its realist ontology and subjective epistemology. While meaning and discourse are vital, they are not the only things that exist (Yeung, 1997; Sayer, 2000; Mingers et al., 2013; Hu, 2018; Fletcher, 2017; Collier, 1994; Archer et al., 2013).

Even though CR advocates for methodological pluralism, Danermark (2002) warns about the dangers of methodological relativism, a stand that the appropriateness and effectiveness of all methods are

assumed to be the same regardless of nature, purpose, purpose and context of the research. Sayer (2000: p.19) lends his voice to this caveat and insists that methodological "choices should depend on the nature of the object of study and what one wants to learn about it".

CR has stepped to fill the void left by the functionalist researchers who echo positivism and make up for lack of perceived irregularity in the postmodernism such as Interpretivism due to its ability to have substantial overlap with positivism's ontology as well as the epistemology of Interpretivism (Killam, 2013; Easton, 2010). Positivism seeks universal laws that do not exist. It provides an extremely limited view of causation. Constructivism and interpretivism push researchers to focus solely on meaning and discourse (Sayer, 2000; Easton, 2010; Uneke et al., 2015; Archer et al., 2013; Saunders et al., 2015).

The current study needs go further to investigate causes, social structures, and their consequences. And that is why adoption of critical realism becomes a necessity. Critical realists believe reality is "out there" and independent of our mindful examination or individual interpretation; nevertheless, these conditions are strange to "social systems" and creates a rather contradiction to the canons of CR or would put the whole philosophy to ruins. "Critical realists resolve the tension by arguing that the world is socially constructed but not entirely so" (Easton, 2010: p. 120). This is achieved due to the multi-level layer of its ontology and epistemology it possesses. Bhaskar (1978) described critical realism as having the existence of a "stratified rather than flat ontology, and this has major epistemological implications" (cited in Easton, 2005).

CR emerged as a philosophical perspective in natural science and has since been extensively used in numerous disciplines of social science (Blundel, 2007; Easton, 2010). It has been used in management studies to investigate competing theories and to explain complicated social phenomena in the disciplines of information systems and organizational studies (Delbridge and Edwards, 2013; Volkoff and Strong, 2013; Belfrage and Hauf, 2017). Critical Realism is also growing popular among entrepreneurship scholars (Kitching et al., 2015; Ramoglou and Tsang, 2016; Ramoglou, 2013). The nature of digital entrepreneurship makes CR an ideal philosophy because of stratified ontology. It is difficult to explain all the events happening within digital entrepreneurship into a single layer of ontology. However scholarship commentaries exist about the unsuitability of critical realism in understanding opportunities recognition (Alvarez and Barney, 2010; Alvarez and Barney, 2007). Although Ramoglou (2013: p. 463) has faulted Alvares and Barney's understanding of critical realism "for what they describe as critical realism is, as a matter of fact, an expression of the empiricist philosophy that provoked the realist countermovement".

The selection of CR is primarily informed by the two main points advocated by CR, which is about observance for causation and acknowledgement of the role and impact of agency and social structure. For example, identifying causal factors of the ideation (or ideas) of digital entrepreneurs is one of the formal research objectives of the present study. Furthermore, it is also necessary to determine the role of social structure (mechanism) with the associated events. It is only possible to observe all these associations because of the stratified layers (Empiric, Actual and Real) of CR's ontology.

The *empiric* layer within the context of this research relates to the entrepreneurs" experiences of their journey. Each experience of one digital entrepreneur varies from another. The middle level consists of the *actual* layer. At this level, there is no filter of human experience. Again, within the context of this research, this layer would be responsible for, say, government regulations such as the entry requirement and the ethics involved in digital entrepreneurship. Events happen regardless of what the digital entrepreneurs perceive or view, and true occurrences are often different from what they find empirically (Mingers et al., 2013; Sayer, 2000). Finally, the third level is the *real*. At this level, causal structures, or "causal mechanisms," exist. These are the inherent properties in an object or structure that function as causal forces to produce events (i.e., those appearing at the empirical level). CR's primary goal is to explain social events through reference to these causal mechanisms and the effects they can have throughout the three-layered "iceberg" of reality (Fletcher, 2017).

Easton (2009: p.120) believes for any theoretically sensitive research, the identification of the research entities or objects which "provide the basic theoretical building blocks for critical realist explanation and can be such things as organisations, people, relationships, attitudes, resources, inventions, ideas and so on". Therefore, the adoption of CR will enable the researcher to investigate thoroughly, elements of interest happening within its ontology (Bhaskar, 2013; Collier, 1994; Fleetwood and Ackroyd, 2004). This research is theoretically driven and thus qualitative in nature (Creswell, 2018).

CR has brought flexibility and greater choice selection to the menu of research philosophies and offer researchers opportunities to try new possibilities on research outcomes and not only on account of novelty but quality and convenience. Moreover, there is also an acknowledgement that "CR perspective lays the foundation for interdisciplinary research in a very fruitful way, not least in its demand for methodological pluralism" particularly this research which at the intersection of disciplines namely: Information Science (information behaviour) and Business (Ideation, Innovation and Digital Entrepreneurship) (Wikgren, 2005: p. 19).

The subsequent sub sections will demonstrate how critical realism has informed and used in designing questions, data collection and data analysis.

4.5.1 Applying Critical Realism for the Research

Conceived as an empirical research, the conception of this study's research questions were aided by the used of theory. Fletcher (2017: p. 184) argues that a critical realist research should "condone[d] the use of existing theory as a starting point for empirical research". Although Bhaskar (1979: p. 6), argues that researcher should "avoid any commitment to the content of specific theories and recognize the conditional nature of all its results". The use of the theory is evident across the whole schedules of the interview. For example: "Can you recall a moment when you felt anxious due to the lack of certain information?" elicits response about the role of uncertainty in information behaviour by users which has been unveiled in a widely cited and seminal study by Kuhlthau (1993). Additionally, the utilisation of theory in the design of the questions is also important given that validation of existing information behaviour models such as Wilson (1999), forms part of the current research's formal objectives. For instance, the research objective: "to determine the value of information behaviour models and theories in improving the number of sustainable and successful start-ups," shows why the use of theory is particularly relevant in the current research.

4.5.2 Data Coding and Identification of Demi-regularities

Data processing is critical in qualitative research, including CR, because it provides insight into empirical demi-regularities and marks the start of *abduction* and *retroduction*. Although, according to Fletcher (2017) the absence of literature on applied CR made coding difficult. Even in the empirical literature on CR, allusions to qualitative data processing are hazy at best, with descriptions such as: "intensive grounding process in which concepts emerged" (Yeung, 1997: p. 69). Nonetheless, in keeping with CR ontology, data analysis began with the search for "*demi-regularities*" at the *empirical* level of *reality*.

The author relies on the guidance provided by Fletcher which emerges from her qualitative project to examine the social and gendered effects of major policy change (Fletcher, 2017). The project examined how farm women in the Canadian prairie province of Saskatchewan are affected by major changes in agricultural policy and how they respond to these changes. Although CR recognises that social meanings, ideas, and judgments can have causal effects in the universe, these social objects do not adhere to a causal law and the deterministic regularity as described by the of Humean constant conjunction. The conjunction is based on a prediction that "if event x occurs, then event y occurs". This is simply not conceivable because the social world is made up of open systems in which any number of occurrences and events can overlap and interact, as well as people learning and changing (Danermark et al., 2005; Brown et al., 2002). As such, CR looks for *tendencies*, not laws (Danermark et al., 2002, p. 70). These tendencies can be noticed in empirical data as rough trends or broken patterns.

These are referred to as "demi-regularities" by critical realists. Demi-regularities can be discovered efficiently using qualitative data coding.

4.5.2.1 Justification for Combined Use of CR and GT

For the data coding, a Grounded Theory technique was adopted, in line with the opinion of Maxwell (2012) and Yeung (1997). In his study about the investigation of the unmet needs of a group of rural labourers in Cap Bon, Tunisia, Hoddy (2019) demonstrated and justifies the use of grounded theory in this CR informed study. However, it is argued grounded theory lacks optimality for a CR investigation for several reasons. Critical realism and grounded theory approach use of existing theory in quite diverse ways. Although grounded theory can be usually informed by existing theory or literature (i.e. substantive theory) on a topic, it avoids direct engagement with existing theory during the analysis process (Glaser, 1967; Corbin and Strauss, 2014; Glaser and Anselm, 1967). Grounded theorists, for example, typically inductively code each line of text in order to gradually create progressively higher-level theories that are grounded in the data rather than in concepts borrowed from elsewhere (Corbin and Strauss, 2014). In contrast, CR requires "active thought experimentation before research even begins (Hart et al., 2005: p. 166), and CR seeks the best explanation of reality by engagement with existing (fallible) hypotheses about that reality.

Secondly, the inferential processes associated with grounded theory are also primarily.
inductive whereas CR uses *abduction* and *retroduction*. Grounded theory is data-driven while CR uses a more theory and researcher-driven analytical process. Although grounded theory is not necessarily purely empiricist and does involve theoretical abstraction from data (Suddaby, 2006), its relationship to data more closely reflects an empiricist approach than CR (Oliver, 2012). However, because of recent advances in grounded theory championed by Charmaz (2006), because of "sensitizing concepts", grounded theory is "capable of handling the preconceived analytical categories" valued by critical realists (Oliver, 2012: p. 378). However, since existing theory is such an essential component of CR analysis, it is difficult to justify the use of an approach such as grounded theory, which was established on the principle of consciously avoiding existing theory in building new theories.

This study employed a predominantly deductive yet flexible (i.e. "directed") coding process (Hsieh and Shannon, 2005). This process drew on previously established theory and literature. A list of codes was generated based on the literature review, the theoretical framework, and the key concepts of CR; however, these codes were altered, removed, and supplemented with new codes while the process was being conducted to ensure that each piece of text was properly coded. Deductive codes were

utilized in this manner as a means of reformulating the pre-existing model or theory from which they were derived (Gilgun, 2011).

 The process began with a few provisional codes as advocated by Maxwell (2012) : *organizational* and *theoretical.* Organizational codes are simply topic-based folders into which information is placed, while theoretical codes are derived from prior theory (Maxwell, 2012). Saldaña (2021) cautioned against adopting a strict stance towards coding, pointing out that "[researcher's] preconceptions of what to expect … may distort [the] objective and even interpretive observations of what is "really" happening there". Because of this, "provisional" codes were managed as though they were intended to be managed, and codes were added, modified, or deleted depending on what the data required.

An initial few tentative codes grew into a total of 143 over the course of the coding procedure (See appendix 14 for details). This is reflective of the adaptability of the deductive coding technique. During the second coding cycle, the codes were restructured and merged into a conceptual map (See Figure 1) that was guided by CR, which resulted in the steady reduction of the enormous number of codes. For example, the six codes for start-up failures, namely: *founder's; groups" roles; government, family, informational and sociocultural* were subsequently renamed to *informational and non-informational.* The order of the overall categories (10) was done in such a way that follows what would appear to be the ordinary sequence of entrepreneurs, entrepreneurship experience - from the childhood upbringing up to the point of idea generation or start-up conception. This is important considering the role of *agency* (entrepreneurs) within the wider structures and *mechanisms*. It is also important to keep the order real given that the realist ontology of critical realism espouses (Bhaskar, 1979). The CR vision of structure and agency "starts from the ontological claim that structure and agency each possess distinct properties and powers in their own right" (Carter and New, 2005: p. 5). Importantly, *agency* includes our individual values, meanings, and ideas, and these can also shape the world around us.

The top-level codes represent for example, *Parental and societal influence, Mentorship and Education* represent the critical realist-informed structures. "Social structures include relatively enduring (but not permanent) features of the world that often precede and succeed our individual lives, but which human agency can reproduce or transform over time (Fletcher, 2017: p. 186; Archer, 2010).

4.5.2.2 Abduction - Theoretical Redescription

After identifying the key empirical findings (demi-regularities) of the research through coding, the next phase was the abduction process, also known as theoretical redescription, in which empirical data are re-described using theoretical lenses (Fletcher, 2017). The process of abduction has been defined as "inference or thought operation, implying that a particular phenomenon or event is interpreted from

a set of general ideas or concepts" (Danermark et al., 2002: p. 205). Abduction pushes the level of theoretical engagement further than a thick description of the empirical objects, but it does so while recognizing that the selected theory has its limitations. For example, excerpt: "*I am, being overburdened by an excessive flow of information becomes the norm*," was theoretically redescribed or coded as Information overload. Another instance of theoretical redescription is serendipity which was coded from the text: "*occasionally one come across unsolicited yet important information*." These excerpts from participants DE16 and DE14 highlight the mechanics in which codes are redescribed through theoretical lenses.

4.5.2.3 Retroduction of Data -Identification of causal mechanisms

Retroduction moves from "the manifest phenomena of social life, as conceptualised in the experience of the social agents concerned, to the essential relations that necessitate them" (Bhaskar, 1979: p. 32). These are structures (*mechanism)* that appear to be responsible for causing the ideation among the digital entrepreneurs. This inference is in line with the reasoning process of retroduction, in which reasoning moves from concrete to abstract back and forth as a "central mode of inference" in CR (Archer et al., 2013: p. 156). The final level of CR application focuses on identifying causal mechanisms. Retroduction is the process of determining how social items interact with contextual settings to produce the observed effects. Following that, the Retroduction process was conducted utilising a causal loop diagram model to depict the causal relationships, thereby examining the causal mechanism behind creative idea formation (See figure 6).
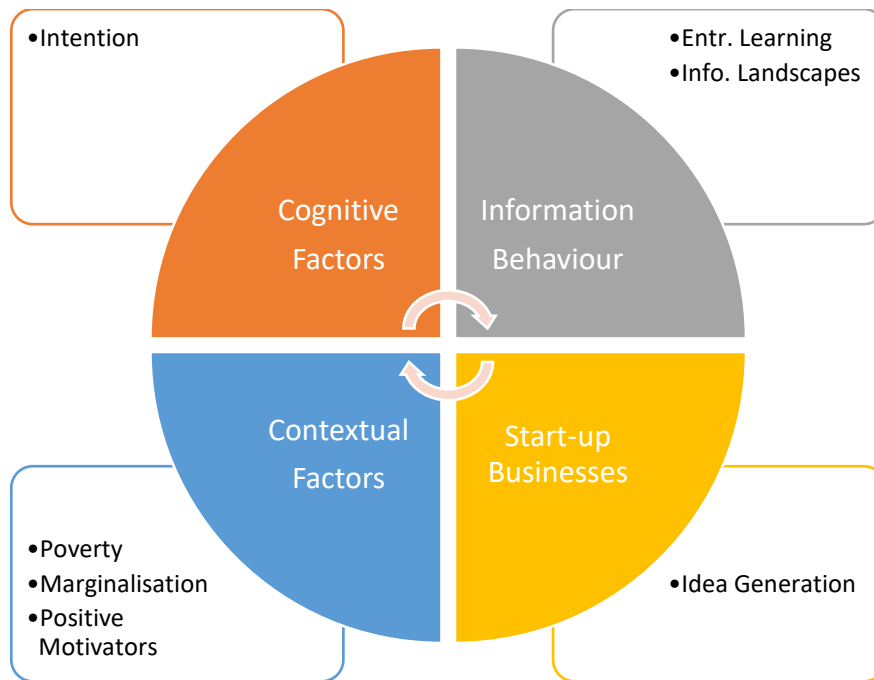
Figure 6: -Identification of Causal Mechanisms

The research began with some assumptions based on current theory and literature. Although many of the accounts of digital entrepreneurs were like previous research findings and information behaviour, there were various significant causal mechanisms behind idea generation of digital entrepreneurship previously unidentified in existing literature. The causal structures are in stages and hierarchical and operate a different phase leading to idea generation. These stages are the *entrepreneurship intention* and entrepreneurship *learning*. The causal structures are reading *passion, entertainment, online platforms, mentors* and *family unit, and poverty/exclusion*.

Inference began with a number of assumptions, all of which were drawn from previous research and theory. The first of these assumptions was that the *intention* to start a business as manifested by the digital entrepreneurs was in part due to the economic pressure and due to motivations (spectrum of motivators) that the participants were experiencing. Second, is the availability of digitally enabled *entrepreneurship learning* and information landscapes. These landscapes include online social platforms (like Quora and YouTube, for example) and entertainment (movies). A desire for reading, access to a library, and the guidance of experienced businesspeople are three additional non-digital mechanisms that contribute to entrepreneurial learning. According to the findings of the research, every entrepreneur had either a formal or an informal education that they had obtained in a traditional educational setting or through an ad hoc learning environment. It has been noticed that there are two tiers of casual elements that are working at distinct stages of the path of entrepreneurship. These stages are entrepreneurship intention and entrepreneurship learning. In

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order to explore the causative mechanisms and conditions that affect farm women's labour patterns, Fletcher (2017) utilized a method of retroduction that was analogous to the one described above.

4.6 Research Paradigms

Research philosophy is a researcher's way of thinking that leads to the acquisition of new, reliable knowledge about the research object. In other words, it is the foundation of the research, which includes the selection of the research strategy, the formulation of the problem, the collecting, processing, and analysis of data (Saunders et al., 2015; Killam, 2013). Philosophical thinking places a great emphasis on the clear presentation of concepts and problems, the selection of relevant data, and the use of objective procedures for evaluating ideas and proposals.

Five major philosophies in business and management are Positivism, Critical realism, Interpretivism, Postmodernism and Pragmatism (Saunders et al., 2015). The discussion on Postmodernism and Pragmatism is found in the appendix 10 and 11 given their relevance to the current research.

4.6.1 Positivism

 Positivism is a philosophical approach associated with natural scientists that entails working with observable social reality to develop law-like generalizations. Its roots can be seen in the works of Francis Bacon, Auguste Comte, and the Vienna Circle, a group of philosophers and scientists from the early twentieth century (Uebel, 2006).

Positivists focus on strictly scientific empiricist method designed to yield pure data and facts uninfluenced by human interpretation or bias (Killam, 2013). Extreme positivist researchers regard organizations and other social entities as real in the same way that physical objects and natural events are real. They are epistemologically focused on identifying observable and quantifiable facts and regularities, and they believe that only phenomena that can be observed and measured will result in the generation of trustworthy and meaningful knowledge (Crotty, 1998). The researcher in positivist studies is independent of the study, and there are no allowances for human interests inside the investigation. Crowther and Lancaster (2012) contend that the deductive technique used in Positivists research is what is insulate the interest of researcher from the findings.

The positivist paradigm has been criticised for a number of weaknesses especially as it relates to management and organisational research. According to Crotty (1998: 87), the first – and perhaps most fundamental flaw of positivism is its claim to certainty. He contends that "articulating scientific knowledge is one thing; claiming that scientific knowledge is utterly objective and that only scientific knowledge is valid, certain and accurate is another". Further, Houghton (2011) builds on Marsh and Furlong criticism of positivism to shows its weakness on three dimensions. According to Houghton,

positivism's greatest shortcoming with reference to the social sciences is in its failure to distinguish between the natural and social worlds.

The insistence that there is unanimity in the sciences amongst the positivists does not take into consideration three important distinctions between the natural and social sciences which Marsh and Furlong identify. First, social structures do not exist independently of the activities which they shape or are the product of. Second, social structures do not exist independently of the agents" views; they reflect upon the institutions to which they belong and alter their behaviour accordingly. Such a process does not take place in the natural world. Third, social structures will be shaped by the actions of agents and will therefore change depending on a range of factors, including time and location. The failure to identify and respond to these clear differences between the social and natural worlds is perhaps positivism's greatest failure regarding the social sciences.

4.6.2 Interpretivism

Interpretivism, like critical realism, emerged as a critique of positivism, but it did so from a subjectivist point of view rather than an objective one (Killam, 2013). Interpretivists are critical of the attempts made by positivists to discover definitive universal "laws" that apply to everybody. Rather, they are of the opinion that valuable insights into human nature are lost if the complexity of the research is completely boiled down to a set of law-like generalizations.

Interpretivism places an emphasis on the fact that humans are distinct from natural occurrences due to the fact that they generate meaning (Alharahsheh and Pius, 2020; Kankam, 2019). Interpretivist researchers believe that human beings and their social worlds cannot be studied in the same manner as scientific phenomena, and that for this reason, study in the social sciences needs to be distinct from research in the natural sciences rather than seeking to imitate the former (Saunders et al., 2015) because different people from diverse cultural backgrounds, in different circumstances and at various times make different meanings, and as a result, create and experience different social realities.

Interpretivism is comprised of several different schools of thought including hermeneutics, phenomenology, and symbolic interactionism (Crotty, 1998). Different schools of interpretivism place a slightly different emphasis on how to put this into practice. Phenomenologists, who study existence, centre their attention on the lived experience of participants; that is, the participants' recollections of those experiences as well as their interpretations of those recollections. Hermeneuticists are concerned with the investigation of cultural artifacts such as written texts, symbols, narratives, and visual representations. Symbolic interactionists, who view meaning as something that emerges out of interactions between people and whose tradition derives from pragmatist thinking, focus on the observation and analysis of social interaction such as conversations, meetings, and teamwork.

According to (Yanow and Ybema, 2009), research that takes an interpretivist approach aims to produce understandings and interpretations of social worlds and settings that are novel and more comprehensive. This entails looking at organizations from the points of view of various subsets of the population. In the case of those conducting research in business and management; they would argue, for instance, that the ways in which entrepreneurs, managers, store clerks, cleaning staff, and customers see and experience a large retail company are different; in fact, the ways in which they see and experience are so different, that they could potentially be seen as experiencing different realities in the workplace. If the focus of research is on the experiences that are always common to all, then a significant amount of the richness of the differences between people and the individual circumstances they find themselves in will be lost, and the understanding of the organization that is delivered as a result of the research will reflect this.

In addition, the distinctions that contribute to the complexity of organizations are not limited to the many positions that exist inside the organization. Diverse employees or customers, particularly those of varied racial, ethnic, or cultural origins, may have different experiences in the workplace or when interacting with a company's services or activities. Different historical and geographical circumstances might result in different interpretations of the same object, even if it appears to be the same thing on the surface (Yanow and Ybema, 2009; Alharahsheh and Pius, 2020).

Interpretivism is a subjectivist approach in every sense of the word due to its emphasis on ambiguity, richness, and the possibility of numerous interpretations. An axiological implication of this is that interpretivists acknowledge that their interpretation of research materials and data, and by extension their own values and beliefs, play a significant role in the process of conducting research (Walsham, 1995).

One of the most important aspects of the interpretivist theory is the requirement that the researcher take a position of empathy (Saunders et al., 2015). Although the interpretivist faces the difficulty of entering the social world of the people who are taking part in the research and gaining an understanding of that social environment from the participants' point of view. Despite, interpretivist perspective is an ideal paradigm to use when conducting research on business and information science (Yanow and Ybema, 2009; Wikgren, 2005).

4.7 Data Collection

4.7.1 Participant Recruitment

A total of twenty-six digital entrepreneurs were recruited for the research in addition to three participants which were used during the pilot study. These were included in results. They were reached through social networks as well from the help of the supervisory team. Other participants have also helped in reaching out to their fellow entrepreneurs which has been quite productive. Parker et al. (2019: i) describe this technique as snowballing and "is one of the most popular methods of sampling in qualitative research".

In this research, a hybrid approach combining convenience and snowballing sampling techniques was employed to attract a diverse range of digital entrepreneurs from multiple sectors. Convenience sampling is a research method where the researcher selects participants for a study based on their availability and accessibility. This approach is often chosen due to its practicality and ease of implementation. It's important to note that while convenience sampling offers convenience and practicality, it can introduce bias and limit the generalizability of findings to broader populations (Etikan *et al.,* 2016).

The recruitment was done over three phases starting with three pilot participants. The research is not intended to be a cross-sectional study (Kesmodel, 2018) but rather a strategy that would allow reflection and adjustment for improvements regarding design. The data collection exercise was commenced from the first quarter of 2021 through the second quarter of 2022- lasting for a period of fifteen months. This prolonged period of collection can be partly blamed on the COVID-19 pandemic as restrictions of movement were imposed (Marques et al., 2021). Archibald and Munce (2015) maintain that recruitment of participants for qualitative studies is always the most resource-consuming and engaging component of the study. This is clear from how difficult it was found to secure the participants' commitment. The recruitment exercise is certainly challenging given that it involves a wide range of activities, from creating awareness about the research to identifying and enlisting research participants who must fit the criteria of eligibility. That is, being an able to provide answers to questions in a non-predetermined manner.

One of the characteristics for participants is that they engage in digital entrepreneurship. Digital entrepreneurship is a wide entrepreneurship field involving several sectors of the economy. As mentioned earlier, the sample frame comprised twenty-six participants drawn from various sectors, including financial technology; e-commerce; Stocks; cryptocurrency; digital publishing; digital photography; data analytics; education; web hosting; software development; logistics; digital marketing; and sound streaming services.

The requirement is to find founders who launched a digital firm that has been operational for less than a year.

Participants were twenty males and six females, and while the sample technique was purposeful, it was not explicitly enacted along gender lines because the focus of the research is on digital entrepreneurs, who can be either males or females. The disproportionate number of women in the sample reflects the broader landscape of women's participation in economic activities in Nigeria. It's important to clarify that the lower representation of women in the sample is not a deliberate exclusion but rather an echo of the social and economic conditions that limit women's participation in various sectors. Culturally, the majority of women in Nigeria are often relegated to domestic roles, not necessarily by personal choice but largely due to systemic barriers. These barriers are frequently rooted in patriarchal norms that have been embedded in the society over time. Such systemic limitations can impede women's full participation in economic activities, hence affecting their representation in studies like this one.

Three immigrant entrepreneurs are among the male population. In the course of this research, the immigrant subgroup was incorporated into the sample through the use of theoretical sampling techniques. This strategic decision was informed by initial insights gleaned from the existing dataset, which highlighted experiences of deprivation and exclusion among the participants. Given these preliminary findings, it became crucial to expand the scope of the study to include participants who are particularly susceptible to such experiences, and immigrants often fit this criterion. Theoretical sampling permitted the research to adapt its focus iteratively, based on emerging themes and patterns. By incorporating immigrants into the sample, the study sought to attain a richer, more nuanced understanding of deprivation and exclusion within the specific context under investigation. This inclusion became particularly crucial for providing a comprehensive perspective on systemic issues that impact not just native populations, but also vulnerable immigrant communities. The decision to avoid a convenience sampling approach was intentional. Instead, a purposive sampling method was employed to ensure that participants exhibited certain key characteristics or experiences pertinent to the study. Specifically, the aim was to include immigrant and women digital entrepreneurs, as they offer unique insights that can substantially enrich the study's understanding of digital entrepreneurship.

Almost all the entrepreneurs had formal education in computer science, information technology, or other science-related fields. The entire sample is between the ages of 25 and 45, with a considerable majority between the ages of 25 and 35. Even though Nigeria is a country with limited access to critical infrastructure such as the internet, digital devices, and electricity, however; Individuals in this age

group are likely to have grown up with technology and digital media as an integral part of their lives, making them more comfortable with digital tools and technology-driven environments. Given that digital entrepreneurship depends on such infrastructure, it is interesting to observe how digital entrepreneurs in Nigeria navigate their environment from an information perspective. Second, this age group is likely to have had access to formal education and training in science-related fields, including computer science and information technology, which are highly relevant to digital entrepreneurship.

It can be observed that the degree of technology utilisation in the respective firms differs or perhaps the founders' articulation of what constitutes a digital technology and how it can be used varies. The current research adopts the notion of technology put forward by Ahmad (2012) in which he argues that technology can be considered both as *Resource* or *Product*. The former category requires less degree of sophistication than the latter. Understanding this dichotomous technical viewpoint offers an essential basis for the selection criteria of the digital start-ups. This is to say, even though the intensity of technology usage by digital entrepreneurs may vary across these firms, their appreciation and embracement to digital technology are matched. This approach is essential in illustrating how technology is used to meet business needs (for example, in business communication) or in developing other technological artefacts (such as bespoke software or algorithms). Users' perspectives on use of technology differs so applying this parameter to the recruitment of digital entrepreneurs will broaden the research participants' size and make recruitment more flexible. Hure et al. (2008) describe recruitment as a means to an end for research.

4.7.2 Pilot

A pilot is a small sample study undertaken to demonstrate methodological efficacy and to ascertain whether or not ideas and techniques would work if they were to be implemented in the main study (Kim, 2011). This is the reason three (3) participants were recruited for the small-scale study. This sample number is intended to meet the characteristic requirement rather than a statistical representation. It is essential to understand this study is not a designated small-scale study designed to inform the main study, but an opportunity to make adjustments and revisions should the research project proceed to the actual investigation (Kim, 2011; Sampson, 2004). The pilot participants have met the required criteria of being digital entrepreneurs and as such are qualified candidates who provided credible answers to help answer the research questions (Turner III, 2010; Sampson, 2004). Details of the pilot activities is found in the appendix 12.

4.7.3 Interviews

This research project investigates the information behaviour of digital entrepreneurs during the ideation process of starting up a business. A critical realist philosophy has been adopted as the complex nature of ideation both from the cognitive and social points of view makes this a complex scientific object to investigate. Critical realism or, as Bhaskar (2016) called it, enlightened common sense, is *"a much more internally consistent and philosophically developed framework for those who have decided to follow the "realist turn" away from positivism and constructivism"* (Gorski, 2013: p. 659). As detailed earlier, CR has a highly open and flexible approach to data collection and holds that methodological choices should "depend on the nature of the object of study and what one wants to learn about it" (Sayer, 2000: 19). Qualitative research is the approach adopted for this research given the intention to use words in order to generate meaning and insights (Creswell and Creswell, 2017). When conducting qualitative research, the use of interviews, as opposed to surveys, is almost always the most appropriate instrument to use (Bryman, 2016).

The purpose of the interview itself is to "attempt to understand the world from the subjects' point of view, to unfold the meaning of their experience, to uncover their lived world" (Kvale and Brinkmann, 2015: 3), Moreover, it is widely recognised as having the ability to provide a wealth of data provided it is carried out properly (Gray,2004).

The type of interview that can be conducted can range from the structured, in which the researcher has a very clearly defined and rigid framework of questions, to the unstructured, in which the researcher is able to have a discussion that is almost free flowing. The structured interview is at one end of the scale, and the unstructured interview is at the other end of the scale. A middle ground also exists, which is known as the semi-structured method of interviewing (Creswell and Creswell, 2017). A semi-structured technique was used in the current research because decision should be made based on "which mode is practical and what interactions will net the most useful information to answer the research questions" (Creswell and Poth, 2016: 165). This has allowed them express themselves freely and flexibly; however, use pre-determined questions so as "… to ensure that the same general areas of information are collected from each interviewee".

The data collection technique for this research required the use of semi-structured interviews. These interviews provide for a measure of order and standardization (Punch, 2014), while also offering flexibility in situations where it would not be known what the participant could reveal (Saunders and Lewis, 2012). It is possible to criticize this instrument for being time-consuming (Easterby-Smith et al., 2015), but it is considered to be particularly suited to elicit opinions from the subjects while also allowing for further exploration during the interview. An oriented open interview enables questioning

in accordance with major themes that have been previously identified through a review of existing literature (Creswell, 2014). Therefore, this technique is suitable for research that aims to get an understanding of information behaviour of digital entrepreneurs during the ideation component of start-up creation. The interview appears to be a natural conversation rather than a checklist of a series of questions. That has given the interview a natural feel, according to one of the research subjects. The length of the interview is practical evidence of how comfortable and free the interviewees were. As one of the participants puts it: "to my view, the way you communicate is very impressive considering your flexibility – you gave an option to speak in my native language; otherwise, this would bring limitation in understanding". The average time for each interview is an hour twenty minutes (see appendix 5-9 for sample of the interviews- DE11, DE19, DE14, DE09 and 12).

4.7.4 Interview Schedule Design

The main themes identified in the literature influenced the design of the interview schedule in accordance with tenet of critical realism (Yeung, 1997; Sayer, 2000; Hjørland and Wikgren, 2005; Fletcher, 2017; Archer et al., 2013). Questions were created from a more general-to-specific format as Aberbach and Rockman (2002) point out, it is better to start with broad questions about the person's background, as this will make the interview easier because people typically like to speak about themselves. Therefore, the interview questionnaire in this study starts by asking broad questions about the participants, it as relates to their entrepreneurship career before moving on to more detailed and specific questions.

The first question, for example, was: "*tell me about your journey as an entrepreneur and for how long you have been doing it".* This provided excellent background information on how they innovate and create start-ups. During the interviews, there were five major themes that were discussed (see table 1 below). The first theme looked at the nature of the information environment for new entrepreneurs. For example, their journey, motivation and inspiration, and information sources that aid in idea generation. Appendix 2 contains the complete interview schedule.

Information-Seeking Behaviours	
3.	What are the predominant information-seeking behaviours among Nigerian digital entrepreneurs?
4.	How do these behaviours differ among subgroups such as immigrants, university graduates, and socially isolated entrepreneurs?
Barriers to Information Access	
3.	What socio-cultural and psychological factors act as barriers to information access among digital entrepreneurs in Nigeria?
4.	How do self-esteem, social class, and gender impact the ability to access information?
Impact of Information Overload	
3.	What strategies do Nigerian digital entrepreneurs employ to cope with information overload?
4.	How does information overload impact the decision-making and ideation processes?
Ideation Processes	
3.	What are the cognitive, social, and technological factors that influence the ideation processes of Nigerian digital entrepreneurs?
4.	How do experiences of social isolation or deprivation affect the ideation processes?
Collaboration and Trust	
3.	What types of collaborations and partnerships are most common among digital entrepreneurs in Nigeria?
4.	How do issues of trust and idea theft manifest within these collaborative relationships?
Socio-Cultural Factors and Entrepreneurship	
4.	How do parental and societal influences shape the entrepreneurial tendencies of digital entrepreneurs in Nigeria?
5.	What role do educational qualifications and mentorship experiences play in their entrepreneurial journey?
6.	Are there groups within the entrepreneurial community in Nigeria who face higher levels of social exclusion, such as women and immigrants? If so, what additional support do they require?

Table 2: Research Questions

Since entrepreneurs are regarded as organisational elites (Liu, 2018b), interviewing such a category of people can be challenging, and therefore, adequate and careful preparation were undertaken in the design of the interview questions. Given the cultural diversity and diverse language preference among the participants; an alternative schedule was created for those entrepreneurs that might have difficulty in expressing themselves in English. Filep (2009) argues that "one of the biggest dilemmas of conducting interviews in a multilingual setting is whether the researcher should rely on an interpreter". This however is not the case given that researcher speaks and understands the local language of the participants. This goes a long way in preserving the meaning generated from the interview. This because "[language] carries accumulated and particular cultural, social, and political meanings that cannot simply be read off through the process of translation" (Temple and Edwards, 2002: p. 5). Consequently, a Hausa, local language, schedule was created in an attempt to encourage participation and to elicit rich response from the participants. Great caution was taken when designing the alternative interview schedule to abide by the cautionary commentaries that "communication

across languages involves more than just a literal transfer of information" (Temple and Edwards, 2002: p. 4) and is more than just "changing the words" (Gau et al., 2008: p. 12). Such challenges are rife with multilingual research settings like Nigeria where there are more than 250 tribes (Falola, 2001) hence "researcher is thus often confronted with the expectation of high linguistic flexibility and cultural competence in his field and region of research" (Filep, 2009: p. 59).

The Hausa language schedule was created from the understanding that "solutions to many of the translator's dilemmas are not to be found in dictionaries, but rather in an understanding of the way language is tied to local realities, to literary forms and to changing identities" (Simon and Von Flotow, 1997: p. 137–138). Specific mechanics of the translation were adopted from the text by Erkut (2010) who provided detailed steps and guidance on language translation. For example, the research's central word: *information,* has a wide variation of meaning when loosely translated into Hausa *(Bayanai). Bayaini* can mean gossips, stories, secrets, or intelligence in a variety of contexts and subculture. Therefore*,* "translators must constantly make decisions about the cultural meanings which language carries, and evaluate the degree to which the two different worlds they inhabit are" (Simon and Von Flotow, 1997: p. 137–138).

Attempts have been made to achieve equivalence in different language versions of the questions (English and Hausa) using a *Back Translation* with *Decentering* suggested by Erkut, which involves identifying the two versions" discrepancies (Erkut, 2010). This involves moving the instrument away from the source language's idiosyncrasies by subjecting both the source and the target language versions to alteration via a method of many iterations. For example, participants were asked their understanding of a particular question using the native language (Hausa) and required to reconstruct it back to English to demonstrate their understanding.

Language choice is another factor that added another layer of freedom to the participants for current research. The native (Hausa) language was effectively used to provide rich data. This could have been a challenge if English had been used, considering it is their second language. This flexibility has added a layer of complexity as the interview session needs to be translated into English, hence a threat to internal validity known as instrumentation (Erkut, 2010). Although the instrumentation danger only exists if different respondents are asked different questions, rendering it invalid to conclude that variations in responses are due to the **respondents'** characteristics since the differences in the interview schedules are a viable alternate explanation.

Furthermore, the inconsistency conditioned by how the research questions were posed raised challenges in coding standardisation because **respondents'** responses have varied in fashion. For

example, If the research question was phrased in a way that assumed all respondents had equal access to information, such as "What are the benefits of online searching?", respondents from disadvantaged or marginalized backgrounds may struggle to provide responses that accurately reflect their experiences. This may result in less diverse or authentic responses that are easier to code but may provide rich or meaningful data. On the other hand, if the research question was phrased in a way that acknowledged and explored information access barriers, such as "What are some challenges you face when accessing online learning resources?", respondents may provide varied and diverse responses that are difficult to categorize into specific codes. Some respondents may discuss financial or geographic barriers, while others may discuss language or cultural barriers. This circumstance has created tension between the comfort of simplifying the coding process and the need to provide rich data and a relaxed atmosphere for the participants.

4.7.4.1 Data Saturation and Sample Size

The sample size of the research participants determined the saturation point. "[T]he field of data saturation is a neglected one. The reason for this is because it is a concept that is hard to define", (Fusch and Ness, 2015: 1408). Sekaran and Bougie (2016) provide several crucial recommendations for establishing an adequate sample size, including variables such as precision and confidence level, however these are more applicable to quantitative research. In the context of qualitative investigations, theoretical sampling is frequently used, as a result of Glaser and Strauss" (1967) work on grounded theory. This premise allows for the researcher to continue collecting data until no new information is discovered. Additionally, there appears to be some agreement in the literature that saturation is "the point in coding when you find that no new codes occur in the data" (Urquhart, 2022: p. 194), or is contingent on no new themes emerging. This is heavily influenced by grounded theory, which is a strongly debated field (Olshansky and de Chesnay, 2014)

An alternative viewpoint is provided in the form of data saturation (Given, 2008; Fusch and Ness, 2015), in which the sample size is determined by the data collection, and nothing new emerges as a result. This phenomenon is referred to as "informational redundancy" (Sandelowski 2008). It has been determined that the information/data is repetitive due to the fact that no one provides any fresh information in response to the questions. This can be made easier by employing a standardized set of open-ended interview questions during the process.

It was decided to adopt the data saturation determination techniques formulated by Guest et al. (2020) who present an alternative method for evaluating saturation that solves the inadequacies and challenges associated with previous methods. Their calculation and evaluation approach incorporates

three major elements: Base Size, Run Length, and New Information Threshold. Their approach agrees with the objective of continuing data collection until it was possible to achieve saturation (Creswell 2014; Charmaz 2006). In the beginning, it was thought that this may be possible with around 40 participants, but in the end, there were only a total of 26 participants who contributed to the study (for additional qualitative sample size examples, see: Leslie, 2009; Bronstein, 2019a and Chatman's, (1996). This is a robust sample and so offers a good level of confidence because it is a qualitative study, which tends to adopt smaller sample sizes than those in quantitative research (Sarker and AL-Muaalemi, 2022).

4.8 Data Analysis

4.8.1 Transcription

Transcription marks the beginning data analysis (Sgier, 2012). The methodological assumptions and scientific backgrounds of researchers have an impact on the kinds of data that are considered relevant and the manner in which those data should be analysed (Bailey, 2008). For example, only discussion that pertains to information behaviours, digital entrepreneurship and creativity or innovation was transcribed. Transcription is the transformation of the spoken word into text (Sgier, 2012; Bailey, 2008). McLellan et al. (2003) provide details for qualitative data transcription. See appendix 13.

The recorded interviews were transcribed immediately so that any follow-up could be made with the participant (Bryman and Bell, 2003). Multiple modes of transcription were used given that interviews were conducted both in English and Hausa. And as such, significant part of the interview's transcription was conducted manually, and this proved to be a particularly time-consuming process. While this is a widely acknowledged criticism of interviews and transcriptions (Saunders and Lewis, 2012; Creswell and Poth, 2018), it was seen that the use of a specialized transcription software tool had significantly reduced the lengthy process from ninety minutes per interview to thirty minutes, which is much more manageable.

For interviews that were conducted in English, specialised software such as Teams, or Zoom sessions were automatically transcribed into text, although a follow up edit was done, in order to correct wrongly spelled words. The use of these applications came at no cost given that the university has paid for the services.

Other interviews were conducted in English, however a paid transcription software, Otter.ai, was used for the transcription. The process begins with the uploading of the MP3 recording, after which the program begins the transcription, which takes approximately ten to fifteen minutes on average but can vary greatly depending on the length of the recording. The resulting file still needed some degree

of manual editing, particularly if the participant had a strong regional accent; however, the entire procedure was substantially more time effective than a completely manual transcription would have been.

Utilising the software and then carrying out a subsequent manual edit was beneficial because it helped with the analysis of the data by creating and visualising emerging themes and similarities within the transcripts on an ongoing basis. This was something that would not have been possible if a manual transcription had been used instead (Creswell and Poth, 2018). For the interviews that were conducted in Hausa, a manual transcription was undertaken using either Nvivo or Microsoft Word. This is because no available software can transcribe interviews in Hausa.

While due diligence was followed in the transcription, the process is not without its imperfections. For example, because most of the interviews were conducted online or on the phone, facial expressions and body movements were not captured, though they too provide additional information; however, it was not especially important in this research (Lapadat, 2000). Nonetheless, it is important to note that even though textual information is the core of the needed data, other non-verbal cues such as laughter, voice tone, and duration of breaks have been captured and greatly enhanced anonymising of the data.

It is was ensured that there was no loss of meaning due to the absence of data or the unintentional alteration of the data by performing a verbatim transcription of each interview. This ensured that there was sufficient substantive rigor prior to the initial analysis. Even though it is time-consuming, having the researcher transcribe their own interviews might help them get reacquainted with what was said in each interview (Creswell and Poth, 2016).

4.8.2 Data Storage and Security

The protection of the data that was being held was of the utmost significance, and it was ensured that it complied with the demands of the General Data Protection Regulation (GDPR) 2022 of the United Kingdom. The digital version of the transcription was stored in a file that was protected with a password and located on the hard drive. In accordance with the recommendation made by Davidson (1996); backup copies of these files were also maintained on an external hard drive and subjected to the same levels of protection. In a separate document that required a password to access, a comprehensive participants' list was also kept. The recording equipment that had the audio files of the interviews was stored in a secure vault along with the audio files themselves. The files were not removed from the server until after the audio recordings had been transcribed and the accuracy of the transcription had been verified.

4.8.3 Use of software

The data analysis process in a qualitative research start with the coding of the data obtained, which tries to break it down into categorisable units (Dey, 2003), while some would make a case that initial analysis invariably occurs by the researcher as the data is being collected. The coding of the collected data is the first step in the process of data analysis in a qualitative study (Basit, 2003).

In the midst of gathering data for the research, a review of preliminary findings led to some minor alterations to the line of questioning, particularly in consideration of the feedback from the pilot interviews. The data were examined using a manual coding system, which enabled the information that was acquired to be categorized into various groups. The use of a suitable computer assisted qualitative data analysis software package (QDAS), such as Nvivo, was considered but even though Zamawe (2015: p. 143)) explains, "the key message is that unlike statistical software, the main function of CAQDAS is not to analyse data but rather to aid the analysis process, which the researcher must always remain in control of". In other words, the qualitative data analysis software would not analyse the data; rather, it would assist in the analysis process. This further supports the claims made by Denzin et al. (2006), who argue that the researcher is the most important part of the qualitative analysis process. Gibbs (2014) argues that a criticism that is frequently levelled at such packages is that while they are useful for searching and retrieving information, they do not perform any kind of analysis on their own and do not help with the intellectual process of doing so. This is a limitation that is inherent to the nature of the software. However this is the most intellectually significant part of the data analysis and arguably should never be conducted by anything other than the researcher.

Anderson and Jack (2015), make the case why it is important to become comfortable with coding skills before adopting any of the many software solutions that are available. It is believed that by carefully and manually sifting through the transcriptions, this makes it possible for a more in-depth evaluation of the data as well as the formation of a deeper understanding, which is in line with the teaching of grounded theory (Strauss and Corbin, 1997; Corbin and Strauss, 2014).

4.8.4 Coding using Grounded Theory

The next phase after the transcription process is the analysis of data (Charmaz, 2014). This process entails perusing the textual data severally to identify ideas and concepts that are then grouped under a particular heading called a code (Strauss and Corbin, 1994). Corbin and Strauss (2014) outlined two modes of grounded theory qualitative data analysis namely *open* and *axial* coding. After gathering research data, the open coding was begun by dividing the transcripts into individual excerpts, then taking excerpts to compare and contrast them with other extracts on a regular basis. This line-by-line process is called *open coding*. The next step taken was the conceptualisation of the substantive codes

(open codes). This involves determining their interrelationship between the codes for possible integration into theory.

Open codes show evidence of what Charmaz (2014) and Strauss and Corbin (1994) describe as theoretical sensitivity. The immersion into the data was adequate, and undue influence by the existing literature was avoided. Nevertheless, a few predetermined theoretical ideas were utilised to guide the analysis of data, such as the creation of categories. The categories were carefully developed to ensure they were not unnaturally integrated into the literature. Furthermore, is the process of connecting data elements, or codes, to one another was started and is known as the axial *coding,* is a technique of identifying relationships between open codes using deductive and inductive reasoning. Overall, the transcription strategy adopted is consistent with grounded theory guidelines, a methodology analysis technique employed in the research project. See appendix 14.

4.8.5 Constructivism information metatheory

In the discussion chapter, the research was informed by the Constructivism information metatheory. This theoretical framework, grounded in the Constructivist paradigm, guided the analysis and interpretation of findings, emphasizing the dynamic interaction between information, knowledge, and human perception. By adopting the Constructivism information metatheory, this study recognized that information is not objective but is shaped by individual perspectives, cultural contexts, and the cognitive processes of interpretation.

The utilization of the Constructivism information metatheory in the discussion chapter allowed for a deeper exploration of how participants engaged with and interpreted information within their unique contexts. This theoretical lens facilitated an understanding of how information was not just transmitted but actively constructed by individuals, aligning with the epistemological stance of Constructivism. The discussion delved into the role of prior knowledge, social interactions, and personal beliefs in shaping participants' understanding and meaning-making processes.

By embracing the Constructivism information metatheory, this study highlighted the iterative nature of information seeking, processing, and utilization. It emphasized that individuals actively engage with information sources, transforming them into knowledge through cognitive processes that are influenced by their own unique perspectives. This theoretical lens underscored the complexity of information interactions and contributed to a more holistic understanding of the phenomenon under investigation.

The application of the Constructivism information metatheory in the discussion chapter enriched the study's insights by offering a lens through which to view the dynamic interplay between information,

knowledge, and human cognition. This metatheoretical framework deepened the analysis, fostering a more nuanced appreciation of how information is constructed, interpreted, and integrated into **individuals'** cognitive frameworks.

4.9 Member Checking and Incorporation of Feedback

Member check was carried out by the researcher. Transcribed and analysed manuscripts were sent out to respective participants to validate the researcher's data analysis. One of the participants puts: "**I've** just read through the transcript, some great coding insights you have made! Great work!". This signifies the findings reflect their experience and thus amplifying the researchers" confidence. Although for most of participants, these requests were largely not successful as only a handful acknowledged the receipt of the email with just three participants that acted on it. Notwithstanding, the reliability of the findings is the cornerstone of high-quality qualitative research, including grounded theory. Member checking, which is also referred to as participant or respondent validation, is a validation technique conducted in this research to ensure the credibility of the findings (Birt et al., 2016). Although Thomas (2017: i) argues that "there was little evidence that member checks improved research findings".

The member checking also served as the participants' opportunity to raise the issue of anonymity and confidentiality because the mention of business name, organisations and places within the transcript has broken the seal of anonymity and consequently exposed the participant's identity. For example, mention of name, workplace, area of residence and peculiar responses may leave participant informationally exposed. Corrective actions were taken in which all identifiable information was anonymised.

4.10 Strengths and Limitations of the Research

An acceptable level of rigour and confidence in the study is provided by the methodological approach that has been used to satisfy the research objectives (Creswell and Poth, 2016). Because the purpose of the study was to investigate information behaviour of digital entrepreneurs during the ideation generation component of start-up creation hence the adoption of qualitative approach become necessary. Data were collected using semi-structured interviews to investigate their lived experiences. These interviews are best suited to elicit these experience and views while also providing an overarching framework to guide the direction of questioning. Open-ended questions were asked of the participants to make it easier for them to speak candidly about their own experiences, perceptions, and beliefs in relation to the categories included in the interview schedule. This was done

to facilitate the flow of dialogue and make it possible for participants to speak freely about these topics.

Even though qualitative research focuses on the quality of the data rather than the quantity of data collected, a total of twenty-six participants were included in the study because it was thought that this was an especially strong sample size. The sample frame included a wide array of perspectives and insights from digital entrepreneurs working in a variety of IT fields. With an average interview time of ninety minutes. It also provided some degree of representation from a diverse range of age groups, genders, and legal status. The involvement of poor and marginalised groups contributed significantly to the growth of this diversity. This is a major strength of the study; nevertheless, if I were to conduct this research again, I would like to include people who had previously been involved in businesses that had been unsuccessful. Additionally, I believe *pragmatism* would have been a more suitable philosophy to address particularly a section within the research that tackles start-up failure and solution. Because pragmatists are more concerned with concrete outcomes than with abstract distinctions.

It is a well-known fact that the results obtained from qualitative research cannot be generalized in a statistical sense due to the very nature of the research itself. Rather, the focus is on particularity, as Creswell and Creswell (2017) points out, citing an argument made by Greene and Caracellie (1997). Janesick (2003) contends that "the contribution of qualitative research often lies in its uniqueness" therefore, the limitations in terms of generalisability of qualitative studies are widely acknowledged (see for example Easterby-Smith et al., 2015; Creswell, 2014).

It is understood that the results of this research will not be capable of being generalized statistically, there have been universal themes that have surfaced, and it is possible to draw conclusions from these themes regarding the existence of a variety of perspectives held by digital entrepreneurs. This, has address the concern raised by Galdas (2017), that the qualitative findings cannot be extrapolated beyond the scope of this specific sample.

The design of this study has one of its strengths in the fact that it allows for an in-depth investigation of the information behaviour of digital entrepreneurs as it pertains to the development of ideas. This is an area of research that has been neglected up to this point. It is noteworthy that the researcher has found himself to have truly participated in the methodological argument later in the process, and it would have been good to have had this expanded knowledge at an earlier level in the process. To the degree that there is such a counter argument within the literature on qualitative research, it may

prove to be a barrier for researchers who are just starting out. In the future, the researcher will be open to testing the ideas in a different way perhaps through a mixed method.

Even when there are precautions in place to prevent it, the researcher may still be susceptible to introducing some level of bias into the investigation, as is the case with every type of research. This may occur, for instance, when conducting interviews. According to Creswell (2014: p. 202), who argues that "we are shaped by our backgrounds, gender, culture, history, and socioeconomic origin," this phenomenon frequently occurs at the stage of the research process known as interpretation. It would be prudent to mention this, as well as assess the extent to which this may have occurred throughout the course of this study. As a result of the precautions that were taken to ensure that the questions asked during the interviews were free of bias and did not in any way direct the participants' responses, it was determined that the possibility of bias being introduced at this stage was reduced to a minimum. There is also the risk of bias in the research study, especially when the recruitment technique is purposeful. This is one of the study's potential downsides. This was minimized, however, by using snowball sampling from a limited group of persons who subsequently assisted with referrals to their own networks.

4.11 Ethical Issues

During the research, several different ethical concerns were discussed; two of these concerns were the confidentiality of the information that the participants provided as well as their own personal information. The identities of all participants were concealed, and the industry or sector in which the participants employed is abstracted to further provide anonymity. The right to privacy of the participants was always respected, and measures were made to guarantee that participants could not be identified based on the data that was used.

It was made possible for participants to give informed consent by providing them with a participant information sheet that described the goal of the study and their involvement within it. This was provided to each participant. This also made it obvious that the right to withdraw at any moment was established. During the *member checking* the participants were given the assurance when the research project is finished, that any recordings made of it, as well as any transcriptions of those recordings, would be disposed of in a conscientious manner.

An incident occurred during the first phase of interview batch as one of the participants requested that his data be withdrawn. This was as a result of his request to access other participants' data being declined. So, he acted in protest. However, he later recommitted his consent when the gatekeeper

who snowball the participant pleaded with him. "Because qualitative research is conducted in an ever-changing field, informed consent should be an ongoing process. Over time, consent needs to be renegotiated as unexpected events or consequences occur (Munhall, 1988: , p. 156). This also underscore the importance of gatekeepers in qualitative studies (Andoh-Arthur, 2020). Apart from the above-mentioned incidence, no problems of an ethical kind surfaced during the entirety of the time that the research was being conducted.

The research was conducted in compliance with the Research Ethics Policy of Robert Gordon University, and careful consideration was given to ethical processes, as well as the research quality, integrity, and relationships.

4.12 Conclusion

The method chapter provided the discussion on how the research was conducted including the chosen philosophical stance that guided the overall execution of the research as well as the accompanying data techniques. A Critical Realist philosophy has been adopted, as the complex nature of ideation both from the cognitive and social points of view makes this a complex scientific process to investigate. Critical Realism or, as Bhaskar (2016) called it, "enlightened common sense", is "a much more internally consistent and philosophically developed framework for those who have decided to follow the "realist turn away from positivism and constructivism" (Gorski, 2013, p. 659). The investigation is rooted in realist ontology and subjective epistemology. The philosophical assumptions of the researcher are acknowledged as influencing the way in which a study is designed and conducted (Creswell and Poth, 2018). A more detailed discussion around the philosophical stance and the research approach to this study is presented in Chapter Four.

The researcher favours a qualitative approach and the use of qualitative instrument to acquire data rather than numbers to achieve meaning. A semi-structured interview style was used, and the interview schedule was constructed based on themes identified in the literature research. A pilot interview was conducted, which allowed for certain improvements to be made before to the major study. Each interview was recorded and transcribed subsequently. The researcher conducted verbatim transcription to capture all data and assist robust analysis. The findings are not generalizable and instead serve to provide a detailed understanding of the research problem.

Quality, bias issues, and ethical concerns were all taken into account, and suitable actions were taken to address and mitigate these in the course of carrying out the research. The data saturation perspective defined the sample size, with recruitment stopping after the point of "informational redundancy" was achieved, i.e., when no new information surfaced during subsequent interviews. The

final sample consisted of 26 people. A combined convenience and snowballing sampling technique was used to attract a varied variety of digital entrepreneurs from various sectors.

Discussions were also held on the evolution of the researcher as well as some socially learned skills which are equally important. The research project has been completed within the allocated time and is believed to be of an appropriate level and high-quality standard for doctoral research.

Chapter 5: Findings

Overview

This chapter presents the findings from the qualitative inquiry of information behaviour research of digital entrepreneurs in Nigeria's digital and technological entrepreneurship space. The finding goes beyond the illustration of the information behaviour of the participants to capture lived experiences which have shaped their entrepreneurship journeys. The data is collected from 26 semi-structured interviews undertaken. A demographic of the interviewees and the corresponding digital entrepreneurship business has been outlined. Ten major themes have emerged from the qualitatively analysed data. Parental and societal influence, ii) Mentorship iii) Education iv) Process of ideation v) Collaboration and partnership vi) entrepreneurship traits vii) entrepreneurship challenges viii) Role of information ix) Information behaviour and x) Marginalised entrepreneurs.

5.1 Summary of Participants' Descriptive

The sample frame comprised twenty-six participants drawn from various sectors, including financial technology, e-commerce, Stocks, cryptocurrency, digital publishing, photography, data analytics, education, web hosting, software development, logistics, and digital marketing. Each has recently founded a digital business, which was within a year of commencement of business operations. Participants were 20 males and 6 females, and whilst the sampling strategy was convenience, this was not explicitly enacted along the lines of gender given the focus of the research was on digital entrepreneurs who can either males or females. A subgroup of 3 immigrant entrepreneurs is among the male population. Almost all the entrepreneurs had formal education in the discipline of computer science, information technology and other science-based subjects. The entire sampling falls between the age range of 25-45, with a significant majority falling between 25-35.

SN	ID	Business Name	Gender	Age group	Other features
1	DE01		Male	35-40	Citizen
2	DE02		Male	25-30	Citizen
3	DE03		Female	25-30	Citizen
4	DE04		Male	35-40	Citizen
5	DE05		Male	25-30	Citizen
6	DE06		Male	30-35	immigrant
17	DE07		Female	30-35	Citizen
18	DE08		Male	30-35	Citizen
9	DE09		Male	25-30	Citizen
10	DE10		Female	25-30	Citizen
11	DE11		Female	25-30	Citizen
12	DE12		Male	25-30	Citizen
13	DE13		Male	25-30	Citizen
14	DE14		Female	25-30	Citizen
15	DE15		Male	30-35	Citizen
16	DE16		Male	40-50	Citizen
7	DE17		Male	30-35	immigrant
8	DE18		Male	30-35	Immigrant
19	DE19		Male	40-45	Citizen
20	DE20		Male	30-35	Citizen
21	DE21		Male	25-30	Citizen
22	DE22		Female	25-30	Citizen
23	DE23		male	25-30	Citizen
24	DE24		Male	30-35	Citizen
25	DE25		Male	30-35	Citizen
26	DE26		Male	25-30	Citizen

Table 3: Participants' Description

Status   Gender

23   3   6   20

- Citizen   - immigrant   - Male   - Female
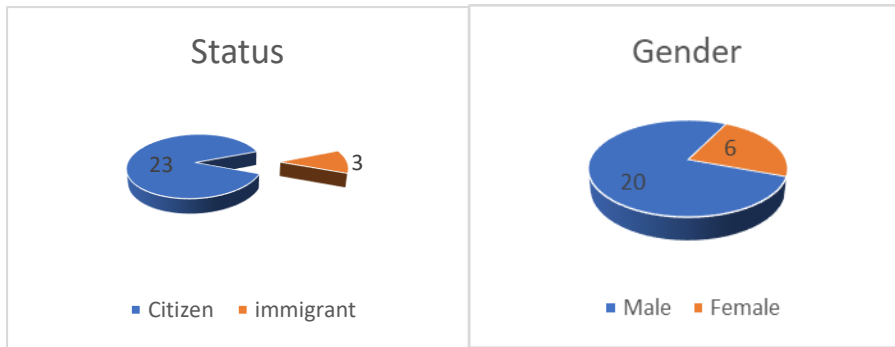
5.2 Pen Portraits

In qualitative research, a "pen portrait" (sometimes written as "pen-portrait") refers to a written description that provides a detailed, but concise, visual-like representation of a participant or a group. This portrait offers a snapshot of the individual or group, capturing the essence of their characteristics, behaviours, motivations, or any other pertinent information that helps to provide a comprehensive understanding of them in the context of the research. This approach has been used with a select sample of indicative participants.

Pen Portrait 1: Resilient

The structure of the findings is designed to reflect the supposedly natural sequence of one's entrepreneurship journey, beginning from his/her childhood experience to the present period, which marked the idea conception and establishment of the business. *Parental and Societal Influences are* the first theme of the discussion, given that family and the wider community are instrumental to one's

upbringing and shaping lived experiences. It then is followed by *education, the ideation process, entrepreneurship (entrepreneurs" character traits, start-up challenges and solutions), marginalised entrepreneurs, mentorship, collaboration and partnership, and role of information*. The last theme discussed is *information behaviour* of digital entrepreneurs, which is most central to the present research. This order is chosen, so that information and information behaviour can be seen, discussed and understood through the lenses of the preceding themes.

5.3 Parental and Societal Influences on Entrepreneurship Journey

Parental and societal influences is the first theme of discussion emerging from the qualitative data. The Participants were asked to give an account of how their entrepreneurship journey started and the essential shapers of their business life. Various aspects of this entrepreneurship journey have been captured, and two additional sub-themes of *motivation* and *mentorship* have been revealed.

5.3.1 Motivation

Entrepreneurial motivation can be thought of as a broad spectrum, with positivity and negativity representing the two extremes. The social, environmental, emotional, and cognitive forces that activate entrepreneurship behaviour are included in the motivational factors. Motivational themes reveal behaviours and attitudes that are understood to be forces acting within the agent to create a disposition to engage in entrepreneurial behaviour. The motivations constitute a spectrum of causes for the entrepreneurial action. Among these are the necessity and desire for self-prosperity, family, and the desire for a prosperous society. Other apparent necessity-based motives include the urge to alleviate difficulties (such as bereavement) or to avoid hardship (such as natural disasters) – this part of the continuum encompasses the negative aspect of the motivational elements.

5.3.1.1 Positive motivators (empathy)

Entrepreneurship motivation is driven by the desire to make a positive impact on self or on broader society. In the pursuit of positive influence, technology is found to be used as the vehicle to drive such change for the research participants. The moral practice of concern for positive change may not be the primary motivation here but rather the need to apply technology to benefit society. The opportunity to present and use the technology became obvious because of the prevalence of societal problems and concerns, which the economic and social adversaries typical of a developing country like Nigeria have produced. The passion for using technology and desire for positive societal change has steadily transformed into a business-focused thought process for many entrepreneurs. The empathy aspect for the entrepreneurship intention resembles what the literature describes as social entrepreneurship.

When asked about drives them into entrepreneurship, the participants overwhelmingly cited a combination of emphatic and humanitarian reasons.

> *"I have always been keen on technology. Especially how to use it to solve societal problems". (DE12)*

> *"if we didn't make tangible products that can transcend a **client's** request, we wouldn't be able to make meaningful changes in our environment. (DE01)*

> *"First and first, God, and secondly, I keep telling myself that I want to leave a legacy in the Nigerian publishing sector". (DE10)*

The use of technology to primarily bring about positive societal change is evident from **DE01's** comment when asked why he picked this entrepreneurship route. The drive to innovate and continue to do so is fuelled by the sole desire to create a positive impact while also drawing economic reward.

Another motivation for entrepreneurship sits within the midpoint of the motivation spectrum and centres around seeking significant and radical change in one's life, especially turning around the economic circumstances.

> *"The motivation behind starting my business is I had always wanted to have a business for myself to earn something and be productive". (DE07)*

> *"So, it is better for us to learn the skills so our children will also learn them. So that they don't has to, you know, start from scratch as we did". (DE18)*

The motivation for entrepreneurship might also be animated due to peer influence - the need to be like others; the desire to blend socially and economically is seen is a huge impetus.

> *"My friend made 200 to 300 dollars off freelancing, so that motivated me. This development has taken my focus off the schooling, so I redirected my time and energy on developing the sought-after skills in the labour market". (DE06)*

This peer comparison and assessment is made possible because of the entrepreneur's intentional effort to socialise and the mental capacity to notice the nuance among their peers. The social engagement had resulted in the recognition of socioeconomic differences among peers, resulting in the desire to bridge that gap. The desire to equate socially and economically will aid the process of introspection, reflection, and planning. This is to say; a social circle can animate self-realisation which can further drives an otherwise undiscovered entrepreneurship motivation.

5.3.1.2 Negative motivators (valour)

Another aspect of the motivational spectrum which stems from a negative incentive is disadvantageous circumstances which can either be remote or direct. Almost all participants encountered significant economic hardship or social trauma prior to embarking on their entrepreneurial journey, whether at the family or individual level. These adversaries in the form of poverty and exclusion have significantly shaped their perspective by compelling them to seek a better alternative way of life through entrepreneurship.

Encompassing economic conditions can trigger a chain of events in which entrepreneurship or business ideation becomes the nexus of the event. This adverse economic condition can be internally induced or externally enforced, as in the case of loss of livelihood due to famine and other natural misadventure.

"Leaving their country is necessitated by the search for green pasture". (DE18)

The participant had been through a prolonged period of domestic violence which was very devastating both financially and emotionally. Although she had managed to maintain and repurpose her analytical mind, which served as the last lifeline to save her from socioeconomic abyss. *"Many people consider my journey as a trial as an inspirational story of how a setback cannot stop you from looking for ways to change your life and use your analytical mind in a different profession"*.

"I got separated from my Husband. He was a chronic abuser and a very fantastic alcoholic. I had a child with him. So, when the child died, I decided to end the marriage and be on my own". (DE14)

Similarly, adversary is seen in the narrative by DE03 who was sexually abused and grew up with limited means of survival *"that period was a tremendous learning and turning point for me"*. Financial

instability has brought significant discomfort to people not only from their inability to support for themselves but also from the accompanying vulnerability and the prospect of abuse that comes with it. This low moment compels and propels them into taking decisive action.

> *"Money was a constant worry growing up. My father died when I was in elementary school…. It also was a source of torment at school, given that other pupils made fun of me for being poor". (DE03)*

DE02 wished to have a computer and electronic games during his childhood; however, his mother could not afford it due to poverty. Nonetheless, those digital devices later influenced and shaped his entrepreneurship ideas and passion.

> *"Growing up as an African and a Nigerian has been tough with no broader institutional and infrastructural support – the internet and the rest". (DE02)*

Bereavement and misery are also found to encourage motivation. A participant who was desolate recounted his moment of motivation. Were it not for the loss of livelihood due to famine preceded by the loss of his parent, and he would not have had the external drive to venture into the entrepreneurship world. A difficult moment has created a decisive point in his life.

> *"I will attribute this success, all this entrepreneurship journey, to my parents" death. Or because of a trial, I found myself in, or because of the 2012 famine in the Niger Republic. It is a combination of tragic factors. (DE1)*

Other experiences of the digital entrepreneurs are not severely adverse cases of deprivation but rather a circumstance of insufficiency. DE05 shown great resolve and adaptation to the challenging circumstances in which he found himself.

> *"What can we do to make money to top up the stipends we regularly get from our parents? We were not starving, but clearly, we needed additional income". (DE05).*

5.3.2 Inspiration

5.3.2.1 Family

The role of the family is noticeable throughout the experience of the digital entrepreneurs. The **family's** role, particularly for the mother in the entrepreneurial, education, and moral and emotional support, is remarkable.

DE13 and DE15 believed their privileged background affords them the "*financially costly mistakes*", which instrumental to their entrepreneurial learning.

> *"Not every parent can afford the lifestyle I had. My parents gave me a comfortable lifestyle and freedom of choice. Thanks to their level of education and liberalism. I had the freedom to experiment and make mistakes, financially costly mistakes. This unique upbringing is responsible for the person I have become today. This is how I started my journey as a businessperson". (DE13)*

> *"I am a very regimented person, courtesy of the military. My dad was in the military, too. My mum was a nurse. I had a very strong discipline and determination, largely because of my parents" influence". (DE15)*

Relatives can also be a source of inspiration for the entrepreneurs. Uncle and aunt are found to be directly responsible for the entrepreneurial decision of their wards.

The business idea for DE10 happened because of their chosen career – information scientist. She earned a Bachelor of Information Science – a discipline that was also studied by her aunt. It was the aunt that later steered them into their chosen career.

> *"I was sceptical at first, but when I thought of my aunt who studied information science and was practising and doing well for herself, I said to myself - why not". (DE10)*

DE08 owes his uncle credit for the person he has become a businessman.

> *"My first debut as an apprenticeship was about 15 years ago. The shop was owned by my cousin, my mum's nephew. My uncle was the one that first founded the*

business many years ago during what we called a rather mechanical or manual era
of printing". (DE08)

Entrepreneurship is seen, by some, as family culture, ingrained deeply into their subconscious.

"I grew up seeing my immediate and extended family [into entrepreneurship], and I
would say 100% of them are into one business or the other". (DE18)

"Entrepreneurship runs in the family. It has been the tradition within the family for
many years. I would say more than 50 years". (DE18)

Life tragedies such as persecution and exploitation have redefined the notion of the *family* for some entrepreneurs. DE11 met their friend-turned mentor at a gay club who introduce her *"technology and taught [her] the fundamentals of writing programs, creating websites, and developing business solutions"*. For her, family are those people that stand by them in their moments of difficulty, to guide and provide them protection.

"I made new friends, including this lovely lady named Jamila. She is technologically
savvy. And she told me about what she does for a living, freelancing". (DE11)

"After my marriage ended, I got rejected socially by my home and relatives. Divorce
is considered an abomination, so I had to leave to create and find another safe place.
These [businesswomen] around me are my new family. I learned immensely from
them". (DE22)

5.3.2.2 The Maternal Information Environment

While the influence of the family is significant among all the entrepreneurs, the mother stands differently as a unique and powerful member within the traditional family setup. Middle to low-income families show a stronger motherly connection than highly affluent households.

"I come from a middle-class family. My dad was a career person, and my mom was
an entrepreneur. She always had a business we were all part of growing up". (DE01)

"When I announced my decision to quit the military at a family meeting, my dad
became angry. He felt I had let him down in some way. My mum was quite the

opposite; he had always encouraged me to pursue the things that brought me happiness". (DE15)

"So, the trade I have found myself in was my mum's ideas. I never wanted to be like this. My mum pushed me into this trade". (DE08)

"My mum is the guiding light in my life; this is a result of my faith that has influenced my relationship with her. My religion enjoyed us prioritising mothers against fathers. She was my first teacher, and I knew if she is alive today, I would tackle my challenges easily". (DE22)

"Perhaps my mum did everything do me. She is my superpower". (DE05)

Almost all the mother or mother figures of the digital entrepreneurs had at one time been or are currently engaged in entrepreneurship. Even mothers with no apparent entrepreneurship status possess a clear entrepreneurial mindset. Many factors are at play, combined to make mothers very influential to their wards. Women have more emotional and physical involvement in the daily life of their children than men. This is given that women are in Nigeria mostly full-time housewives.

5.4 Mentorship

The evidence of mentorship has been discovered from the empirical data which supports learning and information seeking. Mentorship is found to exist in a variety of contexts including the *family*, peers, *senior colleagues* and sometimes facilitated through technological and entertainment artefact such as *movies, online platforms and books.* The technology and entertainment mediated mentorship are discussed under the *Education* theme. Mentorship is a guidance provided by a mentor, especially an experienced person. The digital entrepreneurs gave an account of how they found their mentorship and the effect it has on them in terms of helping them grow as a person and become the best version of themselves. These mentors helped their mentees achieve their personal or career goals, introducing them to new ways of thinking, challenging their limiting assumptions, and sharing valuable life lessons.

Pen Portrait 2: Immigrant

5.4.1 Role of Mentorship for entrepreneurship Learning (formal mentorship)

DE06 had an early mentorship experience during his days at the university. It is worthy of note that he had little to no support from his parents. However, this is not surprising, given that he hails from an educationally disadvantaged state. The positive influence from his senior schoolmates' counters or neutralised those factors from home.

> *"In my second year at the university, I started Java Programming. I enjoyed it deals with logic and mathematics. This early exposure to the programming resulted from advice and mentoring from my senior colleagues". (DE06)*

DE04 is the type of entrepreneur who thinks wide and dreams big. He considers world technology leaders as his learning compass and inspiration. He sees them as his business role models. He believes "it was rather hard to have people you could look up to locally but internationally,

> *"So, I could say I was looking up to a couple of people: Steve Jobs of Apple was one of them. I was really keying into his design, his thinking and his ability to... you know... influence a lot of people. The same thing applies to Bill Gates especially considering*

how he could market Microsoft to the whole world. Then Mark Zuckerberg at a young

age". (DE04).

DE02 found his mentor at this pre-established stage of his profession. He has bootstrapped himself into the business without any early-stage mentors. Myriad social and environmental factors shaped his perspective. He was brought up in a deprived circumstance by a single parent – mother.

"I was street-hustling in that direction and then stumble on the right mentor in the

same industry segment I was interested – Digital Art and now being called with a

fancy name, NFT". (DE02).

5.4.2 Role of the society for entrepreneurship learning (informal mentorship)

The experience of DE12 and DE05 underscores the power of location or neighbour influence on entrepreneurs. Perhaps it also highlights the **parent's** attitude towards neighbours and relatives, especially regarding the circumstances of DE05. Parents" hospitality and warm reception towards others or even their willingness to allow their wards to choose who to keep in company can be an ideation turning point for their children.

In terms of wider socialisation, DE12 and DE05 describe the impact wider society such as the neighbour on their entrepreneurship intention: "My neighbour introduced me to animations and computer games right from my early days".

"Whenever we were on break from school during my high school days, he would invite

me over to his house to help him with computer-related tasks". (DE12)

"There was a time when my uncle lived in our house, so he had this old laptop which

uses Windows 98. He would put me through learning MS Word and PowerPoint. So

even when he left our house, I would visit him just to hang around and maybe learn

a few things from him if he was not busy. That's how I started". (DE05)

DE17 has modelled his way to become a digital entrepreneur courtesy of his friend's magnanimity. His "entrepreneurship didn't start as a partner business. But instead, it is a kind of mentor, mentee relationship".

"But my friend was able to secure a job at a computer shop because of the little knowledge of commuter he has. He became my mentor, and I learned from him. My friend was very instrumental. I learn all the things from him. He's a magnanimous and generous person. (DE17)

5.5 Education

The research participants have demonstrated evidence of education that they have received throughout their experience. Their accounts capture the varied ways they gained these skills and knowledge. Some had formal education while other were informally educated. Although even those that were informally trained, received basic literacy education at elementary level. The formal education in this context relates to higher level of learning from mostly say universities which led to exposure to well curated innovation programmes and theories.

The versed

A self-described T-shaped - individual with extensive expertise in a variety of subjects. He is an avid internet user with exceptional information retrieval abilities. He attributed his creative fluency - serial innovation - to his diverse knowledge domains. For ideas, marketing, and networking, he relies heavily on the internet.

Pen Portrait 3: Versed

5.5.1 Formal education

> *"I studied chemical engineering; I've been an engineer all along, but sometime after college, **I've** developed a passion for IT and using the web and mobile to make a difference in Africa". (DE01)*

DE10 carved out her entrepreneurship idea from her formal education. This can be said to amount as full unitisation of her formal education.

> *"I am a Library and Information Science graduate from the University of Nigeria Nsukka. I proudly practised my profession with a non-governmental organisation as the institution's research librarian". (DE10)*

DE11 adapted her mathematics degree to facilitate her entrepreneurship journey. She was a high school mathematics teacher until she was sacked due to her lesbian sexual orientation. Her action implied that her formal education was an ideation vehicle – a tool in service of her entrepreneurship journey.

> *"I had no trouble transitioning to this career because I was good at mathematics. Computer programming was straightforward for me to grasp and master. That is how I got started". (DE11)*

DE12 had a predetermined intention before joining the university and pursued innovation and entrepreneurship activities which enhanced his creative thinking while he was studying.

> *"I study computing in the university. So while in school, I did a lot of start-up activities. For example, start-up weekends, boot camps and ideations". (DE12)*

DE21 was rather a cautious entrepreneur. He believes formal education would give him a 360^0 view of the knowledge requirement needed for fintech and cryptocurrency entrepreneurship niches he ventured into. He was wary of the prospect of inviting a co-founder to complement his perceived intellectual void.

> *"I managed to get a university degree after two previous failures. I dropped because I lack the zeal so instead, I pursued my interest. The third attempt was as a matter of necessity after it became glaring that it would finetune ideas and void cofounding route or expensive outsourcing". (DE21)*

DE15 had two knowledge pools to utilise given he has two university degrees from management and *engineering.* He maintains other business entities in addition to the current one.

> *"I studied engineering while serving in the military, but my first degree was in business administration. Perhaps this contributed to my preference for the private sector".*
> *(DE15)*

DE19, like DE15, had the good fortune of having formal knowledge from two disciplines which he jointly used in a complementary manner to derive his business idea. This creative fluency underscores the interdisciplinarity importance. These two knowledge domains have allowed him to continuously innovate by producing new business ideas. He describes himself as *"T-shaped" – that is a person with* in-depth knowledge of multiple disciplines. This underscores Interdisciplinarity importance.

> *"I have always had an interest in, in two subjects: computer science and geology. So, it was always difficult for one to decide. Because I sometimes think, you know, in school, you get pushed into a sort of one discipline or one area. So I do Computer Science at O level, I couldn't do it at A level because it clashed. So, my ideas have been around, you know, combining my knowledge of geoscience and computer science to develop algorithms for that. (DE19)*

DE25 created three inventions that cater to various market segments. His ability underlines how swiftly he harnesses his complementary knowledge domains to generate and implement successive ideas.

> *"For my portfolio of innovations, I have three apps. The first offers services for estate management or real estate development. Similar to PayPal, the second app is based on the general market. My first degree in estate management inspired the idea for the first apps as a symbolic gesture". (DE25)*

DE04 planned to pursue information technology at university but ended up studying statistics instead and participated in various entrepreneurship and incubation activities while attending university. To advance his ideas, he draws on his vast knowledge base. He sees himself as an evolving entrepreneur with a dynamic mind.

> *"I joined ABU Zaria in 2011, where I studied Statistics and graduated in 2015. So while I was in the university, I wasn't that student who always thought of going out of the*

University system. [Not minding that I was a Statistics Major] it helped me in computing. I spend a significant amount of time in the library, which I should have otherwise used for leisure". (DE04)

DE05 is a technically well-rounded individual. He believes that official and professional validation of his abilities is essential.

"My discipline is information technology. I'm a certified network associate, a certified database administrator from Oracle University, Cisco network associate also from Cisco and I my got my Certified Ethical Hacking license". (DE05)

DE03 got the idea for her business after a traumatic experience - she was sexually abused - but it didn't stop her from acquiring a management degree.

"I am Management one. I became fixed and interested on the idea this new digital gold called bitcoin". (DE03)

5.5.2 Informal education

A good number of entrepreneurs were fortunate to afford formal university degrees. However, some could not further their education beyond high school. Despite the seeming disadvantage and odds against them, they achieved a comparable entrepreneurship success compared with their counterparts from higher education. This subgroup of participants became adaptive and sought alternative modes for learning and skills acquisition.

DE13 learned an invaluable business lesson from entertainment – the pursuit happiness and founder are instrumental. The learning experience was a turning point for him and has made him immerse himself further.

"There are lots of educational and entrepreneurship movies. The Founder, a story of a small-time businessman, is based on a true story who works his way up through the ranks of business. That movie gave me an excellent learning opportunity and left significant lessons of inventiveness, confidence, and a strong work ethic. The learning experience from some films, to exaggerate a title, is worth more than some lousy MBAs offered by our universities these days. (DE13)

DE14 is a marginalised entrepreneur who overcame domestic abuse. She also had to accept the limitations that come with her immigration status. Many difficulties were stacked against her, yet her determination propelled her to success as a self-taught entrepreneur. Her self-learning time might be defined as a very lonely period.

> *"I had my primary and secondary school here. So eventually, I married a Nigerian, which turned out to be a very tragic decision. For about a year, I was coding in isolation. I was not even on Twitter then, but I had faith. I was offered my first developer role in 2019 at Andela, months later". (DE14)*

DE09 dropped out of high school to pursue his ambition of being an entrepreneur. Because of the long daily business commute, he found maintaining a business while attending school impossible. He had attempted to combine the two occupations but realised that doing so undermined the progress of both.

> *"The commute takes about one hour. And the fact that I had to leave for school at 7:30 a.m. on workdays made it difficult for me to drive such a long distance. So I had to fulfil my objectives halfway. This means that I leave at 6:00 a.m. so that I can arrive in Jos by 7:00 a.m. I normally return to Bauchi at 9:30 a.m. This means I'll be two hours late for school". (DE09)*

DE24 was in an emotionally abusive setting in elementary school, which caused him to lose interest and drop out. He believes that not having the opportunity has cost him some social standing. On the other hand, he retains a strong desire for formal education, even though he is unlikely to re-enrol.

> *"It still upsets me that I didn't go to university. I was adopted and was not enrolled in school when I should have been. I couldn't fit in since my classmates continuously mocked me for being much older. I dropped out due to the stigma, tried various ways to survive, and eventually discovered my purpose in entrepreneurship". (DE24)*

DE22 grew up as a digital native, having been exposed to the internet and electronics as a child. This serves as a turning point in her way of thinking and awareness of responsibility for the consequences of her actions.

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*"I was expelled from Catholic school for watching porn during class hours." It was horrific, but considering who **I've** become as a result, I don't regret it". (DE22)*

5.5.3 Educational support

According to the findings, the most common learning environments are formal and informal learning contexts. Technology and its applications, as well as entertainment, have been discovered to enhance learning and serve as a source of knowledge and the development of entrepreneurs" perspectives. Entrepreneurs have linked or credited their ideation journeys to love or use of technology and inspirational films that changed their thinking.

5.5.3.1 Technology as an educational aid

Technology has facilitated a substantial formal and informal learning experience for entrepreneurs. The highlighted technologies are social platforms that allow user interactions, engagement, networking, marketing, and cooperation. The plethora of aspects of these technologies enabled the birth or growth of ideas. It can be argued or theorised that without these technologies, these businesses and ideas would not exist. Hence these start-ups can be described as products of technology-mediated ideations.

Video sharing and streaming sites like YouTube are typically identified as the most frequently used resource by digital entrepreneurs. This realisation has signalled the importance of visuals in the creative process in general. This is especially true for DE05, DE09, DE06, DE21, and DE25.

"We watched a lot of tutorials on YouTube about photography, phone photography. (DE05)

"I learned everything I came to know on the internet. So, the internet is my ideal incubation space". (DE09)

"The internet contains all or part of what you think or wish to think about. I got my business ideas or rather improved them from the YouTube comments section". (DE21)

"[I]mostly watched YouTube videos, so I watched many entrepreneurship videos. I became fixated on business videos and, more specifically, dreamers". (DE06)

"Yes, I must acknowledge that internet resources have aided in honing my abilities and broadening my knowledge base. But school opened the door for it to occur". *(DE25).*

Other entrepreneurship learning platforms include those with fewer video resources and more text-based information. LinkedIn, Quora, Github, and GitLab are examples of these technologies. These web-based platforms provide a high level of specificity for dealing with specific tasks or queries.

DE19 uses LinkedIn as his sole virtual office. He is technically and academically well-versed. This might perhaps explain why he prefers LinkedIn.

"My blog and LinkedIn are the engines of my business development, marketing and networking. I find things like LinkedIn are enormously powerful". *(DE19)*

DE21 describes himself as a critical thinker who enjoys reading. His reliance to Quora sprang from the fact that it is entertaining and interesting, as well as the fact that it has democratised education. Quora has created a virtual town-square for "engaged thinking" learning built fundamentally on questioning, and it encourages people to write detailed answers and engage in intelligent discussions. He feels that after a reading session on Quora, one will have some fresh information.

"The proliferation of online information-oriented services might cause someone to lose focus because marketers overly use most. However, Reddit and Quota stand out. I prefer Quora for its wealth of information and as a research-driven tool. Responses on Quora are more personal, with first-hand experiences and personal opinions on various subjects". *(DE21)*

DE25 believes GitHub and GitLab have made up for the lack of close guidance through the machine generated codes lines that offer suggestion and examples.

"GitHub and GitLab have been critical to my success. These are learning and skill-building platforms that are backed up by a sense of community. These are just social networks designed for developers. The interaction benefits me more". *(DE25)*

"I started by mastering the computer keyboard, which I borrowed from my brother as he only uses it for game playing and watching movies. The Mavis Beacon software was instrumental in that regard. So that has morphed into my daily routine along with solving mathematical problems". (DE06)

5.5.4 Entertainment as an education aid –

Entertainment, like technology, was an essential component of the digital entrepreneurs" learning environment. The *pursuit of happiness* and *Founder* are the entertainment-based reference point for the entrepreneurship learning as found from the data. This discussion spontaneously emerges and not deliberately sought.

DE06 has been a movie lover ever since he was a child. This interest in films helped anchor the enthusiasm for technology, which later transformed into business ideas. It is important to note that his parents are technology averse.

"As a child, I was fascinated by movies and enthusiastic about mathematics. I could remember, by the age of 13 or 14, I would wake in the middle of the night just to watch movies. My interest in technology and computer science was greatly shaped by movies which depict hacking skills and general information technology. (DE06)

DE13 did not discover his passion for movies until he was an adult. He discovered it by chance as a hobby and carefully developed it, as it serves as a learning resource for him. He has watched innumerable films so far, but the few that stand out are *the pursuit of happiness* and *the founder.*

"The movie's title becomes relatable to my condition at the time. I needed something that would cheer me up, so I decided to try it. This is a story of a man living in mediocrity, working as a salesman, and despite facing several problems on every front of his life, he dares to dream big". (DE13)

Another movie he watched which made an impact is that movie called: The Founder:

"I could see this from the beginning of the film when Ray was going to different businesses and speaking with confidence selling his milkshake makers". (DE13)

5.5.5 Library and reading passion

A reoccurring trait among digital entrepreneurs is the incessant desire to read and their awareness of the role and importance of the library. This is perhaps surprising considering how the new digital era is blamed for the continuous decline in reading culture. This informational era, which is lived mostly by digital natives, shows indifference to libraries" existence.

DE10 has a strong interest in books and enjoys reading, despite the fact that she did not intend to pursue information science at university; instead, she planned to study law. Those who want to study law in Nigerian colleges are exposed to a larger body of literature in high school than those who want to study science.

> *"I love reading books; It's natural for me. While growing up, I wanted to be a lawyer and never considered librarianship as a profession till 2005, when I applied for law at UNN. However, the book: Future Shock by American futurist Alvin Toffler is an interesting read". (DE10)*

DE12's reading habit was instilled in him by his mother, who was often engrossed in reading books. He believes constant reading trains the brain for absorption and interaction with information.

> *"We have a home library at home, given that my mum is a medical doctor. One of my favourite novels is Medical Romance. It is a beautifully written workplace romantic story". (DE12)*

DE19 is interested in information-related activities and has a high-quality information search strategy. He questioned whether his passion with finding information a feature was unique to him or shared by most or all digital entrepreneurs.

> *"I read, you know, I do a lot of reading". (DE19)*

DE06 has an inquisitive mind and enjoys exploring on his own. He has a propensity of cross-validating information or knowledge.

"I began to spend more time in the school library, mostly watching YouTube videos,
and as a result, I watched many entrepreneurship videos. It was a very inspiring video.
I became fixated on business videos and, more specifically, dreamers". (DE06)

DE13 has a very uncanny memory, and this is obvious as he recalls passages and quotes from his reading. He enjoys books and like applying the lessons and ideas that come with them.

"But the best input and advice came from Robert. I am not sure if you are familiar
with Robert Greene. He wrote the 48 laws of power and 33 strategies of war and the
art of seduction". (DE13)

5.6 Process of Ideation

The ideation process represents the overall cognitive, physiological and socio-material aspect of ideation. The process of generating and identifying either solely or in an active form is referred to as ideation within the context of this research.

According to DE01, ideas move through stages based on start-up founders' zeal and information gathering capacities. DE20 holds similar view to the position of DE01.

> *"I would say ideas and information exist in an intangible or rather an abstract way. Converting this intangibility to a tangible form demand other skills in addition to informational skills. These skills must be present for business to come into existence otherwise nothing will happen". (DE01)*

> *"Ideas without belief and commitment to make them work will continue to remain as ideas. Actions are what transform ideas into business". (DE020)*

For DE03, information is what animates ideas otherwise are they just redundant thought elements.

> *"Business ideas are just like surfboard; all they need is tides of information to see them sail across the sea". (DE03)*

DE08 believes that not all ideas have a direct path to commercialization. This doesn't diminish the value of any idea, however. Even if the idea can't be turned into a business right away, it can be incorporated into a concept for a business idea in another form. This also implies merging two into one solid workable idea.

> "[Idea] can of course the used as part of an ideas about an idea which can become a business subsequently". (DE08)

DE11 was asked about leveraging current knowledge to expand into similar or diversify into dissimilar businesses. She believes that a person with a wide range of knowledge more easily comes up with new ideas. Ideas are formed when information gravitate.

> *"Knowledge or information is like a watershed or a drainage basin". (DE11)*

5.6.1 Assistive ideation

DE10 notes that ideas are better when they are developed by two or more individuals through co-ideation.

> *"I believe in co-pulling of ideas and opinion. It makes progress seamless and enjoyable". (DF10)*

An idea can be recognized by a single person, but it will be developed in the most effective manner by a group of people according to DE18. This demonstrates the significance of group thinking and joint endeavours more generally.

> *"A business idea is like a problem that needs to be solved. The solution to the problem can be provided internally or externally. Relying on other people to really provide the solution by asking questions or observing. There is this quote that I really like. I don't remember who it is attributed to, but it is a saying that there is no problem that will withstand a constant assault of sustained thinking. It may sound very abstract".*
> *(DE18)*

DE02 also shared the opinion of DE18 when he commented on role of client-assisted ideation.

> *"[clients] have helped in fine turning my outputs, they have challenged to give greater quality, and that has helped me uncover my hidden potentiality and distinctiveness. Client always points you better direction but only if you could harness their complaints and turn it into positive feedback". (DE02)*

DE06, DE07 and DE05 showed the joint and assisted ideation process.

> *"Actually, we started with a friend, who is the co founder called [name withheld], during our undergraduate days. We are kind of people that have a passion for creativity and innovation. We always think about how can we can innovate new things and then how can we sell this creativity". (DE05)*

> *"At that time, the Nigeria economy was bad, a recession like period. As I chatted with my friends about the potency of turning these skills into a source of income. Someone interjected, that he is already into freelancing and Bitcoins trade. So, he introduced me". (DE06)*

"You know some ideas bound to fail while some ideas are bound to work. Like I told you before, most of my ideas came from buyers usually though their suggestion". (DE07)

DE15 was asked about his capacity to create additional start-ups and he responded by saying serial entrepreneurship is about making the most of the already known information. The information search requirement for additional business is not as intense as for new business.

"Serial enterprising is maximising the current knowledge base and being environmentally aware". (DE15)

DE18, an immigrant, believes that a person's level of self-confidence and the size of their social circle are two of the most important factors in accessing valuable information for ideas.

"I believe one of the things that will really expose someone or an entrepreneur to a valuable source of information Is confidence and an expanded Network; what I mean by the network I mean the number of people one is familiarised with". (DE18)

"Ideas are supposed to be a combination of what you already have, and then what other people have. what information is out there and you, you sort of put it together and sometimes you have a eureka moment". (DE19)

DE11 found a mentor from the gay group in which she found herself. In the quest for sexual her exploration, she found her entrepreneurial self.

"That was the new family I discovered. A very empowering one. There is a Women's subgroup within that organization". (DE11)

5.6.2 Obstacle to Ideation

The obstacles pertain to the intricate process of ideation, specifically the generation of viable and innovative business ideas. These obstacles often encompass cognitive and environmental constraints that inhibit the free flow of creativity and strategic thought.

Social Skills and Anxiety

Effective idea generation requires a foundation in social interactions, conversation, and relationships. Individuals lacking good social skills or dealing with social anxiety may struggle to engage in fruitful discussions and may be hindered in generating ideas.

As DE11 notes, *"I would be able to remove my emotions or not to care at all about how people think of me, I can be able to place better queries, questions and to even probe more deeply."*

Negative Mindset and Emotional State

Maintaining a positive frame of mind is crucial for nurturing the mental state necessary for generating ideas. DE12"s experience, shaped by his **mother's** emphasis on avoiding negativity, highlights how a negative outlook can stifle creativity. Negative emotions and doubt can deter individuals from embarking on ventures fraught with challenges, thereby impeding idea generation.

According to DE12, *"Mum always says I should avoid negativity for it destroys creativity. I don't like doubters, pessimist or losers. If I have heard unhealthy dose of start-up failure stories probably, I won't have muster up courage and enthusiasm to start that this journey which is full of challenges, reworking, patience and perhaps bricolage."*

Cultural Identity and Exclusivity

Cultural identity can both facilitate and hinder idea generation. In certain contexts, like that of DE13"s observation in Nigeria, specific tribes may hold exclusive trade ideas. These cultural associations can discourage sharing ideas beyond the confines of one's tribe. Integrating across cultures becomes essential to access a broader range of ideas.

DE13 suggests, *"Social identifiers, including culture and religion, strongly affect the capacity to ideate."*

While cultural identity is often cherished as a social value, its exclusive nature in certain cases can hinder the exchange of ideas beyond a particular group. This exclusivity can discourage the sharing of valuable insights and innovations with individuals from different backgrounds, limiting the overall creativity and potential solutions that can emerge from diverse perspectives. In this context, cultural identity transforms from a social value into an obstacle when it impedes the cross-pollination of ideas across cultures and stifles the broader development of innovative concepts.

Emotional Attachments and Sentimentality

Emotional attachments can pose barriers to generating new ideas. DE17's reluctance to initiate another business venture due to sentimental ties exemplifies this challenge. Strong

emotional connections to ongoing ventures can make individuals hesitant to explore new opportunities, even if financially viable.

> *As DE17 explains, "It is unlikely that I will get myself into other Businesses, I told you before, I have a very strong sentimental attachment to this business do. So, it is not all about the money is about the history. Is about the history behind the history, you know."*

Anchoring Bias and Rigidity

Relying heavily on pre-existing information and clinging to initial ideas can hinder the generation of innovative concepts. DE19 points out that fixation on a single idea can lead to missed opportunities and an inability to adapt to evolving circumstances. Remaining open to new perspectives and avoiding the anchoring bias is crucial for fostering creativity.

> *As DE19 emphasizes, "Keep what you've got and avoided anchor bias. So sometimes, you know, this actually happened in past companies; is that you hit upon an idea, and then you get so fixated on it, that you spend all of your time on that idea, and you read books, and they tell you about holding your nerve. And, you know, It's all about passion and believing your idea will be successful."*

In summary, these obstacles to idea generation encompass difficulties stemming from social skills, emotional state, cultural factors, emotional attachments, and cognitive biases. Overcoming these challenges can empower individuals to develop and explore a wider range of creative ideas.

5.6.3 Ideation Enhancers

DE19 can be described as dogma averse. He believes being different will gravitate one towards new discoveries.

> *"I like coming up with new ways of doing something, I think I don't tend to like following other people's processes". (DE19)*

DE12 thinks his creative capacity has improved because he was forced to think beyond what he already knows by his mentor. Hence making the act of learning and innovating exciting. He has applied this concept in almost all his professional engagement including information seeking.

> *"Often times he would challenge to do things I was not taught to do by him. This has really enhanced my creative capacity". (DE12)*

As evidenced by DFE19"s response, acknowledging the limit one's knowledge which can be a good starting point for information discovery and subsequent ideation. An idea starts at the point when one tries to extends his/her knowledge.

> *"So, I learn by being in project teams, in different companies. And so that's one big input. You know, someone says something, and I think, you know, I haven't, I never thought of it like that, you know, so that's, that goes in now". (DE19)*

Alternatively, DE02 believes formal education would have been a better boost to his ideas owing to the fact that he had not schooled beyond the elementary level.

> *"I believe my lacking in formal theoretical foundation has limited my strategic thinking and innovation. Yes, I might have done better if I had been to proper school". (DE02)*

Parents" knowledge may enhance their children's ability to generate new ideas. DE17, a recent immigrant, is confident that he can draw on the intellectual talents of his mother and father. Perhaps this is an expression of fond memories or a eulogy in their honour.

> *"I would say I would have been a better entrepreneur if my parents were entrepreneurs or well-educated. I believe they would have guided me, given me proper counsel, and set me off very firmly". (DE17)*

There is evidence that a substantial amount of cognitive effort was involved in the pre-idea or idea generation process of DE23, DE26, DE13, and DE14. The pre-ideation stage comprises of experiences and information that later prove to be significant inputs or formative influences on the actual idea.

> *"I took various paths to arrive at decisions or concepts." I am a meticulous and analytical individual. My ideas emerge from a dialogue with my own thoughts. You know, just random thought and connecting dots in the hope of identifying an opportunity". (DE23)*

> *In both the physical and mental senses, I consider myself to be well-versed in the art of organization. I believe I suffer from obsessive compulsive disorder (OCD). I brainstorm slot". (DE26)*

After experiencing abuse at the hands of her husband, DE14 turned religious and isolated herself from society. That time marked the start of the creative process.

> "For about a year I was coding in isolation. I was not even on Twitter that time, but I had faith". (DE14)

DE13 and DE02 are detailed-orientated people.

> "I am the type of person who asks questions. I'm a very curious person who pays close attention to everything". (DE13)

> "Ideas are unarranged information that can be transform into start-ups if focus and context are provided to them". (DE02)

Ensuring the sustained inflow of information will increase the chances of generating new idea.

> "if one is determine to have new ideas or creates something new, then information is the most important resource, not just information but new and constantly incoming information". (DE12)

The accumulation and concentration of information or knowledge would naturally lead to the emergence of new ideas. The birth of new ideas is accelerated by a high concentration of information.

> "Knowledge is like a slope. The more knowledge one possesses, the steeper the slope it becomes". (DE18)

The quest for achievement and excellence ignites ideation generation activities including information seeking activities according DE14.

> "Ambitions drives one to search for information or ideas. And you hardly find anyone that is not ambitious. How we react and handle the consequence of your ambition is what makes a difference in the entrepreneurship journeys". (DE14)

The ease with someone learns new culture put him or her at advantage in gaining innovative ideas from the other culture. DE13 believed among his bilingual friends are ahead when it comes to idea generation.

> "The greatest equaliser here will be acculturation". (DE13)

5.6.4 Adjacent ideation

The generation of a second ideation is considered by DE13 to be a simpler process than the generation of the first ideation.

> "So having existing information or ideas can seamlessly propel you into another idea territory, unlike if the idea is not initially formed. And from experience, a second business usually comes effortlessly, without actively seeking it". (DE13)

Business ideas can emerge from a casual interest one picks randomly and often subconsciously

> "It is very hard to recall this specific information, but I guess my idea came from or is influenced by a number of societal factors including artistic and architectural structures we see every day". (DE02)

5.6.5 Where Ideation Takes Place

Several start-up ideas in Nigeria are linked to incubators and learning groups according to DE01. His ideas are shaped and honed as a result of his involvement with innovation hubs and incubators.

> "Incubators provide that critical space where the necessary interactions can happen. They also provide space where start-ups can manage their costs to get off the ground. In Nigeria, for instance, running a business is a challenge because the Internet is still phenomenally costly". (DE01)

socialisation can be a the source of innovation idea going by the story of DE03, DE14 and DE16

> "the idea or story behind DitchDebt friend when I visited her. She was a call centre agent for one of the telecom companies. We were talking about money issues, family, and relationships. She reached her shelf and handed me a book called Clever Girl Finance. It is a financial literacy book that helps educate tech savvy women about

finances in order to achieve financial independence. That book was an eye opener and has made read more and money and finance". (DE14)

"I came across Bitcoin through a friend during my undergraduate years in the university. I went to secure a personal loan in order to pay up my tuition fee. Our conversation gradually delve into investment and other financial inventions where he did mention of Bitcoin and blockchain". Conversation and meetups with likeminded people would have definitely increase the quality of my ideas. Funny enough, I do believe the law of diffusion also applies to ideas". (DE03)

Quietness and solitude stimulate idea production for entrepreneurs. DE19 and DE05 ideate mostly when they are alone or undergoing a moment of deep reflection.

*"**I've** never actually had a decent idea of sitting in front of my computer. I always have them when I'm out walking. But then that's almost a simulation, you know, you need to sort of downtime to try to simulate everything that you've heard, read, seen, done, trying to, put the jigsaws together". (DE19)*

"I can remember the moment I started to meditate about the idea was one fateful day, early in the morning hours, around six o'clock AM. I woke up from sleep, and I was beginning to get up and set off for school". (DE05)

DE09 picked his first business with reading when he was a little child.

I found a book on my classroom desk called Rich Dad Poor Dad. That is where it all began. Although the book story was based on a real-life story however in my case, it is like a fiction turned reality.

5.7 Collaboration and partnership

According to empirical data, it is common practice among digital entrepreneurs to collaborate to gain ideas or seek assistance. Several perspectives about this mutual assistance between entrepreneurs have been reported. Two ideological camps exist; those who reported positive effects of collaboration and partnership hence regards them as essential and those that showed scepticism hence advocate caution in implementing them.

DE11 prefers collaboration to partnership because partnership will give away your private information because it requires working with the partner for a very long or unforeseeable future.

> *"I'm inclined for collaboration, but not partnership. This is because I'm a very privacy-oriented person". (DE11)*

Operating a business becomes significantly smoother when one is able to connect with someone who resonates on the same entrepreneurial wavelength. Being in sync in this manner facilitates better understanding, quick decision-making, and a more efficient execution of business strategies, thereby reducing the complexities often associated with managing a business:

> *"I have like-minded associates. We have common thinking patterns and behaviour. We flock together mentally". (DE13)*

DE13 and DE19 are concerned that partners might have ulterior motives.

> *"Some [partners] are just spy cameras, preying on your ideas and camouflaging as partners. I prefer mentors to partners. Especially post ideation partners, I have trust issues with them". (DE13)*

> *"And then there are others, where they realize that they can just get a head start by getting you involved. So you have to make judgments, partnerships and things like that takes an enormous amount of energy". (DE19)*

Similarly, DE02"s view is giving people a head start means they can get a jump ahead oneself. keeping the inception and growth of your idea under wraps until your business is ready to launch is a good strategy. Smaller and similar businesses cannot prosper if located within close proximity of each.

> *"I believe isolating yourself will not make you more successful. Whether or not one shares his ideas with others". (DE14)*

DE18 believes it would not have been possible to set up and run the business were it not for the help from others. The voluntary mutual help from others grew into formal partnership, though this was subsequently dissolved.

> *"This type of business is a group idea. It will not be possible for a single person to really come up with".*

DE23 expresses concern over the hesitation shown by junior colleagues or mentees when it comes to offering advice or engaging in collaborative efforts. This reluctance poses a challenge for DE23, who values the mutual exchange of ideas and teamwork as integral components for success and innovation in the workplace.

> *"I dislike it, but it happens frequently to me: my colleagues or former mentees are occasionally reluctant to share their perspectives with me or to give me advice simply because they believe I am professionally senior. The truth is that I enjoy exchanging ideas, and new information always pushes me forward". (DE23)*

On the other hand, DE24 is driven to collaborate primarily by the prospect of gaining business intelligence. For DE24, collaboration is not just about teamwork or shared goals; It's a strategic move aimed at acquiring valuable insights that can inform better decision-making and give an edge in the competitive marketplace.

> *"I am interested in what is going on in other business. I would like to know where they are, which is why collaboration is sometimes beneficial. because it provides me with information that will allow me to strategically plant myself". (DE24)*

Collaboration gives smaller business access to bigger market while remaining small and also make ideas visible for acquisition for entrepreneurs that wants their business sold, according DE19.

> *"In fact, some tech start-ups have no ambition to ever produce something that is profitable, useful, and their goal is to get to a point where they can be bought. So, having some potential competitors knowing about you [is important]". (DE19)*

DE19 emphasizes the transformative role that social platforms can play in the business landscape, particularly in fostering collaborations. According to DE19, social media is not merely a tool for marketing or communication; it serves as a robust enabler for forming partnerships and collective endeavours.

> *"Things like LinkedIn are enormously powerful because they, they push things too, you can create your network and you don't be too narrow. And you get pushed things that you would never have searched or found".*

Several participants reiterate the importance of collaboration in order to improve business success mainly because of complexity of the technology and business environment.

> "*But one of the major things I want to say as regards starting a Fin-Tech company is regarding partnerships. So there is no way a single player in the Fin-Tech space can work in a solo form without working with other key players". (DE04)*

> *"[if] you want to establish an e-commerce business, if you meet me, I can be able to give you the steps. But if you were to do it on your own, you may likely encounter a setback". (DE06)*
> *"We digitise farm plots. So that they too can have titles which they can use it as collaterals. This was done in collaboration with state government because they are a relevant authority to issue certificate of ownership to this farmers". (DE12)*

DE07 believes an entrepreneur needs only join forces with compatible business partners. As a group, we'll be stronger and better able to tackle these issues. Therefore, maintaining connections within your professional network is preferable to isolating yourself.

> *"You just have to pair up with business partners. We need to come together to be able to solve some problems. So the benefit of staying close to your business community outweighs the benefit of going into isolation". (DE07)*

5.8 Entrepreneurship

This section of discussion delves into various themes surrounding entrepreneurship. The first theme is the traits that successful entrepreneurs tend to possess. It is widely acknowledged that successful entrepreneurs are characterized by traits such as passion, creativity, perseverance, and risk-taking. These individuals are often driven by a vision that they believe can change the world, and they possess the determination and resilience necessary to overcome the many obstacles that they will inevitably face along the way. This section also discusses the informational challenges that entrepreneurs face including aspects such as marketing, branding, as well as potential solutions to these challenges.

> **The soldier**
>
> He has exhibited a range of positive characteristics commonly associated with successful entrepreneurship. These traits may include traits such as creativity, resourcefulness, resilience, leadership skills, a willingness to take calculated risks, and the ability to adapt to changing circumstances. By performing highly against these traits, the person has demonstrated a strong potential to succeed as an entrepreneur. He is a well-versed entrepreneur having acquired two university degrees.

Pen Portrait 4: Soldier

5.8.1 Entrepreneurs" traits

According to what the empirical data revealed about the entrepreneurs" defining characteristics, there is a wide range of mindsets and characters they possess. The most prevalent is a strong drive for success, resilience, adaptability, and mental awareness.

In terms of entrepreneurial traits interviewees DE10 and DE26 describe how they have maintained their entrepreneurial spirit over the years through strong passion.

> *"We're still looking for books, and editing them hasn't been easy, but my passion for literature keeps me going". (DE10)*

> *"There is no better energy than passion. It catalyses or soften all the challenges". (DE26)*

There is a strong desire for success, which is DE14's primary motivation.

> *"Ambitions drive one to search for information or ideas. And you hardly find anyone that is not ambitious. How we react and handle the consequence of your ambition is what makes a difference in the entrepreneurship journeys". (DE14)*

DE15 demonstrates unwavering conviction, self-confidence, and a willingness to take risks.

> *"I believe I can be successful in every aspect of life I set my foot on. Military life is hard and involves a lot of sacrifices. My dad would, every now and then, remind me about the risk of being self-employed…but I would tell him there is a greater risk of not investing". (De15)*

DE11 describes herself having an inquisitive mind and a strong sense of individuality and autonomy. *"I'm the type of person who asks questions".* Although these characteristics might be stemmed from her solitary and persecuted lifestyle.

> *"I'm a very curious person who pays close attention to everything. My motivation or inspiration is simple." (DFE11)*

DE09's life is comparable to DE11's in that he also lived an isolated life. His socially withdrawn lifestyle allows him ample time for reflecting thinking and brainstorming.

> *"I am a very quiet person, well, especially these days. I tend to seek information or rather my moment of ideation is usually when I am alone, and that usually happiness in the night". (DE09)*

When asked about how they responds to structural changes, participants demonstrated combination of both mental and practical flexibility.

> *"Adapting to circumstances perhaps is one of the important traits or skills a digital entrepreneur should have". (DE12)*

DE05 employs his bricolage skills by repurposing and utilizing a mobile phone for professional photography.

> *"The challenge we had was that we don't have capital and tools. We only had phones; it was iPhone six". (DE05)*

DE12 is a highly adaptive entrepreneur.

> *"Adapting to circumstances perhaps is one of the important traits or skills a digital entrepreneur should have. The environment is dynamic, information flows faster so is easy to get lost and become uninterested". (DE12)*

In terms of entrepreneurial trait of reliance, interviewees spoke of DE09 has a strong endurance spirit and has overcome adversity early in his life.

> *"I was spartan and rugged. I took this doggedness to elementary school and converted it into forte. Even though I am not proud of my childhood days because they were laden with crimes and chaos". (DE09)*

When asked about how they came about their business idea, participants overwhelmingly cited being environmentally aware and consciousness.

> *"We identify that there is an outcry from the Nigerian community about the exorbitant photography rates charged by the Sudanese people. We learn that there are not many photographers in the area we live especially within the Nigerian community". (DE05)*

> *"I stayed keen and observant and eventually I spotted an opportunity. It was a short-lived opportunity, though". (DE09)*

> *"We identified a market gap and were confident in our ability to capitalize on it". (DE16)*

DE02 only had a primary education. He prefers moments of solitude and introspection. His entrepreneurial ideas grew out of his curiosity and were developed and refined when he met more experienced people in the technology sector.

"I never purposefully reached out to people to seek for information regarding my business idea. However, I take advantage of passive encounters with people that I believe they are in the know pertaining my business idea". (DE02)

DE05 and DE22 entanglement with technology can be observed through their passion for the internet, digital toys, and computers.

"I am a computer freak right from childhood. I like going to the internet cafes and doing things. So actually, is the passion that drives". (DE05)

"I grew up as a digital native, having been exposed to the internet and electronics as a child". (DE22)

DE06, DE05, and DE22 demonstrated their self-education and coaching efforts.

"I am a self-learner and I believe It's God Almighty who gave me these talents because sometimes I would not know how I came to know about some things". (DE05)

"Because I am kind of person that loves a challenge, I further trained myself by covering the Degree syllabus ahead of time". (DE06)

"I bootstrapped. I owed most of credits to myself". (DE22)

5.8.2 Entrepreneurship challenges

This subtheme discusses the challenges confronting the digital entrepreneurs or the start-ups. These challenges are explained under structured headings namely: *analytical, structural, sociocultural, informational,* and *operational issues.*

5.8.2.1 Analytical issues

DE26 had an irrationally high level of confidence in the commercial viability of his idea. His idea would have grown steadily if he had taken a more reasonable approach to commercialization. In his view, being ambitious and confident in business is nonetheless a good thing.

> *"I was caught up in a state of euphoria that kept me insulated from the practicalities of the market and reality. I had suffered a number of setbacks that were nearly fatal to my plans. In the early stages of my entrepreneurial journey". (DE26)*

DE23, Success can be thwarted significantly if the type of idea an entrepreneur incubates isn't recognized and understood. Different ideas (demand driven or founder driven) necessitate different approaches and have different consequences.

> *"often times entrepreneurs appear unaware of the type of idea they nurture. Whether the idea is being push by their cognitive mind or driven my market needs". (DE23)*

For a start-up to be successful, its founders must share the same level of enthusiasm and dedication. Difference in zeal and commitment between partners can be detrimental to the survival of a business, particularly in its early stages.

> *"It takes patience to scale up as a start-up and that, you know, entails personal sacrifices. If your partner is not capable or perhaps unwilling to be there for the business, the business will cease to work". (DE25)*

In terms of entrepreneurial success, it "*takes more than courage and resolve to succeed"* According to DE11 and DE12. a business "s success is contingent upon the founder's level of self-assurance and discernment.

> *"In my personal opinion, one of the biggest encumbrances to achievement is self-doubt or lack of self-confidence". (DE11)*

> *"Entrepreneurship is hard, and it takes more than courage and resolve to succeed.*
> *Even though start-ups may fail but entrepreneurs not. It is an infinite learning path*
> *for them". (DE12)*

For DE13, confidence is not just an admirable quality, but one that they deeply cherish and consider instrumental to their success. This self-assurance serves as a cornerstone, influencing various aspects of their professional and personal life.

> *"Again, one quality that Ray Kroc did not lack was confidence. I could see this from*
> *the beginning of the film when Ray was going to different businesses and speaking*
> *with confidence selling his milkshake makers". (DE13)*

Similarly, DE08"s absent mindedness had an opportunity cost he believes.

> *"I was not paying great attention when the social media revolution was disrupting*
> *lot of business and creating new opportunities as well. I was stuck in old ways of doing*
> *things". (DE08)*

One of the reason people opt for public service is because they cannot deal with fear and anxious that come with entrepreneurship. So entrepreneurs should not be risk averse.

> *"Many people are afraid of starting a business fear they might fail or perhaps they*
> *see government work as easy way to make money, particularly in organisations*
> *military". (DE15)*

DE06 believes that a lack of external support can reduce an individual's internal motivation.

> *"The level of commitment and support from my family has hindered me from*
> *executing a particular business idea". (DE06)*

5.8.2.2 Structural issues

One of the major challenges that affect start-up generally in Nigeria is the fractured digital infrastructure. DE22 believes she would be taking a big risk if her ideas and plan are based on insufficient information. Profitable ideas are those supported by market intelligence according to her.

> *"There is no single entity that feeds my Informational needs. We as entrepreneurs*
> *cannot draw operational insights from the existing information structure because*
> *information sources are siloed and coming from a variety of sources". (DE22)*

One of the challenge of start-ups in Nigeria is lack of government support or patronage. The lack of adequate funding also leads to the inability to bring a product to market quickly enough for it to be sustainable and get that first set of users.

> *"Unfortunately, a year after we created it, the government stopped using it. The impact of that platform was totally discarded. Not being able to get funding is one of the reasons why tech start-ups here die". (DE25)*

It is costlier to stay online than to stay under a roof. The cost of internet is a significant portion of most people's earnings. So, while the internet is one of the most important tools for digital entrepreneurs, it competes with other life necessities. This addresses the issue of affordability while also capturing the realities of the digital divide, DE10 believe.

> *"The amount of data necessary for uploading these books, book covers, and other material is substantial, and the cost of internet data in Nigeria today is out of this world" (DE10)*

The public sector governance is linked with various problems, including abuses that hinder the success of start-ups. One example is corruption committed by public officials, which has led to the closure of DE12"s start-up. This implies that not only do start-ups require supportive policies, but they also need accountable officials to thrive. Moreover, other governmental issues, such as regulatory challenges, also pose obstacles to innovation and entrepreneurship. For instance, rigid laws that are not in tune with modern work cultures can limit progress. Additionally, existing laws prohibit civil servants from engaging in any economic activities apart from farming, which can further restrict opportunities for start-ups.

> *"Corrupt officials cannot be able to quicky write off debts or termed them as bad because doing so will expose their inefficiency or complicity with the defaulters. So we are being frustrated and pushed to the side". (DE12)*

> *"I wanted a life in which I would have a lot of say in personal circumstances, but as a soldier, you abide by rules and instruction, and this stifles individual creativity and innovation". (DE15)*

"Major challenge we had as regards regulations is how strict those regulations are. They tend to set a very, very high barrier of entry for people who want to go into the Fin-Tech space". (DE04)

5.8.2.3 Social and cultural issues

Start-ups looking for international collaboration must also take into account cultural differences between their home country and the new location they want to transplant their themselves owing to the variation of cultural norms might affect customers" preferences and taste.

"International investors often believe they can transpose a successful western product to Nigeria and expect to replicate their success in the African market. The environment, the people, the cultures vary in their own way from country to country". (DE01)

When asked about other problems, participants overwhelmingly cited a combination of cultural problems. "*Things that you consider normal or rational may really be offensive to other people, their names of people that are very senior to you. They consider it very immoral and disrespectful".* It takes longer for immigrant-owned businesses to gain traction because their owners must first learn the cultural etiquette. This helps them build customer base and win social acceptance for their business.

"Cultural barriers can really metamorphose into a big business problem (DE18).

"I realized was that people are not only lacking in information regarding "alternatives" but also, they are structurally inhibited by the broader system – culture and practice". (DE02)

"Most Nigerian e-commerce websites are not tailored to the type of users they serve. They are west-centric in their approach. most sites will require the user to supply zip codes which the Nigerian addressing system does not use". (DE06)

5.8.2.4 Informational issues

DE11 recognises the harm misinformation or disinformation, or low quality and unreliable information would do business that is why one participant preferred to pay for.

"One has to be careful, surely with information, because once the information is free, it can be misleading or deceitful marketing information.". (DE11)

Timely information can make a difference according to one participant.

> *"Not all business collapses are due to a lack of access to the right information, a significant number of failures result from not knowing the right thing at the right time". (DE13)*

Data showed that people lack the necessary knowledge about information, and its capabilities. The duality of data's role makes it versatile for use – both an input and output. However, people are yet to discover data as being a resource and a product as well.

> *"We are facing some issues still given that some people don't want the data as a product or resource rather. They don't really see value of the data or what they can do with it". (DE12)*

To determine if It's time to move onto another business, entrepreneurs should make sure they don't fall prey to anchor bias, as outlined by one participant. Anchoring bias occurs when people rely too much on pre-existing information or the first information they find when making decisions.

> *"So sometimes this actually happened in past companies; is that you hit upon an idea, and then you get so fixated on it, that you spend all of your time on that idea, and you read books and they tell you about holding your nerve. And, you know, It's all about passion and believing your idea will be successful". (DE19)*

Delegation of information may be detrimental to business if done incorrectly.

> *"Deciding on whether to delegate or not depends on one's susceptibility to injury from abuse or misuse of that information". (DE14)*

Spatial information, clients" information , market intelligence, are difficult types of information to obtain. Spatial information is data about physical locations such home or office address or a clear delineation of commercial or residential areas. Tying customers to their spatial information is a critical input for some type start-ups.

"The information I find hard to get is about determining the current demand or preference of the customers or consumers. Is hard to get grasp of what people want at a particular point in time". (DE08)

Customers have been unfairly empowered in terms of information by technology. Customers" ability to learn about a company's costs and margins has made pricing decisions more difficult.

"There is also the issue of transparency. There are situations when consumers or customers would want to buy products directly from suppliers". (DE06)

5.8.2.5 Operational issues for entrepreneurs running their business

In terms of operational issues, some relate to staff recruitment. Hiring challenge exists given It is difficult to put together an efficient team that shares the same values as the founders. Start-ups are at risk of extinction for their tendencies to hire relatives as employees who lack the passion, zeal and competence to compete.

"Newly hired programmers can keep the current system running smoothly, but many of them lack the passion and innovative spirit needed to improve it. A few large software companies have gone bankrupt due to incompetent management. The successors lack the necessary technical background and experience, (DE16)

Due to the rapidly changing environment, start-ups must embrace the spirit of learning; however, DE19 believes that organizational learning is more difficult for larger organizations.

"The fintech industry is rapidly evolving and changing. It is critical to continue learning. Humans are an important factor in the long-term viability of a business". (DE16)

Given that the product or service has not been tried or used by a sizable number of clients, novel concepts (products or services) typically do not create adequate information. This would restrict the feedback data that may otherwise be used to improve the product or service.

"My services I delivered are usually novel. Novelty can be a mystery for customers. They might not fully understand the idea let alone to spot flaws or rather suggest any improvement". (DE09)

5.8.3 Solution To Start-Up Failures

Solutions to start-up are the perspectives reported by the participants on the possible ways they believe entrepreneurship failure can be minimised or eliminated. There are five dimensions to these proposed solutions.

5.8.3.1 Operational

Market research should one of the first effectuation activities to be conducted the by a founder. Effectuation is a logic of thinking that helps entrepreneurs in starting businesses because it provides a way to control a future that is uncertain.

> *"Ideas are great, but before committing massive resources to the business, test your concept against the market. It may surprise you to learn that a good idea may not be viable". (DE22)*

DE24 and DE01 believes introduction product quicker the customers help cuts spending on non-core process. This involves developing products that consumers have already demonstrated they desire so that a market will already exist as soon as the product is launched.

> *"Most energy is spent on activities that would make development time shorter and reduce the length of time spent evaluating results. It is the best way to survive on small budget". (DE24)*

> *"Start-ups in Nigeria and in most parts of Africa are just starting to apply the Lean Start-up method. We often focus on building a product, only to realize that it is no longer the best fit for the market" . (DE01)*

5.8.3.2 Informational

Collaborative use of multiple information sources can compensate for or eliminate the risks associated with reliance on a single source of information, the quality of which might be low.

> *"Queries can be answered by google or the internet. This deluge of information offered answers to many questions but also raised other questions. What about requests for information that are tailored to your individual context, requirements, and objectives. And that where is where mentors come in". (DE23)*

Business should convert data into information so as to the enhance decision making. This involves performing additional operation and analytics on the data to extract more value.

> *"We need to take full advantage of data as well to improve our chances of success".*
> *(DE01)*

DE14 suggests learning from the experiences of other founders to help avoid making the same mistakes they did.

> *"I like reading about people's business failures and miseries and how they stood up and turn around the bad situation. That always give me courage and greater insights about what I should be doing and things that I must avoid". (DE14)*

For founders to reduce risk, they need to learn more, which usually means taking in more information according DE14.

> *"Information will lead to a greater understanding and a reduction in uncertainty. Reduced uncertainty lowers risks and raises assurances and vice versa". (DE14)*

A fad is a great source of ideas according to DE06, and he regrets not taking advantage of previous opportunities. There is great learning opportunity in any form of collective behaviour that develops within a culture or social group in which a group of people enthusiastically follow.

> *"I will stay relevant to whichever widely shared enthusiasm is out there – there is great learning potential in them". (DE06)*

Being noetic brings extra mental clarity and thus it significantly improve problem-solving and ideation strategies. DE25 agrees that while creativity can be innate, it can also be carefully fostered through focused thinking.

> *"One of the ways to gain entrepreneurship success is to be rationally unusual in problem solving and idea generation. You don't have to a genius to be creative although is simpler you if you are one". (DE25)*

5.8.3.3 Social

Social integration should be a core competency for immigrant-owned businesses because it improves access to information. This is because they mostly seek information through informal sources. Thus, their acculturation journey can enhance information seeking by removing social or cultural barriers. Similarly, diasporic communities can help local businesses tap into foreign ideas because of the interaction with the host community or perhaps through acculturation too.

> *"The greatest equaliser here will be acculturation. I believe blending and learning about other people's cultures will remove informational barriers to access. I say that some of my bilingual friends have the edge over me when it comes to gaining access to and seeking information". (DE13)*

> *"We started socializing widely, trying to get know more people as possible. Going to events and other social gatherings. That is how we networked and strengthen our social capital". (DE05)*

> *"Also, diasporas generally have a global perspective on how to succeed and how to build a company; they can bring this perspective to our operations". (DE01)*

DE12 argues the benefit for intellectual diverse teams which promotes knowledge transfer through interactions as well reduce human resource challenges.

> *"Because of the interaction and cohesion, knowledge or information will gravitate, levelling up the entire knowledge base of the group. So one can find himself doing things that he or she was not originally trained to do.." (DE12)*

DE19, In the early stages of a company's lifecycle, the founder's personal network can serve as a valuable source of initial clients. For DE04, belonging to a community of practice group elevate creative one's capacity and thus enhance good decision making ability.

> *"So, I think when you start your own business, you always initially leverage your existing networks". (DE19)*

> *"The concept called Community of Practice, foster innovation and mutual help. So if I had known this idea of leaning. Perhaps I would have come with better or more ideas". (DE04)*

5.8.3.4 Customer oriented

 "Customer first, money second" is a widely held belief among digital entrepreneurs that has contributed to their increased success. It is critical to prioritize clients early on and not be excessively obsessed with margins. Customers" feedback is an invaluable source of information. This data can be utilized to improve or generate fresh ideas. Not only that, but according to the research participants, customers are also crucial for long-term income growth if they opt to refer others.

> *"Rather than cramming my own team and delivering a subpar project, I decided to hire outside experts. Despite making less money, I gained the respect of my customers as well as knowledge and intellectual property of the particular software package".* *(DE16)*

> *"That's how we learn, and you normally end up with a better business if you incorporate feedback". (DE19)*

> *"Customers are critical to our success. We wouldn't have come this far if not for the customers ". (DE18)*

> *"Once you have established a business relationship with someone, there is a tendency that he or she will always come back or at least refer someone to you". (DE06)*

5.8.3.5 Marketing

There several ways to promote business visibility according the research participants – using the right technological tools, laws as well as using enticing incentives.

 Freebies proves to be an effective marketing technique in building customer base.

> *"We started giving free services, getting more attention. People started patronizing us after seeing our quality services, better that the paid services ". (DE05)*

> *"I use my blog too, combine with research I'm doing, sort of gradually creating awareness of what's possible. And I give out lots of things for free". (DE19)*

In terms of protecting business from competitors, participants believe is crucial "*registered trademarks, fastened patents, create a blog, be quite active on LinkedIn, create a bit of a buzz about what you're doing giveaway some stuff". S*uch action would bring attention to the start-up, which is both unintended and desirable.

> "*I would say, right from the beginning, make sure you've got some patents". (DE19)*

DE05's statement encapsulates the integral relationship between innovation, creativity, and branding in today's business landscape.

> "*We always think about how we can innovate new things. And then how can we sell this creativity. Because, you know, these days, whatever you are doing branding matters". (DE05)*

When asked about ways for promoting business, participants overwhelmingly mentioned "*utilizing various channels such social media" and "through let's say, bloggers"*. This marketing campaign are executed using personal social media accounts or employing the services of professional.

> "*I can create more awareness about my business through let's say, bloggers. And this will enable my business to explore more. My business could have improved or grow more if it were to say, I open an Instagram page, or Facebook page to actually connect with more people". (DE06)*

> "*When it comes to publicity, the truth is that the niche is limited, and finding the correct audience hasn't been easy, but we're moving forward by. (DE10)*

> "*Instagram is becoming more popular than other social networks, growing everyday with lot of it users doing fairly better economically". (DE14)*

5.9 Role of Information

Empirical findings show a variety of dimensions or functions performed by information. In other words, the different perspectives digital entrepreneurs view information. These dimensions are the perceived usefulness of information to both the entrepreneurs and to the entrepreneurship as well as to the process of idea generation.

5.9.1 Importance of information to entrepreneurship/entrepreneurs

"Business relies on information. Information helps to solidify ideas and deepen knowledge". The quality of an idea depends on the quality of information it was rooted. Great ideas are foundation of good business. The significance of information also depends on how timely it was discovered and used. The currency of information remains as vital as the information itself.

> *"A well-functioning information structure is critical to the success of any business, whether it is based on human sources or technological. Information will lead to a greater understanding and a reduction in uncertainty".* (DE15)

> *"Information is very vital to very human endeavour, and as the popular saying goes information is power. I believe start-ups are founded on the bed of information".* (DE02)

> *"Business is all about information; the timing of such information can be a significant differentiator. Anyone in business is also involved in the information businesses.* (DE13)

> *"Business or entrepreneurship is about utilising information on time and in the right place".* (DE18)

> *"An idea is information. I don't think you can start any business without information".* (DE19)

> *"Business ideas are just like surfboard; all they need is tides of information to see them sail across the sea".* (DE03)

> *"Those entrepreneurs that know early will have a magnificent edge over their competitors".* (DE14)

5.9.2 Importance of Information to Ideation

The process of ideation largely relies on the synthesis of available information and knowledge. The relative abundance or adequacy of the information aids the synthesis process.

> *"Ideas are supposed to be a combination of what you already have, and then what other people have. What information is out there and sort of put it together and sometimes you have a eureka moment". (DE19)*

> *"The value of information depends on what you make of it. It can be an enabler of success, or an impediment to greatness". (DE11)*

5.10 Information Behaviour

This empirical data sheds light on how digital entrepreneurs find and use information in a variety of circumstances and formats. This observation encompasses not just information seeking, access, and retrieval, but also information overload, information poverty, and how digital entrepreneurs use information.

5.10.1 Information Seeking

Information seeking is frequently used as an umbrella term to describe a variety of similar ideas and situations pertaining to how individuals begin the process or activity of seeking out information in both human and technological situations. Many varied answers to the questions posed to digital entrepreneurs were obtained. These responses have thus been described by the participants as cognitive exercises, social and cultural exchanges, and specific strategies used when faced with uncertainty.

DE09 explains how he goes about finding information. It is a non-procedural and randomized, haphazard method of searching that is similar to foraging.

> *"It is a kind of broad unsystematic search for information. I utilized the information I have rather spend time worrying about the information I could not get". (DE09)*

DE19 believes that successful ideas are often the result of a hybrid approach that combines personal expertise, the insights of others, and a broader understanding of market trends or customer needs, occasionally leading to breakthrough "eureka" moments.

> *"Ambitions drive one to search for information or ideas. And you hardly find anyone that is not ambitious. How we react and handle the consequence of your ambition is what makes a difference in the entrepreneurship journeys". (DE14)*

DE15 prefers the internet as the source of information, although he also likes the human involvement as mediators to enhance his search information experiences. The human involvement accelerate the contextualisation and tailoring of the information for better utilisation.

> *"After having varied opinions or facts, is to assemble them and observe their dispersion; a kind of rearrangement and comparing them brings out the best. The*

internet also exposes to a large amount of important but unfiltered information. Talking to people gives a directional and tailored piece of information". (DE15)

DE18 believes that information access is dependent on Users' digital literacy. The ability to perform such tasks reduces the requirement for human anchors. The inclination to reject human anchors in information seeking may be related to immigration status. Human anchors are those that provide social or cultural aid particularly language support such as translations services for especially the immigrants because of their integration difficulties. According to one participant, indiscriminate information searching can yield valuable information.

"I believe I have concluded that there is no better place to find information than the Internet. People are important too. However, the amount of information the Internet holds is beyond measure. It is far greater than what human capacity can hold. So, understanding how the technology works is the prerequisite to accessing the information resident there. Technical knowledge is required." (DE18)

DE19"s creative mind steers his information-seeking and usage behaviour. He believes ideas are found in the information one gains from people in social contexts and from the discussions and interactions one holds with others. DE19 has versatile information search skills and enjoys directionless or aimless information searching, in a manner they describe as immersive.

"I search a lot, sometimes with no aim. Creativity, I think It's about making connections. I think if you immerse yourself in any information, you, you'll increase the chances of being creative. So, I read a lot about what's going on in a broad area. (DE19)

DE04 is a highly technical and analytical individual with a socially outgoing personality. His capacity for articulation is demonstrated in this effective search results.

"How one fully articulate the needs goes a long way in helping him/her finding the right information. The most important aspect is the articulation. This because information resides externally from us. For us to access it, we must be methodological and logical. (DE04)

DE09 conducts an aimless search for information without a prior or predefined goal. Only as the search moves forward or based on organic output does the search focus become obvious.

> *"My way of searching or my perspective about information may not fit within the context of this question. I engage in a technique which likens foraging or rummaging – it is a kind of broad unsystematic search for information. I utilized the information I have rather spend time worrying about the information I could not get". (DE09)*

Both DE24 and DE26 recognises the human-centred influence on the type and quality of information they are disposed to obtain. In other words, personal contact might drive or affect, to an extent, the information search.

> *"Well, I stay with a company that shares my interests, thoughts, or energy because it is simple to locate the information I require. The information or knowledge advantage one gains is determined by the type of circle one maintains". (DE24)*

> *Social networks are primarily used for fun. They can have an impact on what we can learn or discover. Friends or individuals, including the media, have an underappreciated influence on our cognitive process. Focused people are picky about who they associate with and what information they seek. (DE26)*

5.10.1.1 Information seeking skills and information literacy

DE17 hinges information seeking efficiency on cognitive information processing capacity.

> *"The best way to look for information is to build the right mindset. Be adaptable; be formless, meticulous and patient. Have an excellent memory and reflect immediately on responses or feedback. These qualities will help you when information-seeking. Other strategies may include seeking information if it is essential, even if you don't require it at that moment". (DE17)*

DE18 believes "understanding how the technology works Is the prerequisite to accessing the information". Various skills are needed including keyword formulation skills and using human support to complement the void in search skills in order to achieve successful search process.

"Technical knowledge is required, such as knowing keyword combinations and the nature of the information being sought. So, you can use the internet in collaboration with human sources or informal sources of information, with one can complimenting the other". (DE18)

Both DE19 and DE18 imply that those who search for information, not as a chore, and frequently engage in searching are likely to find the desired information quickly. Because of his highly sporadic interests, DE19 uses non-linear information search, which may be influenced in part by his drive for constant creation of ideas.

The frequency of your searches is directly proportional to the amount of information you can get. Gamify The Information search, and you'll find useful information returning to your doorstep". (DE18)-

"I search a lot, sometimes with no particular aim, roughly. I hop from one place to the other, you know, It's just my need changes. I often use image search because I can stumble across information that I won't find just using text search - It's quite good for *serendipity". (DE19)*

5.10.1.2 Affective responses to the information search process - Feeling Anxious

DE08 believes that affective influences on the cognitive process creates a significant obstacle to information seeking. He particularly cautions that extreme emotion affects the absorption or interpretation of information.

"I think the biggest factor that inhibit information flow is oneself. I think is all about mindset or having the right psychology of finding". (DE08)

In some cases, the participants have exhibited attitudes could be described as uneasiness and apprehension, or even fearfulness.

There is an initial sense of worry, followed by fear because of the lack of information as mentioned by DE15. His fear is about potential business losses when uncertainty engulfs decision-making times. He believes reduced uncertainty minimises risks while increasing assurances, and vice versa. The participant was rendered uneasy when he is presented with an overload of information.

"I get stressed whenever I am unable to digest the information. I get worried about it. I can also say feeling at ease, or relaxed means seeking more information, seeking more knowledge or exploring new ideas". (DE15)

"People are afraid that simply talking to strangers will reveal vital or sensitive information to criminals. As a result of the security risks, people are generally hesitant to approach strangers". (DE17)

According to DE16, an urgent need for information puts an information seeker at a disadvantage and might lead to a loss of self-esteem and the searcher feeling "*anxious and embarrassed*" if the needed information is not found.

"Finding an immediate solution to a problem is always discouraging. It will put you on the spot to find information in order to make a decision…one thing that send shivers down my spine is knowing I know nothing about what I am about to be asked. Lack of knowledge about obvious things in business makes me feel uneasy. I hate being clueless, it leaves anxious and embarrassed". (DE16)

DE18 is someone that can be described as timid and who lacks the fortitude or mental strength to absorb negative information. This attitude can perhaps be described as anticipatory fear, which might signal behaviour such as information avoidance. He goes on to define anxiety as a form of energy that may also be employed productively.

"From the time I would place a query to the time when the answers or information will be available. Usually, give me a feeling of nervousness or feeling unrelaxed? Because I don't know what to expect, it can be anything positive or negative. I don't really handle negative information very well". (DE18)

DE19 believes that when becomes overwhelmed with uncontrollable emotions when aware of a lack of knowledge or information and that particular feeling generates anxiety and a desire for more information. Like DE18, he also believes anxiety motivates people if appropriately managed.

"If I get overwhelmed with an area, it sorts of the sometimes what it makes me realize is, I don't know as much about this area as I did. And I'm there I then have a burning

desire to reduce that. And so sometimes it makes me a bit more anxious. Most of the
time we search to reduce some level of uncertainty. And It's mostly one of the key
drivers why we seek information to reduce some level of uncertainty. (DE19)

Knowing one's strengths and weaknesses or "*metacognition*" (DE19) as a learner is one of the important skills or mental qualities that entrepreneurs must have, according to one participant. This trait can assist entrepreneurs in maximizing their abilities and minimizing their limitations.

"I think the reflective processes of being self-aware to sort of understand where your
weaknesses are, I think is key for an entrepreneur". (DE19)

Searching for information causes a range of feelings such as nervousness, delight, euphoria, hopefulness, and dejection. There is an initial drive to find information, but you will be disappointed if you are unable to do so. However, knowing that obtaining the desired information is within the realm of possibilities will foster tenacity. Finding the information will make searchers feel accomplished in the end. Understanding where your mind is during the search will help you find what you're looking for.

"Finding information is like playing with the Rubik's Cube, a fascinating item that has
perplexed and enthralled humans for ages. (DE22)

DE11 takes her self-esteem very seriously and revealed that she will forgo asking questions that can cause embarrassment to her. Therefore, a sense of pride can inhibit information seeking. She prefers to ask those with whom she has previously established a rapport, though.

"What usually unsettles me or discourage me or, surprises me when seeking
information is coming across something that challenge my previous assumption or
knowledge. If there is a possibility that I would embarrass myself from Seeking out
knowledge from others and that would effectively prevent me from reaching out. I
don"t like embarrassment. It takes a toll on my self-esteem". (DE11)

DE15 is a traditionalist who strongly believes in family values. Culture and religion have an impact on knowledge seeking through informal information sources. Asking a senior individual, for example, must be done with care, especially if the query session requires numerous iterations, else it can appear

disrespectful.

> *"Technology mediated information seeking is not being affected by cultural or personal factors such as gender or religion. However, if one relies on human or informal sources of information, then such factors are heavily impacted". (DE15)*

Information overload creates uncertainty due the inability of the user to make informed decision according to DE03

> *"A 24-hour cycle of information flow from a multitude of sources makes it humanly impossible to absorb and make sense of the complete information. This unabsorbed, unutilised piece of information creates an atmosphere of uncertainty". (DE03)*

According to DE17, information overload induces forgetfulness and decreases concentration span.

> *"What happens to me sometimes is that I get easily forgetful if I have too much information to deal with. I will lose concentration by losing focus. So overall, I would lose grasp and be sort of mentally derailed". (De17)*

5.10.1.3 Enhancers for information seeking.

When appropriate strategies are used information retrieval can be effective and successful. Image search is found to be an alternative search technique.

> *"Search strategies really helped me in looking for information efficiently. I would say all the information one need is there on the Internet. But requires only an effective and clever strategies such as image search, and tools to really access it". (DE11)*
> *"If one is determined to have new ideas or create something new, Then the information is an essential resource, not just information, but its continuous inflow. And for one to achieve that, top-notch searching and seeking skills are required". (DE12)*

Improved information searching and retrieval techniques, according to DE12, are essential for continuous innovative thinking. Some participants noted a link between effective search skills and the love of reading.

DE13 believe the ability to socially blend and adapt to a new culture vastly improves information access. In particular where seekers have language skills and social integration, their access to informal sources of information will be enhanced.

> *"The greatest equaliser here will be acculturation. I believe blending and learning about other people's cultures will remove informational barriers to access. I say that some of my bilingual friends have the edge over me when it comes to gaining access to and seeking information". (DE13)*

Access to social groups determines the effectiveness of information-seeking journeys as these groups act as information vehicles – a body or community that unintentionally (and sometimes subcoinciously) drives user's information practices.

> *"Knowing the appropriate people and having the right equipment are essential. So, if you are part of a knowledgeable cycle, a group of intellectually oriented pals who are motivated by desire and ambition, you are more likely to come across essential information, counsel, or general insights". (DE13)*

Some participants use an approach of successive multiple information searches. This highlights the importance of persistence in search even if prior attempts have failed.

> *"Sometimes the best breakthrough in searching comes when people say, "I don't know; you should try this or that." This changes the perspective and injects new energy. I will then have to try to ask new people; each person will have a unique and interesting perspective on the idea I am looking for". (DE15)*

Understanding other people's moods and learning how to handle them, in addition to well defined enquiries, is critical when getting information from informal sources. People's response to a query might depend on their prevailing psychological state – sad or happy. It becomes paramount to develop skills to understand such states.

"The quality of the question influences the quality of the output or response as well. It's also important to know how to communicate. People's emotional states affect the quality of the information they disseminate". (DE16)

DE17 is an unapologetically brazen immigrant entrepreneur who prioritises his business interests above all else. He believes that all barriers to information access can be overcome through inducement lobbying, and the rest.

"I don't care what people think of me. I'm a self-centred person in a business sense. Not in an unethical way. What I mean by this is that I pursue important things no matter the odds". (DE17)

DE18, an immigrant entrepreneur, argues that finding information in his home nation was easier than in his host country.

"I believe it is so easier to find or seek information from people who share the same culture and social aspect of your life". (DE17)

DE19 bemoans how search engines would push information or idea which have he previous encountered. Such practice unfortunately does not help his information discovery.

*"I do most of my searching on my phone. I do some searching on the desktop, but I do most things on my phone. It would be perhaps quite nice for search engines if they don't show me anything **I've** seen before".* (DE19)

Understanding what information can do is the first among the many steps to be taken before the subsequent practical steps. DE08 believes that the spread of basic literacy and the affordability of digital devices will boost people's access to information and their capacity to come up with ideas. He sees information as connected "circles" - a sort of infinite interconnection.

"With steady rise in basic literacy, internet becoming relatively inexpensive and smartphones becoming mainstream. Individuals have become information hub themselves. I consider knowledge-seeking or information-seeking just a Venn

diagram. This implies that any piece of information is or can be connected with
another piece of information. (DE08)

DE08 was dazed by the dazzling information searching of his co-founder who happens to be a PhD holder. Perhaps PhD can be regarded as helpful in training people's information literacy and information searching skills.

> *"I would not think this business would be a success if not for the PhD holder we have,*
> *we could not have come this far. In my belief, the search skills of a PhD holder are*
> *different. They are very skilful and efficient in information searching technique".*
> *(DE08)*

DE19, engages in Information search bootstrapping which means using little information to find more information.

> *"One must have minimum amount of information to get a sufficient amount of*
> *information. It is like the idea of bootstrapping". (DE09)*

5.10.1.4 Challenge

The challenges represent the diverse set of factors that actively hinder the seamless operation and growth of the business. These challenges can manifest as logistical issues, regulatory hurdles, or even market-driven dynamics that exert pressure on the business model and overall viability.

The lack of enabling tools might harm information seeking. DE12 needs not only digital devices such as computers for business operation but also to source the information that the business requires.

> *"Information being a resource needs tools for its harnessing. These tools can be*
> *categorised as tangible and intangible tools I would say. The infrastructure including*
> *the internet and devices belong to the tangible category and are the entry points".*
> *(DE12)*

DE16 appears hesitant to seek information from persons above his social stratum. It implies that people who dislike arrogant people would reduce their use of informal information sources.

"I do not always want to ask people with a condescending persona. People have that tendency of looking down on you especially you are asking something obvious, they treat you with haughtiness if you don't look like or belong to their social class". (DE16)

DE17 is an immigrant entrepreneur whose challenge in seeking information stemmed from a lack of social integration. His information sources are primarily informal; hence relying on the community's social bond is paramount. Support for information-seeking here is typically informal in Nigeria. One must live at the mercy of people; therefore, your social network is critical and determines the quality and quantity of information you get. In contrast, it is not the case in his home country, the Niger Republic.

"How I speak Hausa is not very typical of the type of Hausa people here speak, so they always look at me with some awe. So, I feel I'm a kind of, you know, different when I moved here, I feel like kind of, you know, disconnected. Not wholly disconnected, but you know, having a sort of informational blockage because of the cultural or social barriers that are otherwise in place". (DE17)

DE17 recount how classism affects his information search. The information world for the rich and the poor is different.

"One's social status really affect accessibility of information. We are living in a very class system. You know, judging on people by grouping people based certain conditions or described qualities. So, people at the high level of the ladder will have greater access to information. Socially elevated individuals will have an easy way smashing informational bunkers without any obvious challenges or difficulty". (DE17)

According to DE18, who is also an immigrant, a lack of language proficiency can hinder access to information. He recalls how his ascent and poor command would prevent him from asking successfully. People did not tolerate his language impediment and would walk away when he tried to make himself clear again.

"it was a bit hard from the beginning to really seek information from people because you must tailor your language, neutralise your tone just to sound like them or appear natural. Sometimes the whole process is not productive because you must keep on

asking, and that would sometimes annoy them, and they would just leave because
they may not get what you exactly mean". (DE18)

"I was a shy person, so when people made fun of me for my lack of fluency or the
rarity of my accent, I became withdrawn and disappointed. This will then dissuade
me from seeking information". (DE18)

There cultural impediment enacted along gender lines making difficult to seek information across the opposite sex. "it is somewhat difficult for a man to approach a girl or a woman" without a possible preconceived opinion from the would-be information source.

"There is a general presumption that, except in the workplace or a related
environment, the opposite gender does not usually engage in extended conversation.
People may believe you want to ask her out". (DE18)

DE11 is a female entrepreneur at odds with society because of her beliefs and sexual orientation. She thinks there is a cost for free information and thinks providers of free information mostly have an agenda that might not be evident to the user, which can cause material or emotional injury. This might take the form of sales pitches or luring the searcher into buying information etc.

"One must be careful, surely with information, because once the information is free,
it can be misleading or deceitful marketing information. I sometimes would prefer to
pay for a piece of information or a kind of subscription-based access to a particular
resource. There are a lot of players within the Internet, and everyone has his intention
- good or bad. Sometimes an agenda is carefully attached to a piece of information
which can cause material or emotional injury from its usage. There are several
contextualisation with the regard to information. So, it can be an opinion, a criticism,
a marketing, a substance". (DE11)

5.10.1.5 Delegation of Information Seeking

Delegating the act of seeking information might make a business ideas or the business vulnerable to completion. And even though information give birth to ideas however ideas cannot be delegated because of the cognitively intimate nature of ideas.

> *"it will never be a good idea to delegate someone to source a highly valuable and completive piece of information. Also, is not feasible to delegate ideation or information about ideas. This is because ideation often times is a personal, cognitive journey that might happen consciously or subconsciously". (DE01)*

DE03 believes delegation of information seeking only compound seeking experience.

> *"Delegating someone to source for information in this kind of situation only create unnecessary layer of difficulty and increasing the cost of information without any added value". (DE03)*

5.10.1.6 Serendipity

The chance encounter with information and activities that promote such encounter have been reported by the participants.

DE13 believes information seekers will be exposed to information that they would otherwise actively seek if they maintained at least a passive focus on areas of interest. DE13 would occasionally and unintentionally stumble on information. This unintended discovery of information is because of maintaining or engaging in information practice related activities. This behaviour reflects what the literature describes as the purposive and non-purposive exposure to information.

> *"Searching for the things you need now might bring you the information you need later. So touring around and casually picking up information can be an important discovery. Accidental discovery usually happens under the right conditions". (DE13)*

Several accounts of non-purposive information discovery have been reported by the participants. believes that frequent social media use significantly boosts chance information discovery. It is possible to argue that social media serves as an aggregation point for ideas and opinions, making accidental ideas or information more likely.

> *"Occasionally one come across unsolicited yet important information. I will attribute this to pervasive online advertisement and aggressive collection and sale of user data. This piece of information might not be immediately relevant to the current search but almost certainly in the near future". (DE14)*

"[Accidental information is a] mystery; hence it cannot be confidently explained. Nonetheless, the deliberate and conscious information seeking produces the not purposely sought information. Therefore, the more one engages in such seeking activity, and the more likely one will encounter it". (DE15)

"[Serendiptious information discovery] happens from time to time, but no one can predict when or what specific conditions will cause it. I'd say It's entirely luck. But you know what they say: the harder you work, the luckier you become". (DE16)

DE18 believes that making information searching a hobby is thrilling and exciting. And the more time you put into it, the more likely it is that you will get the desired result or useful unsolicited information. The internet provide a good information for nonpurposive information discovery if the user sustains the search activity.

"Surfing the internet casually yields vital information that you don't expect. I believe the more you search, the more you get helpful information. So, in other words. The frequency of your searches is directly proportional to the amount of information you can get". (DE18)

DE19 was questioned if he had come across information by chance, and he said that it happens all the time. DE19 has also recognised that as more people spend more time searching for information or immersing themselves in the information environment, accidental information discovery will improve.

"All the time! All the time! Okay. All the time. Is serendipity, isn't it? Yes. But you're just going to increase the chance of that happening. If you, you know, you immerse yourself in in the information". (DE19)

"I have come across a lot of information that is valuable to me without intentionally searching for it. Interacting with our business group increases the chances of getting helpful information by talking to people". (DE07)

5.10.2 Information searching Techniques and Quality

DE11 compared his method of searching for information with performing a tightrope walk. Maintaining attention while searching for information on the internet can be tough, especially when numerous distractions compete for one's attention.

"I engage in target searching. Finding or seeking information is like slack rope walking – a delicate skill of maintaining balance while walking along a tensioned wire between two points is required". (DE11)

Participants gave examples of how they felt about information that was incorrect, misleading, or deceitful.

Understanding the underlying motivations of information providers can help to maximize effective information use, according to DE11. Due to the lack of personal responsibility regarding inaccurate information or disinformation, information provider organizations pose the biggest threat to information users for their susceptibility to evade accountability through change of corporate identity such rebranding. For instance, if a company seriously harms its public image. It only needs to rebrand, perhaps by altering its name. Whereas rebranding a person's identity or reputation is a challenging task to carry out. Personal reputation goes beyond nominal identity – it is a lifetime identifier.

"Sometimes an agenda is carefully attached to a piece of information which can cause material or emotional injury from its usage. There are several contextualisations with the regard to information. So, it can be an opinion, a criticism, a marketing, a substance. What I mean by a substance Is neutral, unbiased, factual piece of information that is free of any hidden meaning". (DE11)

DE16 recalls a difficult moment of decision making. He thinks Information sought through informal sources might present elements of unreliability, and as such, it might not support quick decision-making.

"If I had more time, I would confirm somewhere else. So, I don't want to be in a position where I have to rely on human sources of information. Because of the inherent bias and weakness of humans, it necessitates patience and caution". (DE16)

5.10.3 Information Overload

The research participants have reported what causes information overload. Various causes have been uncovered. Information overload prevents users from harnessing potential use of the information due to its excessiveness, complexity, velocity and self-limiting abilities.

5.10.3.1 Causes

DE10, DE11, DE16 and DE17 have attributed information overload as a result of the increasing sophistication of technology by making it easier to tap information from multiple sources continuously without setting any threshold of information flow.

> *"The volume of information has grown dramatically since the advent of the internet".*
> *(DE10)*
>
> *"The information that we require may now be found very immediately, and this is made possible by numerous developments, including mobile technology, widespread internet connectivity, and many more. No matter how you look at it, the fact that we now have access to more information than we could ever possibly need is, for the most part, a really positive development". (DE11)*

> *"When one is constantly looking for new business ideas, as I am, being overburdened by an excessive flow of information becomes the norm. Every day is unique, and each cycle of information flow is unique as well. This heterogeneity can be a source of stress in itself, let alone the volume of information that comes with it" (DE16)*

> *"It is easy to get burden with too much information if you expose yourself to abundant sources of information. However, it is unlikely to easily get overwhelmed if you seek information as you use it". (DE17)*

> *"With the present 24-hour news cycle, unrestricted access to internet, academic knowledge, and expert opinion, and an infinite number of places, times, ways, and people from whom to receive it, information overload is virtually unavoidable".*
> *(DE04)*

Information overload is created not only by the nature of technology and user attitudes, but also by the intrinsic nature of information itself. DE08 believes that information is not disjointed, but rather seamlessly integrated and overlapping.

> *"As long as one searches for information in the manner described earlier [navigating through the interrelated circle of information until the desired information is obtained], one is likely to be overwhelmed by information. This is because relatedness or similarity of several circles of information is likely going to bring confusion". (DE08)*

The state and capacity of the mind are also factors causing information overload, as indicated by DE03, DE22, and DE26. There is cognitive capacity for how users process information, and emotional state of mind either aggravates or strengthens such an inborn mind's ability.

> *"Staying on top of the latest news and trends in the cryptocurrency space is crucial, but too much information can definitely be a bad thing. This is especially true in market downturns, where It's all too easy to be overcome by your instincts and make some badly timed trades". (DE03)*

> *"These psychological and social factors which are common terms in the crypto space affect how we consume, process, interpret and make use of the information. The terms are coined as FOMO (fear of missing out) and FUD (fear, uncertainty, and doubt) have a stronger influence on our choices". (DE03)*

> *"The mind sometimes lacks the capacity to make sense of the information available, leaving us overwhelmed. It is not about the lack of veracity or the multiplicity of the sources; it is about the inherent human capacity to abort, which is also affected by psychological factors". (DE26)*

The inability of the information user to carefully select sources based on their usability has the potency to cause information overload.

> *"We strive to distil information because allowing information to flow in its unfiltered form deteriorates quality, and as you know, a lack of quality information is a recipe for confusion" (DE22).*

5.10.3.2 Effects cognitive disturbance

The term cognitive disturbance refers to disruptions or impairments in one's cognitive processes, which involve mental activities such as perception, attention, memory, reasoning, and problem-solving. In the context of information overload, cognitive disturbance arises due to the excessive influx of information that overwhelms an individual's cognitive capacity. This can lead to difficulties in effectively processing, comprehending, and making sense of the vast amount of information available. The volume of information is not an issue in and of itself. The fundamental problems are our incapacity to control the flow of incoming information, and on the one hand is a lack of information-quality control. The digital world generates more information than its users (digital entrepreneurs) can

process by nature. Digital entrepreneurs have not yet done their bit to put information quality control methods in place that would filter and limit the amount of information that reaches them as soon as it is generated. Given the circumstances, it's not surprising that some of us are suffering from information overload and desperately need an information detox. (DE10)

Lack of mental clarity can be caused by overload of information according DE11.

"My brain begins to worry and get paralysed as I take in immensely complex information in a short amount of time and am presented with an increasing variety of choices. I no longer make sound judgments. I feel stuck and overwhelmed, and under pressure". (DE11)

immersion in too much information consumes one's attention according DE12.

"Not all trees bear fruit. Not all information is usable. Too much information can cause distraction. So, this distraction can be minimised with the proper methods, rules, or criteria". (DE12)

DE13 prefers to limit the inflow of information at the sources using criteria-based approach to constrict a search than to deal with a large quantity of information afterwards. So, using techniques to specify search terms etc.

"Having more than the required amount of information can be both engaging and draining. A good practice would be to have quality control on the sources". (DE13)

DE15 sees information as an avoidable opportunity cost which prolongs the time seekers spend on information digestion. Spending more time at the input stage seeking more information can be more productive than using the amount of time to filter voluminous information at the output stage – so emphasising the need for good keyword and information retrieval strategies.

"Too much information breeds confusion because it takes away your ability to digest the information or prolongs the process. Much information means extra time for processing or more people to digest it". (DE15)

DE18 believes confusion or indecision can be a manifestation of information overload. The inability to make decision can either be a sign of little or too much information.

> *"[information overload] slows down your ability to make a very swift decision or amplifies options. Too much information can create temporary confusion. It can also create permanent confusion when poor or improper strategies or techniques are adopted". (DE18)*

Seeking information from multiple sources creates tendencies for information overload according DE01.

> *"When I experience too much information, it reduces my focus if I am unable to filter which one is more relevant or accurate. Perhaps this would not have been the case if I had acted on one piece of information from a single source". (DE02)*

Being left in a state of mental agitation increases the propensity for seekers to be easily flooded or overwhelmed with the results of an information search. And DE08, believes information overload therefore decreases comprehension as a result.

> *"At that point, I get confused, or lack clarity, which implies that I am loaded with so much information that I cannot make sense of it. And this usually happens when I am eager or in a rush". (DE08)*

5.10.3.3 Mitigation of information overload

These effective overload strategies refer to the methods, techniques, or approaches DEs employ to manage and cope with the challenges posed by information overload.

DE01 applies a mathematical logic in dealing and coping with information overload. He is inclined to adopt or agree with a piece of information with a higher occurrence with an information set. DE01 was responding when was asked about how deals with overwhelming amount of customers" feedback.

> *"It very hard to keep up with all the information in there. It is practically impossible to get all suggestions onboard. We just concentrate on the Mean advice, centroid of the suggestions and advice. This will leave us discarding peripheral views or a rather unpopular opinion". (DE01)*

DE10"s strategy of dealing with too much amount of information is to isolate their self from the information environment. Discontinuing the information activity will allow him gain more focus when he comes back again. Going back and forth on the information strengthens filtering abilities.

> *"In theory, having so much information at our disposal should be a good thing. It should assist us in making informed and wise decisions. In practice, it appears to do more harm than good. So coming back to your question of how I handle such situation is first is to take break and get engaged with the outside world or real word. I will remove myself from social networks, emails, or push notifications. Just me and the outside world". (DE10)*

Misinformation and disinformation overload is the hardest form of overload to deal with according DE11. In either case, all require additional information to combat nonfactual and misleading information by the information users. Developing an ability to absorb as much information as possible will help in coping with information overload.

> *"Dealing with so much information can be mentally and physically draining, especially when you add in the additional challenges of determining what is fact and what is alternative fact, determining which news sources are reliable, and determining how you can use all of this information to make well-informed decisions. Have. However, the solution is not to have less information. Learning how to access, absorb in, and sort through it in the most effective manner possible is essential". (DE11)*

Setting up pre-search rules or criteria such as sorting and categorizing can help minimise information overload for entrepreneurs, Inability to handle information overload can cause whimsical decisions. furthermore, DE12 believes, it better to take one's time and defer or delay any resultant decision than to be in a rush to make a decision and potentially not select the best information sources to use.

> *"To much information can cause distraction. So, this distraction can be minimised with the right methods or rules or criteria. So with these rules, is easy to sort out information that is out of place. This is necessary because getting overwhelmed by information cannot to be completely avoided. I will advise entrepreneurs not to avoid or attempt to discard information entirely. What I will advise entrepreneurs to do is to embrace the discomfort of information overload if they are to reap any associated benefits". (DE12)*

The first line of defence to prevent information overload is to ensure the quality of the information at the source. DE13 is of the opinion that such criteria will automatically filter away the not so useful information.

> *"A good practice would be to have quality control on the sources. All good sources of information are likely to present good information. That is the first line of defence for information seekers. Failure to do that will see someone grappling with counterproductive doses of information. And in such a situation, one can only use and abandon some information because the practicability of utilising all the information is nearly impossible". (DE13)*

DE14 thinks the best strategy to cope during information overload period is the gradually assimilate the information in a bit-by-bit manner provided the there is no urgency to use the information in order to make decision.

> *"The way I manage information overload depends on the urgency of the situation. If there is no immediate pressure to make decision, the strategy is to work, absorb it in a bit-by-bit basis. However, if there is need to take prompt action then I will base my decision on the source of information I trust the most. and the currency of the information is second important criteria. How recent is the information". (DE14)*

Another strategy of dealing with overload is to ignore the existence of the information according which as he opined, doing that can lead to cognitive dissonance DE14.

> "The obvious thing to do with information that you cannot utilise is to pretend it does not exist. But knowing you ignore something that might valuable may induce a feeling of regret and leaves you less confident about the decision one has already taken. (DE14)

On the contrary to what DE14 believes, DE15 would rather ignore the information so he can delay on taking decision.

> *"I don't ignore information that is purposely sought; I think I would defer it for action. Or say, queue it up". (DE15)*

The joint filtering of information as a group came to the fore when DE16 shares how he deals with information overload.

> *"As a tradition, we distribute idea scouting or information seeking among the patterners. It is the most effective method of removing the "noise of the signal." So what we end up with is an aggregation of condensed or filtered information that can be acted on quickly". (DE16)*

Satisficing or satisfying only the immediate information need may reduce the chances of information overload according to DE17.

> *"it is unlikely to easily get overwhelmed if you seek information as you use it. Using the information immediately when it becomes available or seeking information that fit in your current need. So, in that case it is very hard to really get overwhelmed". (DE17)*

Other strategies to deal with information of overload revealed include reorganisation and prioritizing of the pieces of information according the immediate need the information might serve.

> *"When you have too much information. I don't take decision. I won't be in a rush to take decision. I give it some time to think about it. Think about it more. Evaluate the information a bit-by-bit basis. So, when I do this kind of reorganisation. The most important information Will naturally get revealed the organisation. So, I would start to eliminate or discard the ones that I think they have least importance". (DE17)*

Information avoidance is another way of coping with information overload according DE18. However, is not the best way forward. The optimal way to go about it "*to slowly make sense of it and gradually take your time to really digest it*" (DE18) is a better way of coping with information overload and should be the first to be followed.

> "*When one gets something in excess, you cut it out. Make it half. However, this is the easiest approach. What I believe would be the most proper way to handle too much information is really is to slowly make sense of it and gradually take your time to really digest it. It is important to really digest it*". (DE18)

Similarly, DE04 "takes break" away from the information environment and coming back again can reenergise user to effectively deal with information overload as opined by DE04.

> "*The solution, though, is not to be less exposed to information sources or to cut access. It's knowing how to find, consume, and filter information in the most efficient way possible. Filtering information involves or must consist of a given number of criteria. Determining and applying such list of criteria can be a challenge in its own. What I do sometimes is simply to tell myself to take break. Sometimes I decide what information to use based on just instinct*". (DE04)

DE19 engages in an extensive information search; he considered his search technique prolific. However, he avoids negative information that will make him sad. DE19 knew that his sustained and ambitious information search will increase his chances at encountering a rather negative information that could make him unhappy; however he does the search anyway – an attitude described as cognitive dissonance.

> "*I have practised information avoidance, you know, I don't want to read about how bad you know, things are going to be with tax rises. Okay, the oil industry and COVID. I mean, sometimes if this isn't making me happy, so I just avoid it. But, I searched a lot, I mean, I if would just probably be shocked to know how many searches are doing a day*". (DE19)

The fear from the consequences of knowing can be enough deterrence or cause dissuasion from accessing information.

"Excessive fear can prevent someone from accessing certain type of information due to perceived consequence resulting from acted. I rather enjoy the bliss of my ignorance than to confront the torment of my knowledge". (DE03)

DE02 considers authenticity/authority and temporality/timeliness of information as key filters or selection criteria is necessary to sieve out unneeded information. The value of information does not come from the its volume but from the quality or soundness of the decision which can be made from it according to DE02.

"So, the strategy is to try not to be too ambitious when it comes of pursuit of information. It is hard to utilize all the available information that someone has a given time. I think the logical thing to do is arrange them in a given order of criteria say authenticity or temporality then eventually selection can be made". (DE02)

A user passion for reading can be a good indicator of ability to manage information overload as revealed by DE03.. Reading has enhanced his cognitive ability of information retention, comprehension and analysing. All of these skills can help deal with excessive information influx.

"Were it not for my passion for reading, I'd probably have a hard time combing through all the information I do as part of my job? It might interest you to know that even though the success of profession or trade depends on timely accurate information however there are other factors that remotely determine what goes and what goes not". (DE03)

DE07 and DE08 have called for ignoring and filtering or deselection of information as ways to mitigate information overload. But participants also noted and were aware of the risks associated with too casual deselection of information.

"I will just ignore the information or use only the beneficial ones. In whichever situation, one has to filter the information. Because there is no way you can use all the information". (DE07)

"Getting confused due excessive flow of information is somewhat inevitable. The best techniques to minimize such occurrence is to employ a mental sieve to quickly do away with the unneeded information. This will take lot of courage to do that and might as well present a danger of missing a valuable piece of information". (DE08)

DE09 believes that in order to limit the occurrence of information overload some criteria such as timeliness and authenticity when seeking information needs to be followed. . A solid search that is properly structured to avoid turning up irrelevant or outdated information is therefore preferred, however, simply browsing through a big list can be helpful too since much information might increase the quality of decision.

> *"The first step is avoiding [information overload] occurrence if possible. However, on the upside, decision which is carefully reached or harnessed from an atmosphere of much information may have best effectiveness". (DE09)*

5.10.4 Information Access

5.10.4.1 Practical Access Challenges

DE01 believes his access to information has been hampered by the effect or challenge of second language. one's fluency in the second language will to a large extent affect ease of access to information. Lack of proficiency in language affects for example the user's ability to formulate keywords.

> *"The difficulty I have experienced regarding information access was caused by what I believe, the impact of first and second language". (DE01)*

The role of gender to information access has been reported with mixed opinions or rather with a neutral voice. There are no actual anecdotes regarding when and how gender was utilised to facilitate access however an agreement exist that possibility exists. A fair point to note concerning these empirical findings is to accept them in their hypothetical nature.

> *"I don't think gender will have a reasonable impact on information access. Unless the person seeking the information particularly wants to give the process a gender tone. And if that the case, then certainly gender will play a significant role. But often, there*

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is a negative connotation when it is believed gender was used to facilitate a process. It suggests immorality or harassment". (DE01)

"If one is seeking information on a person-to-person basis then gender can weaponized, and it can become a liability as well. Access to business information deposited electronically on the platforms such as social media is unlikely to be affected by gender". (DE08)

DE11 is very conscious of a need for privacy due to her sexual orientation. As a lesbian, being overly social will reveal a part of her life that she would prefer to keep hidden since it will cause stigma, which will reduce her informal sources of information.

"If my private life were be exposed and that would present a serious challenge to me reaching out people". (DE11)

Internal and external barriers to information access exist according DE12 and DE09. External factors are typical challenges for developing counties like Nigeria. The internal factors are self-limiting challenges such as a poor cognitive ability which might indirectly affect information access.

"As far as I am concerned, if you take away the broader challenge which is infrastructural - a typical problem to developing countries. Other barriers are found within self. So for example, how fast can you process information, comprehend or read. These capacities might depend on the amount of working memory". (DE12)

"I believe the barrier to getting that minimum could be the general illiteracy itself and some infrastructural barriers. The infrastructural barriers in my case could the internet and related enabling devices". (DE09)

Accessing business information from informal sources sometimes depend on familiarity and trust with people that have the information. *Approaching people to share information and ideas about their business will appear "to be encroaching on their personal economic space"*. Therefore, sharing a common identity can gain the needed trust that can grant such access.

"People like to share and collaborate with people that they already know and trust. Business ideas can be treated as personal and private matters sometimes. So one

needs to share some commonality or perhaps be introduced by others who have already been trusted". (DE13)

Not belonging to same social class has negatively impacted DE14 from accessing or seeking information from informal sources.

"Before I integrate fully both culturally and socially I had difficulty reaching out to people and making enquiries. I still use to feel a bit different from others sometimes. Perhaps I have overly internalised that difference". (De14)

The low social and economic status of some participants has placed DE01 within the low information threshold. He believed had his social class been higher, his access to information would have been very much improved.

"You know, Nigeria is a hierarchical society, capitalist, sort to say. The social and economic class you belong may limit your access to people and sources. So having come from a low-income family I believe inhibited me from accessing some information that I would have otherwise obtained". (DE02)

A male dominated environment can pose a challenge or advantage to women's information access. Within some subculture such as among the Hausa tribe, where mixing or interaction across gender is discourage and limited, women find it hard to freely ask questions. Therefore, women's" information access might have been systemically inhibited.

"I believe our Nigerian society is deeply patriarchal, so it comes with certain privileges as well as some limitations or hinderance for women. So, women are favoured in some instance. I cannot say this favouritism is particular to information seeking. It can apply to wide range of societal issues". (DE02)

Information seeking action can cause loss of self-esteem or dignity, when for examples racial bias causes a substantive barrier for users to information access according DE06.

"It is hard to hear this, but there is a systematic dislike against black people. Because [whites] control almost everything, including freelancing jobs. They have a preference for their countrymen or Indians". (DE06)

5.10.4.2 Access facilitators

Basic literacy including those for search and digital tools are the core skills needed to access information according DE01, DE09 and DE11.

"fundamental factors to information acquisition, searching or seeking is the basic literacy and understanding how to operate digital devices. I consider these two factors, gateway of information access". (DE01)

"But as long as you know how to navigate yourself within the Internet, everything is up there. Mostly at no charge. Search strategies really helped me in Looking for information Efficiently. I would say all the information one need is there on the Internet. But requires only an effective and clever strategies and tools to really access it". (DE11)

"Google has been my dominant search engine. But I came to know of other search engines of recent which are also good or even does better in specific situation than Google. DuckDuckGo is particularly good at image search". (DE09)

Social integration into and learning about host culture will determine information access especially from informal sources as described by DE01 and DE13. So one needs to share some commonality or perhaps be introduced by others who have already been trusted and are part of the group or community.

"So one's fluency in the second language will to a large extent affects how hard or easy one can get access to information. One needs to belong, share, gain acceptance with the information holder or keepers themselves. This is the case if one is relying on informal source of information". (DE01)

"The greatest equaliser here will be acculturation. I believe blending and learning about other people's cultures will remove informational barriers to access". (DE13)

The wealthy have more of an upper hand than those in the middle or lower class when it comes to getting access to information according to DE12 and DE02.

> *"The social class you belong or the wealth one possesses will catalysed and eases access to human information keepers. Sometimes one needs to entice, incentivise or bride the way, unfortunately". (DE12)*

> *"I think high social and economic standing will give anyone seeking information unfair advantage. Wealthy people are prone to receiving favours. So the rich are likely to win again in the information world especially in Nigeria". (DE02)*

DE14 belongs to a mutually benefiting group serving as an information pool and counselling initiative. Every member within the group brings in business ideas or information which may an interest for other members. It is like a customised or personalised Quora. He believes belonging to a group or participating in a known platform such as the social media increases access to information.

> *"Knowing the appropriate people and having the right equipment are essential. So, if you are part of a knowledgeable cycle, a group of intellectually oriented pals who are motivated by desire and ambition, you are more likely to come across essential information, counsel, or general insights. Social media especially Twitter, IG and Facebook are the greatest force and catalysers behind serendipitous information discovery". (DE14)*

Appearing keen in a conversation might encourage the other party to share more than what he or she initially intended according DE15. People are comfortable sharing with someone who appears interested.

> *"People hold a massive, invaluable amount of information and knowledge which is ready to use; type of action-ready kind of information. I found casually talking to people a very rewarding experience". (DE15)*

A convincing physical and verbal presentation can neutralised unfavourable attitudes from information gate keepers thereby ensuring ease of access. For example, "dressing nicely or corporately will mask the social identity or neutralise or prevent the contemptuous behaviours".

> *"Approachability and language skills are important when it comes to seeking information through people, the way one speaks to them matters a lot". (DE16)*

Hierarchical and especially patriarchal society norms can be a challenge for women trying to access information according DE02"

> *"I believe our Nigerian society is deeply patriarchal, so it comes with certain privileges as well as some limitations or hinderance for women. So, women are favoured in some instance". (DE02)*

The seemingly unimportant pieces of information when consolidated and point the information user in a better direction. The search experience of DE08 cautions information seekers from underestimating the importance of a piece of information given those not so useful pieces can become a significance information lead.

> *"in situation where it becomes apparent that a particular information might be difficult to get, the very little information available, can be scavenged of. These seemingly unimportant pieces of information, when pieced together can be a watershed for ideas". (DE08)*

5.10.4.3 Information poverty and excluded groups

5.11 Marginalised entrepreneurs

The fearless

With her brave and independent mindset, she has defied cultural and religious norms by embracing digital entrepreneurship as a lesbian. Finding solace and guidance from an atheist support group, she strongly believes that technology has been her saviour from the oppression of societal and systemic discrimination. she believes that technology has the power to level the playing field and provide opportunities for those who may have been previously marginalized. She is proof that with determination, bravery, and the help of supportive communities, anyone can overcome societal barriers and achieve success.

Pen Portrait 5: Fearless

5.11.1 Intersectionality

This section discuss the information behaviour experience of some participants that experience multiple layers of disadvantages due to their race, sexual identity, marital status and gender.

DE11, a survivor of domestic violence and a naturalised citizen, believes that patriarchy has manipulated and denied women opportunities She thinks that society is plotting against her unable to fully fend for herself. The society attributes a second meaning into whatever woman does because women are minority business owners and not commonly regarded as very successful entrepreneurs. The prejudgement is always there. She believes woman's financial independence and her self-esteem are be mutually inclusive.

> *"So, when the child died, I decided to end the marriage and be on my own. It was hard being a woman, particularly being unemployed divorcee. People would not even want to rent out their properties to you" (DE11)*

DE03 was sexually abused by a friend while seeking financial assistance. That turned out to be an important and impactful moment of reflection for her which was instrumental for her the pursuit of entrepreneurial ideas. That horrific experience helped built her ambition.

> *"It was indeed traumatic because the money I was requesting put me in a very vulnerable position, low power position which resulted of me being sexually exploited – will never forget". (DE03)*

DE22 picked her up from the negativity around her. Her family doubted her capacity which was enough reason to discourage her from embarking on the entrepreneurship journey.

> *"My brother thinks tech is not girly. People do not think a northern girl can lead a long prosperous entrepreneurship career let alone excel". (DE22)*

DE06 believes he was discriminated against by recruiters which he attributed to his race and religion.

> *"I recall having such challenges. It is hard to hear this, but there is a systematic dislike against black people. Because [west] control almost everything, including freelancing jobs". (DE06)*

DE17, an immigrant undertook a university degree primarily not for the education but for social status uplift or enhancement having known that he was at disadvantage as an immigrant.

> *"I decided to enrol of at the university (UMYUK) in order to earn the degree. Having a degree elevate one's social and economic status here. but I am more concerned about the social benefit it brings". (DE17)*

DE17 seems to be reacting to past traumatic events having lost parents and a close friend, and had to flee his home country due to famine. Emotion or feelings resulting from these adversities has entangled him sentimentally. He has held on to a single trade and is equivocally unwilling to explore other ideas, because he is focused on remaining true to business endeavours all aimed to honour the dead.

> *"So ever since his death, I took it upon myself to continue with the business Just As a kind of honour to him. I feel like I'm honouring him by continuing with business of digital entrepreneurship". (DE17)*

DE09 considers himself to have multiple odds stacked against him: orphan, delinquent, and poor

> *"The story of why I was troublesome and smallish goes back to how I was raised as a child. An unemployed single mother raised me. We were really poor". (DE09)*

On the upside, DE17 believes that their social disadvantage has garnered public sympathy, which they use to build a loyal customer base.

> *"That kind of popularity and sympathy has really helped us and help our business as well". (DE17)*

5.11.2 Entrepreneurial Challenge of Marginalised Entrepreneurs

Marriage for DE06 appears to have been a shackle for her. Her husband is territorial and dictatorial. It is a common practice for husband to demand their wives to be full-time housewives.

> *"My husband is a kind of person that wouldn't like his wife to work. That didn't discourage me from studying even though he wanted me not to work". (DE06)*

5.11.3 Role of Support Network for Marginalised Entrepreneurs

Both DE11 and DE14 belong to a sub community relevant to their experience. "*In addition to sharing of personal thoughts and feelings, the group also serves as an information pool and counselling initiative".*

> *"A lot of the things **I've** learned along the way are things I'd like to share with other women who may be experiencing similar feelings of helplessness and desperation as I was. So I belong to this WhatsApp group called Conquer. It is a mutually benefiting communion". (DE14)*
>
> *"There is a Women's subgroup within that organization. We usually meet every two weeks to talk about common issues that women face. I made new friends, including this lovely lady named Jamila. She is technologically savvy". (DE11)*

5.11.4 Attitudes of Marginalised Entrepreneurs to Technology

DE11 is a marginalized individual who believes that technology, specifically the internet, has liberated her from the constraints of conservative society.

> *"Technology has given us another chance at life. It is a new lease". (DE11)*

DE14, Technology eliminates segregation among people, and neutralise the odds of the less advantage.

> *"The number of opportunities in tech are staggering and the taste of success intoxicating. Even if you are from unknown corner of the world. Tech is an equalizer folks when they say its inclusive it is no lie". (DE14)*

5.12 Conclusion

This chapter summarises the findings of a ten-month-long empirical investigation. Nine themes have been extracted from the data. However, a substantial amount of theoretically valuable data remains. The extraction and summary presentation of themes and topics identified throughout the chapter only reflects research-aligned objectives and data. In their social context, the structure of the discussions is intended to reflect the ordinary, everyday and natural activities that emerge from the ideation phase to business actualisation.

The findings" primary focus is on digital entrepreneurs" information behaviour. Various information-seeking behaviours, such as rummaging and foraging, have been discovered. The most common remote information-seeking motivators include a person's desire for wealth and a better life. The findings show that entrepreneurs with a university degree or its equivalent are more likely to use a variety of web-related information provision sources such as YouTube, LinkedIn, Quora, and GitHub as the most popular destination for honing ideas. This is also true for socially isolated entrepreneurs.

On the other hand, immigrant entrepreneurs and those from less affluents societal sectors appear to have relied on informal information sources, particularly in the early stages of their entrepreneurship journey. Immigrant entrepreneurs value improved social and language skills the most because they facilitate access to information. Another required skill is digital literacy, which includes understanding the intricacies of search engines like Google and DuckDuckGo.

Several factors that impede information access have also been documented. People with high self-esteem, for example, can be easily discouraged from seeking information if they fear embarrassment. Similarly, culture and social class can create a systemic barrier to access for people who do not meet all of the criteria, such as wealth and age. Gender and language are significant information access barriers, particularly for immigrants. Fear of strangers as a result of the broader insecurity climate has a significant impact on information-seeking practices from informal sources. Other physiological and psychological barriers to access include extreme emotions or cognitive fear of the potential harm of misinformation or disinformation.

Entrepreneurs" information-seeking behaviours have also been found to cause anxiety. Some entrepreneurs expressed concern about their inability to find information or their inability to absorb the available information. According to the research findings, the digital space is at least susceptible to information overload, with most entrepreneurs reported being frequently overloaded with information. Almost all digital entrepreneurs agree that the ubiquitous nature and sophistication of information technology tools is the primary cause of information overload. This could be exacerbated

by the entrepreneurs" superior and extensive information search (systematic and passive) tactics. Informal sources supported by digital technology are used more than formal sources. Entrepreneurs have devised a variety of strategies to deal with information overload. The most common approach to reducing information overload is cognitive, which includes techniques such as filtering and ignoring. Another form of mitigation is to take a break or withdraw from the information environment.

There is a divisive viewpoint on information delegation – assigning the responsibility of information practices including information seeking to third party. Because it is a personal cognitive journey, some entrepreneurs believe that delegating information adds complexity to an already delicate process. Others view information-seeking delegation from a management standpoint, arguing that delegation will save time and increase productivity.

Another aspect of entrepreneurs" information behaviour is the unintentional discovery of information. Many of the entrepreneurs recalled coming across the information by chance. However, they were unable to report that they could replicate the occurrence. Nonetheless, they believe that increased information search activities could increase the likelihood of it happening.

 The parental and societal influences on a broad range of topics, including the role of parents, particularly the influence of the mother on the child, have been extensively discussed. Entrepreneurs in the digital space are motivated by a variety of factors. These factors encompass a spectrum of negative and positive characteristics. Included are selflessness, empathy deprivation, poverty, tragedies and domestic oppression. Research identifies a number of important sources of mentorship experience. The majority of the avenues of mentorship are social, consisting of family neighbours, interest groups and learning institutions. It was also identified that the internet and entertainment avenues (eg movies) are a potential gateway to mentors. Entertainment (movies) is found to shaped the educational perspective of some entrepreneurs.

The education qualifications of the participants is also taken into consideration. A good number of the digital entrepreneurs did not further their education beyond the elementary level while the majority attained university qualifications with a few having double degrees. Through technology especially social and knowledge-laden platforms such Youtube, Quora, LinkedIn, Github were used to source information, advance knowledge and collaborate. Access to and use of a library is another role-playing factor in contributing towards knowledge acquisition and information practices that have direct bearing on the ideation journeys. Those entrepreneurs with diverse knowledge domains prove more capable of creating additional business ideas.

Another critical aspect of the findings is the ideation process of digital entrepreneurs. The ideation process is understood to be a gradually emergent continuum of the creative process that is intentionally triggered (for new or adjacent business opportunities) or spontaneously occurs. In either case, that is a varied combination of the cognitive, social, and technological aspects of the idea generation period. Entrepreneurs who live a socially withdrawn life reap or gain a larger cognitive component from the ideation mix, and most subgroups suffered prolonged deprivation experiences, including poverty and marginalisation. Having an extreme emotion or sentimental attachment to existing business ideas can create stagnation of additional ideas or limit the capacity for ideas. Co-ideation and assisted ideation remain the popular ideation formats.

Collaboration and partnership are identified to be the norm among entrepreneurs. Some entrepreneurs believe having a consortium can protect their business interests and improve information access practises. Some utilise professional engagement and collaboration to gain business intelligence about competitors. This might be the reason why some expressed their concern about possible idea theft. Thus, raising the issue of trust.

On traits the entrepreneurs" process, a wide range of cognitive and social traits exist. They are found to be hight committed, passionate and adaptive. A good number of the sample have reading as their passion. Fondness to technology and exposure has a dominant element that characterised their childhood years from which most draw inspiration.

There is a wide range of factors identified that negatively affect digital entrepreneurs. These are classified into structural (internet, electricity and data/information repositories), operational (hiring and partnering), psychological (including fear, confidence), and social (adaptation, communication). On the other hand, double layers of disadvantages among

Some segments of the participants have been identified who suffer greater exclusion. in the cases in this study these were either women or immigrants. In order to increase their passion for learning and information seeking as well as to stimulate their entrepreneurial interests, they require more social support given to their socially withdrawn life.

A more comprehensive range of solutions has been proposed to the underlining problems entrepreneurs encountered. These include incorporating customer feedback, understanding the viability before commercialisation attempts, targeted marketing, teamwork, staying open to ideas and becoming environmentally aware.

Core aspects of the findings pertains to the information behaviour of digital entrepreneurs have emerged. A dominant finding is their vulnerability to information overload and their adopted

strategies for dealing with it. The participants reported extensive search engagement and various tactics of searching, including systematic and passive. Digitally supported informal sources are found to be utilised more than formal sources. Given their extensive use of or preference for informal sources, the social status of the entrepreneurs appears to be a significant barrier to information access.

Chapter 6: Discussion

Overview

This chapter discusses the data reported in chapter 5 and compares the primary findings and theoretical implications to the existing literature (chapter 3). The discussion is organized around seven major concepts that evolved from the chapter 5 themes. The themes presented here constitute not only the more relevant and fascinating research discoveries but also reflect research-aligned objectives: (1) Parental and societal influences of digital entrepreneurs; (2) Education experience of digital entrepreneurs; (3) Process of ideation; (4) Information behaviour collaboration and partnership; (5) Role of information; (6) Entrepreneurship; (7) Marginalised entrepreneurs. These themes have been organised to synchronise with the chronological order of the empirical findings in chapter 5. Some sub-themes found in the previous chapter (chapter 5) have been collapsed into macro themes to maintain a seamless discussion and logical order.

The study's overarching goal is to explore how digital entrepreneurs gather and process information during the initial stages of idea conceptualisation and business implementation. To achieve this set objective, a qualitative enquiry through interviews was undertaken to investigate the social, education and technological layers which encompass the information behaviour of the digital entrepreneurs. In addition to the overall participants, the participants include subsets of excluded groups, immigrants, and women.

6.1 Parental and Societal Influences on Digital Entrepreneurs

The decision to pursue entrepreneurship as a career path is not a simple one and is influenced by various personal, family, and societal factors, as stated by (Thompson et al., 2013). These factors play a critical role in the development of entrepreneurial ideas and have a significant impact on the information-seeking behaviour of entrepreneurs. To be successful in entrepreneurship, individuals need a combination of knowledge and intention, as well as the ability to gather information to meet the demands of the market, as noted by Ni and Ye (2018). Therefore, the importance of family and society in the development of entrepreneurial ideas cannot be overstated. They are among the many factors that contribute to the formation of entrepreneurial intention. This includes the conditions, circumstances, and thoughts which set the stage for entrepreneurial behaviour, as noted by Kwaku et al. (2020). By understanding and considering the influence of personal, family, and societal factors, aspiring entrepreneurs can better prepare themselves for the challenges of starting and growing a successful business. Entrepreneurial behaviour is the process through which entrepreneurs transform

and generate value, as well as fulfil their entrepreneurial goals in a specific manner, by utilising the information, resources, opportunities, or technologies that they control (Bilgiseven, 2019; Shamsudin et al., 2017).

6.1.1.1 Digital Entrepreneurs" Motivation and Intention
6.1.2 The Negative Motivators Towards Business Start-up

The study's findings demonstrated a wide range of entrepreneurship motivations which fuel entrepreneurship intentions. These motivations are on a spectrum, ranging from positive to negative. Negative motivation includes for example the drive to enhance one's social and economic position (as a result of considerable deprivation or marginalisation), while positive motivational factors may include the desire to see a prosperous society.

Miller and Le Breton-Miller (2017: p. 1) report that "recent empirical literature suggests, surprisingly, that some critical drivers of entrepreneurship come in the form of serious life challenges rather than personal advantages and strengths, or favourable contexts". In more recent scholarship Yu et al. (2022: p. 1) also argue that "many successful entrepreneurs had a difficult childhood". DE03's narrative demonstrates that she had deprived childhood: "***pupils made fun of me for being poor…that period was a tremendous learning and turning point for me" (***DE03).

These positive portrayals of adverse childhood experience put parenting literature to test (see for example: Thompson et al., 2013,Shamsudin et al., 2017; Hamby et al., 2021) given that childhood adversities, such as neglect, abuse, and poverty, are believed to lead to negative career outcomes, including in terms of entrepreneurship. However, there is declining support for this perspective, particularly in the light of recent research coalescing around the idea that adversaries are equally important to entrepreneurship behaviour, particularly among those that exhibited strong resilience (Zhao and Li, 2022; Yi et al., 2022; Sydow et al., 2022; Shepherd and Williams, 2020; Shepherd et al., 2020; Fan, 2020; Churchill et al., 2021; Cheng et al., 2021; Pérez-Macías et al., 2021). These motivational factors appeared to be in conformity with the existing theory of entrepreneurial motivation (Shane et al., 2003), status withdrawal theory (Hagen, 1962: cited in Hamilton and Haprper, 1994), as well as the underdog entrepreneurship theory (Miller and Le Breton-Miller, 2017; Morgan, 2020).

Hagen's (1962) theory provides insights into the factors that motivate individuals to engage in entrepreneurship, and the challenges they may face in the process. Hagen's (1962) theory is characterized by two distinct sets of variables, namely the withdrawal of status and the loss of respect.

When members of a formerly acceptable social group think that their value system is no longer acknowledged by other social groups whose respect they desire, status withdrawal occurs. Such a loss of social recognition is the initial disruption that sets in motion a series of changes in approaches to bringing up entrepreneurship behaviour.

Many participants describe facing childhood deprivation and exclusion. DE09's account shows the extent of this deprivation: *"I was severely malnourished. I was in the street to scavenge for food and shelter"* *(DE09)*. Some entrepreneurs described their situation as economically harsh and disheartening. According to Hagen, marginalized communities with a sense of social alienation are more likely to engage in entrepreneurial activity as a means of self-expression. Since men in these communities face more social barriers, they typically try to make up for it by becoming financially successful. The existence of social barriers is critical in deciding where their innovative and entrepreneurial spirits will flow. The impression is that they are forced into business rather than drawn to it – which is a common feature found among digital entrepreneurs (Hamilton and Harper, 1994).

These digital entrepreneurs also conformed to the label of *necessity entrepreneurs*, put forward by Kar et al. (2014), to describe those who venture into entrepreneurship in order to escape from economic hardship or improve their standard of living. On the other hand, underdog entrepreneurs are often unresourceful, and they employ "workaround practices", such as bribes, to overcome the adversity they face, especially under informal institutions. Evidence of these rather unethical behaviours was found among the immigrant entrepreneurs: *"I don't care what people think of me. I'm a self-centred person in a business sense" (DE17).* These adverse living conditions are instrumental to the enactment of the entrepreneurial mindset and intention.

6.1.3 The Positive Motivators

Positive motivators of the entrepreneurship intention closely relate to social entrepreneurship intentions, although this is not surprising given that "social entrepreneurship is emerging as an innovative approach for dealing with complex social needs" (Johnson, 2000: p. 1). This is seen in of the participant's narratives: *"I keep telling myself that I want to leave a legacy in the Nigerian publishing sector"* (DE10). Levie and Hart (2011) describe social entrepreneurs as selfless individuals who place society first before economic interest. This may help to explain the strong correlation between the positive motivators of entrepreneurship intentions and social entrepreneurship intentions.

Furthermore, the **family's** educational and financial standing plays a vital role regarding how the entrepreneurial intention and behaviours are formed (Shittu and Dosunmu, 2014). Childhood appears

to be highly influential in the current research. The parents" experience of entrepreneurship, particularly that of the mother, plays a significant role in the children's entrepreneurship journeys. Most of the mothers mentioned in the current study are single parents who had entrepreneurship experience. Palmer et al. (2021: p. 292) argue that "having self-employed parents leads to an early entrepreneurial exposure". This also concurs with Lindquist et al.'s (2015) view that parental entrepreneurship increases the probability of children's entrepreneurship.

The mother appears to be the most important figure, a role model, in providing social, psychological, and entrepreneurial support to the child. The role-modelling of the mother becomes apparent perhaps as a result of the single-parenting situations most of the entrepreneurs had experienced, with the associated impact of challenging socio-economic conditions (see, for example: Greene et al., 2013).

The impact of the mother could be explained through the lens of *social learning* and *attachment* theory, which argues that people and especially children learn more from observing than if they are taught. It is also however important to notice that the role-modelling might only have been achieved because of the strong emotional bond created between the mother and the child, perhaps as a result of her caregiving roles (Jensen, 2014; Howorth et al., 2012). Parents play an important role in helping adolescents prepare for the entrepreneurial mindset (Pant, 2015). The determination of these African mothers defies both economic and social odds and counters existing parenting literature, especially those studies that linked parental failings to poor financial well-being (Russell, Harris et al., 2008). Many successful entrepreneurs may have been influenced or inspired by their parents who were entrepreneurs themselves, especially their mothers. However, it is still possible to find entrepreneurs who did not have entrepreneurial parents, but this might be less common.

Motivation and inspiration for entrepreneurs can come from a broad variety of sources and can have an influence on the entrepreneurs in a number of diverse ways, depending on the context in which they are received. These motivations can be acquired or learned from one's family or developed internally through cognition based on contextual factors and conditions such as deprivation. Both of these paths might lead to the same end result. The individual's surroundings can have an effect on either of these two possible approaches.

The findings of this study highlight the relevance of its insights to the Nigerian context and offer valuable implications beyond the **country's** borders. The strong correlation between positive entrepreneurship motivators and social entrepreneurship intentions aligns with **Nigeria's** emergence as a hub for innovative approaches to address complex societal needs, resonating with global trends

in social entrepreneurship (Johnson, 2000). Furthermore, the significant role of maternal influence in shaping entrepreneurial journeys not only underscores the importance of family dynamics in Nigeria but also sheds light on the broader role of parental models in fostering entrepreneurship (Palmer et al., 2021; Lindquist et al., 2015). These patterns emphasize the universal impact of upbringing and socio-economic conditions on entrepreneurial mindset and intentions, highlighting valuable insights for diverse contexts.

6.2 Educational Experience of the Entrepreneurs

Education plays an essential role in the personal development of individuals, including their pursuit of entrepreneurship. Lack of education is also believed to be associated with lack of opportunity (Schneider, 2000). At a basic level, all the entrepreneurs have minimum literacy skills – the ability to read and write, both in their native languages (Hausa for example) and English. Informal and formal education represent the two most dominant learning environments for the entrepreneurs. Almost all of the entrepreneurs had attained university education. Debarliev et al. (2022) demonstrate the significance of both formal and informal education for entrepreneurship learning and intention. Rippa et al. (2020) argue that individuals with a higher level of education have a greater propensity to develop entrepreneurship intention, particularly in developing counties. This might be as a result of the fact that improvised communities create or induce an entrepreneurial mindset because of low employment opportunities in the labour market.

The significance of an educational environment such as the university to the entrepreneurship intention has been widely reported by the literature (Bergmann et al., 2016; Ramos-Rodriguez et al., 2010; Teles et al., 2021). This also lends credence to the conclusions of the current research, particularly with regards to why some entrepreneurs, particularly immigrants, choose to locate their businesses in university settings. The findings from the research however do not link the entrepreneurship education of the entrepreneurs to their university-studied discipline, as their entrepreneurship knowledge came from mostly online sources and social networks. The entrepreneurship education and knowledge gained by the digital entrepreneurs mostly came in the form of practical experience through the guidance of their contemporaries and mentors.

6.2.1 Entrepreneurship Learning Through Entertainment and Online Platforms

A number of the entrepreneurs reported being significantly informed by a particular entrepreneurship-themed movie they watched. In Founder (Hancock, 2016), the story of the founding of McDonald's is told. Will Smith's performance in The Pursuit of Happiness (Muccino, 2006) received critical acclaim for his portrayal of a real-life struggling salesman and single father. They were able to operationalise the lessons learned from the films: *"as a child, I was fascinated by movies and*

enthusiastic about mathematics. I could remember, by the age of 13 or 14, I would wake in the middle of the night just to watch movies" (DE06). Another entrepreneur recalls a similar experience: *"I could see this from the beginning of the film when Ray was going to different businesses and speaking with confidence selling his milkshake makers"* (DE13). It is observed that the entrepreneurs have learned a lifelong entrepreneurial lesson which has shaped their entrepreneurship journey. The literature has reported that entrepreneurship education can be facilitated through entertainment in developing countries by using a televised broadcast as the medium (Bjorvatn et al., 2020).

Other entrepreneurs utilised online information resources such as YouTube and Quora for their entrepreneurship education: *"I began to spend more time in the school library, mostly watching YouTube videos, and as a result, I watched many entrepreneurship videos. I became fixated on business videos and, more specifically, dreamers" (*DE06). Similar experience was reported by others: *"GitHub and GitLab have been critical to my success. These are learning and skill-building platforms that are backed up by a sense of community. These are just social networks designed for developers" (DE25).* DE12 also remarked: **"I** *prefer Quora for its wealth of information and as a research-driven tool. Responses on Quora are more personal, with first-hand experiences and personal opinions on various subjects'* (DE21). Results demonstrate that the learning experience associated with entrepreneurship education has been improved by the use of technology, specifically social and knowledge-laden platforms such as YouTube, Quora, LinkedIn, and GitHub. This has been the case because of the rise in the popularity of online education (Gustavo Barrera and Antonio, 2022). This finding aligns with a study by Liu (2018a), who shows how Chinese digital entrepreneurs interact and leverage social network and system of relationships to buffer the negative impacts of structural holes on information and knowledge mobilisation. The utilization of online social structures has been demonstrated to have been used for problem-driven information-seeking (Micheli et al., 2020) which could be in the form of business idea information-seeking.

Structural holes theory holds that individuals hold certain informational positional advantages/disadvantages from how they are embedded in neighbourhoods or other social structures (Burt, 2004). The idea behind structural holes theory is close to the strength of weak ties theory. Granovetter (1973) contends that the stronger the tie between two people is, the more likely their contacts will overlap so that they will have common ties with the same third parties. This implies that bridging ties are a potential source of novel ideas. Online platforms have helped digital entrepreneurs to gain access or become members of other social groups which are geographically separated. Granovetter (1973) argues that strong ties are unlikely to transfer any novel information. It can be inferred that this is as a result of the memberships of these online communities as well as the

willingness of the members to respond to questions enabled by idea generation among the Nigerian entrepreneurs.

These twin theories have shed a light on the mechanism that helps the Nigerian digital entrepreneurs easily come up with business ideas, through the means of social brokerage. This hold that people connected across groups are more familiar with alternative ways of ideating and behaving. Brokerage across the structural holes between groups provides a variety of options otherwise unseen, where online platforms become a mechanism by which information brokerage becomes feasible. Fonseca and Costa (2016) examine the evolution of information brokerage over time and discuss the impact of digital technologies on the field. Literature from the developing countries attested to those empirical findings (El Bedawy and Farag, 2016; Aderogba, 2022).

The context in which ideation occurs among the Nigerian entrepreneurs underscores the importance of social capital and knowledge networks to entrepreneurship education. Global networks or distant knowledge sources are particularly beneficial to innovation and these can be enhanced using online platform technologies which are organised around topics of interest (Swan and Hearn, 2014; Lorentzen, 2008; Hildreth and Kimble, 2004). The idea that individuals can benefit from the numerous norms and values that are fostered and produced by a social network is the core premise of the concept of social capital. These norms and values include trust, reciprocity, cooperation, and most importantly information sharing (Williams et al., 2017; Wang, 2020; Setini et al., 2020; Kim and Aldrich, 2005). Whether or not the importance and role of the network are readily and consciously recognized by the entrepreneurs, it is important to highlight that entrepreneurial knowledge may not be the outcome of formal schooling but the by-product of implicitly accumulated information across space and time.

 Individuals with entrepreneurial knowledge are more likely to become entrepreneurs, according to the entrepreneurial human capital (EHC) theory (Ni and Ye, 2018). Combining entrepreneurial knowledge with various forms of information and abilities can result in the development of exceptional products and services to meet market demands. These entrepreneurs will also be more adept at identifying existing possibilities, overcoming hurdles, and successfully optimizing resources. Previous research has also shown that entrepreneurship knowledge influences entrepreneurial readiness, start-ups, and new business development (Tung et al., 2020; Ruiz et al., 2016; Coduras et al., 2016). Knowledge networks and social capital are only part of the mix that lead to entrepreneurship education, knowledge, and subsequent entrepreneurship behaviour and idea generation.

6.2.2 Entrepreneurship Learning Through Library and Reading Passion

The pursuit of hobbies, such as a passion for reading, has been noted as playing a crucial role in the learning process of entrepreneurs, resulting in the serendipitous discovery of valuable information and ideas that have the potential to inspire entrepreneurial pursuits. In particular, the passion for reading has been recognised as a key factor in facilitating the gathering and absorption of information, thereby significantly contributing to the development of entrepreneurial knowledge.

Entrepreneurship is a complex and dynamic field that requires entrepreneurs to constantly gather information and identify opportunities for innovation. A strong passion for reading has been identified as a catalyst for this process, enabling entrepreneurs to accumulate a wide range of knowledge from a variety of sources (Wang, 2012; Thi Thu Hien et al., 2019). By immersing themselves in reading material, entrepreneurs can acquire valuable insights into market trends, consumer behaviour, and emerging technologies, among other things. According to Thi Thu Hien et al. (2019) **individuals'** reading practices play a vital role in their learning process and contribute to the development of critical abilities such as thinking and creativity. This is particularly important in a fast-changing world, where knowledge about society is constantly evolving. In line with this, entrepreneurs have expressed a belief in the significance of their reading practices in facilitating the discovery or generation of new ideas. A substantial number of digital entrepreneurs have reported that they were able to pick up ideas or were influenced by books they have read. For example, one entrepreneur claims: *"I found a book on my classroom desk called Rich Dad Poor Dad. That is where it all began" (*DE09**)***. Another recounts the benefit of *"a financial literacy book that helps educate tech savvy women about finances in order to achieve financial independence" (DE14).*

These findings reinforce the importance of reading as a means of accessing and acquiring new knowledge. In the field of entrepreneurship, this knowledge can be instrumental in identifying opportunities for innovation and growth. By engaging in reading practices, entrepreneurs can expose themselves to a diverse range of perspectives and ideas, thereby enhancing their capacity for creativity and critical thinking. Studies have linked reading ability and creativity (Wang, 2012; Roberta Louise Mariano et al., 2022). Stuart et al. (2015) also agrees that intelligent people are avid readers. Stuart et al. (2016) shows how reading ability can be used as a measure of intelligence.

While not all entrepreneurs reported having a strong interest in reading, it is possible to infer that their capacity to transfer and utilise the knowledge gained from books is evidence of general creativity, if not specifically related to entrepreneurial behaviour. The transfer of knowledge gained from reading

to entrepreneurial innovation may not always be a direct or conscious process. However, the fact that entrepreneurs are able to apply knowledge from diverse sources to their busineses suggests a level of general creativity that can be harnessed and applied in a range of contexts.

Entrepreneurship demands a high level of creativity and the ability to generate new ideas and perspectives. Reading can facilitate this process by providing exposure to new ideas and perspectives, even if the books are not directly related to the entrepreneur"s field. In this sense, the knowledge gained from reading can be a valuable resource for entrepreneurs seeking to innovate and create value in their ventures.

6.3 Process of Ideation

Fiet and Patel (2008) argued that it is difficult to understand opportunity creation and identification without including information. The process of generating new ideas remains one of the key segments of the research findings, with information taking the central role in the ideation process. Gielnik et al. (2012: p. 563) believe that "an important contextual factor for the creative process is information provided by the environment. Information triggers and directs the thought process that leads to the accumulation of ideas". Shane (2003) notes that "some people are more likely than other people to discover opportunities because they have information that the other people lack" (p. 45). There exist several dimensions to the idea generation process, including the cognitive, behavioural and social aspects. The gathering and utilisation of information is a fundamental aspect of the idea creation process. The results of the study indicate that digital entrepreneurs employ a variety of approaches to generate business ideas. The interpretation and sourcing of information are key factors in the development of these ideas.

6.3.1 Cognitive Idea Generation

Research findings show ideas/information come from two dominant sources, cognitive processes and external factors, which require creativity to harness and utilise. Understanding creativity and how creative ideas are formed can be traced to Mednick's (1962) work more than sixty years ago. Creative people have flatter associative hierarchies - a form by which information or data is stored in the memory. He argues that for any given concept (event, object, or experience), there is a set of associations that can be arranged in the order of their associative strength and, as a consequence, a person can fluently retrieve remote associative elements, which can be combined to form creative ideas. Mednick's findings did not connect creative capacity to particular information behaviour, although it did highlight the role of cognitive information processing in creativity.

Benedek & Neubauer (2013) expand on the work undertaken by Mednick to show the difference between high and low creative individuals. They claim that both high and low creative people show the same general organisation of associative memory; however, creative people follow a common path to uncommon thought, but they do so at a much higher speed. Findings from the current research's empirical data reveal similar noetic or cognitive evidence from participants: *"information goes beyond just the substance of knowing, to unpronounced words in our mind which trigger actions to pursue a goal" (*DE03). This participant believes people can *"enhance their information practices"* by verbalising their thought or thinking processes.

Almost all the models of creativity and ideation used in business, entrepreneurship and innovation are underpinned by psychological theories and explanations, where for example cognitive framework, pattern recognition, divergent thinking, and convergent thinking are applied (Akgün, Lynn & Byrne 2003; Baron 2007; Fabritius 1998; Paletz & Schunn 2010; Xu 2011). Key elements of these creativity models, especially pattern recognition, are mental alertness and ability to discern and analyse macro situations (Baron 2006). Elements of this model can be found in participants' accounts. Two of the participants encapsulate these analytical skills: **"I stayed keen and observant and eventually I spotted an opportunity [and]** *constantly on [the] look[out] for a short-lived business opportunity" (*DE09).

On the other hand, according to Gielnik et al. (2012) theoretical frameworks on creativity have stressed that creative outcomes such as entrepreneurship are the product of a combination of personal and contextual elements rather than a unitary psychological capacity. Creativity is a process of divergent and convergent thinking (Hennessey and Amabile, 2010). Gielnik et al. (2012) assert that the generation of creative ideas involves the sequential application of divergent and convergent thinking. Divergent thinking allows for the generation of numerous unique and original ideas, while convergent thinking facilitates the identification of relevant, accurate, and useful ideas. Convergent thinking is the information-seeking component of the idea generation process, involving the application of lateral thinking to identify information that may appear irrelevant at first glance, but has potential for use in idea generation.

Lateral thinking is a cognitive approach to idea generation which involves purposefully seeking out seemingly irrelevant information and utilizing it for its effect rather than its inherent value. This approach enables entrepreneurs to challenge assumptions and generate innovative solutions that may not be immediately apparent through traditional thinking processes. The utilization of lateral thinking in convergent thinking allows entrepreneurs to generate novel and unique ideas that may have a significant impact on their ventures (Williams, 1983; Mumford et al., 1991).

The present study's empirical findings support the theoretical notion that divergent thinking is the starting point of the creative process. Through divergent thinking, entrepreneurs generate an initial set of multiple and original ideas that form the foundation for subsequent stages of evaluation and refinement. According to (Gielnik et al., 2012), there are various cognitive processes underlying divergent thinking, such as the application of knowledge, analogical reasoning, conceptual combination/reorganization, or abstraction, all of which contribute to the generation of innovative ideas.

Information consolidation and synthesis are other forms of information practice which were found to support idea generation (Saracevic, 2007). Some entrepreneurs are found to engage in examining and assessing information from numerous sources, making connections between the information found, and merging newly acquired information with prior knowledge to produce something new. Saracevic (2007) believes information consolidation allows individuals to identify which pieces of information are most important for their specific needs, such as idea generation. That said, the information science literature has not linked such information consolidation to creativity, even though it is evident how such activities have the potential to support and enhance ideation. However, Al-Issa (1972) opined that the proclivity to attend to and utilise a wide range of information - which may appear to be unimportant at the first given moment - is linked to creative accomplishments.

Moreover, evidence from the research shows how easily entrepreneurs with diverse knowledge bases have creative fluency: the ability to ideate easily. Mumford et al. (1991) process model of creative capacities implies that combining ideas and concepts from disparate, unconnected fields results in the generation of multiple unique ideas. Several types of information drive associational processes in different directions lead in the creation of more unique ideas. Mitchell et al. (2002) also believe that entrepreneurs use their mental models to continuously shift between intuitive and reflective cognitive processes in order to connect previously unrelated information.

Scholars of entrepreneurship agree that a greater quantity of information enhances the likelihood of spotting a business opportunity (Baron and Ensley, 2006). Bishop (2019: p. 20) argues that "unrelated knowledge diversity is particularly important in stimulating new entrepreneurial opportunities". This aligns with the significant finding from the current empirical research, which identified the diversity of knowledge bases among participants. Participants often reported having expertise in multiple, seemingly unrelated disciplines, which appeared to contribute to their ability to generate new ideas. For example, one participant reported: ***"I have always had an interest in two subjects - computer science and geology. So, it was always difficult for one to decide"*** (DE19). This suggests that

individuals with diverse knowledge bases are more likely to identify and synthesize novel connections between seemingly unrelated fields, leading to the generation of new ideas.

Additionally, the empirical findings suggest that other factors, such as prior experience and exposure to new and varied experiences, may also play a role in idea generation. For instance, several participants cited their prior work experiences as having an influence on their ability to generate new ideas. Some participants noted, *"I have worked in several different industries, and I think that has given me a broader perspective and the ability to see connections that others might miss."*; *"My first degree in estate management inspired the idea for the first apps as a symbolic gesture"* (DE25).

The current findings suggest that certain types of information practices, such as the intentional seeking out of diverse information sources and engaging in interdisciplinary collaborations, may facilitate the development of diverse knowledge bases and thus support idea generation. Therefore, it appears that a combination of factors, including diverse knowledge bases, prior experience, exposure to new and varied experiences, and intentional information practices, contribute to successful idea generation among entrepreneurs (Bishop 2019; Micheli, Berchicci & Jansen 2020).

In the realm of idea generation, both behavioural and cognitive information practices are integral. Behavioural information practices encompass the ways individuals engage with information, while cognitive information handling pertains to the mental processes and strategies utilized to make sense of and apply information. The findings of the research indicate that both of these practices are necessary for generating ideas, with behavioural practices providing the foundation for cognitive handling. It can be inferred that interactions with information through our behaviour establish the conditions for the mental processes required for idea generation.

6.3.2 Social And Dispersed Idea Generation - Assistive Ideation

A considerable number of the participants reported being assisted in coming up with their business ideas. This assistance involves finetuning the already discovered idea. Evidence from the research findings corroborate the theoretical proposition put forward by Nambisan (2017: p. 1035) that digital entrepreneurship idea formation and enactment "increasingly involves a broader, more diverse, and often continuously evolving set of actors—a shift from a predefined, focal agent to a dynamic collection of agents with varied goals, motives, and capabilities". This finding has challenged traditional entrepreneurship literature that focused on fixed predefined agency for ideation. The current research findings identify several modes of what Nambisan described as a "less predefined agency" namely *assistive*, *co-ideation,* and *crowd-ideation*.

These new modes of ideation are gaining momentum (Mauer et al., 2021). Tung (2022) developed a framework to help crowdfunding entrepreneurs understand the interplay between customers and firms in terms of how co-creation arises and develops. An earlier study by Karami and Read (2021: p. i) views the current trend of entrepreneurship ideation as "collaborative process undertaken by a constellation of stakeholders that come together to co-create novelty in the environment".

Fischer and Reuber (2011) show how social media play an increasingly key role in digital entrepreneurship co-idea generation. Perry-Smith and Mannucci (2017) provide a detailed account of how social media-based idea generation takes place in four phases, from conception to completion: *idea generation, idea elaboration, idea championing,* and *idea implementation.* Schou et al. (2022) show how online interest communities support entrepreneurship ideation through knowledge-driven forums, a claim supported by the current research's findings. Another co-ideation spot identified in the current research is through interest and practice-oriented groups which serve as a hothouse for entrepreneurial activities. Foss and Grandori (2020) explore the idea of entrepreneurial ecosystems, which they describe as "a complex of interacting agents and institutions in a geographic area, sharing common norms and values, and engaged in multiple forms of entrepreneurial activity." Studies have confirmed that knowledge networks have the power to encourage and support innovation (Howorth, Smith & Parkinson 2012; Phelps, Heidl & Wadhwa 2012).

6.3.3 Applying Information Science Meta Theory

The research findings show that the generation of ideas by digital entrepreneurs is contingent upon various critical factors that govern the access, processing, and utilization of information. These factors include both behavioural and cognitive aspects, as well as contextual factors. In addition, the dispersed nature of entrepreneurial agency that is facilitated by digital technologies necessitates a modification of the attitudes, behaviours, and activities of entrepreneurs. Online communities and social networks remain significant information sources for digital entrepreneurs and represent a confluence of information from various sources that serve as a basis for idea generation. The ability to integrate and synthesize information from diverse sources is a vital step in the process of generating ideas, which in turn initiates the cognitive information processing phase.

These socially and technologically embedded information-seeking and use behaviours resonate with the constructivist approach to information behaviour, in which "individuals are seen as actively constructing an understanding of their worlds, heavily influenced by the social world (s) in which they are operating" (Bates and Marcia, 2005 p. 87). A constructivist approach to information behaviour study typically views an individual's world as a product of their own mind rather than the society in which they live; nevertheless, social constructivism allows for the effects of society and culture (Fisher

et al., 2005). Constructivist metatheory "argues that, while the mind constructs reality in its relationship to the world, this mental process is significantly informed by influences received from societal conventions, history and interaction with significant others" (Talja et al., 2005: p. 81).

Relying on this premise and with empirical evidence from research, Dervin's (1992) sense-making theory offers a more suitable theoretical framework for understanding the idea generation process. The theory emphasizes the importance of metacognition, or the ability to reflect on one's own cognitive processes, as a key component of sense-making. Bastian and Zucchella (2022) study provides evidence for the role of metacognitive processes in the idea generation stage of start-up development, highlighting the importance of self-reflection and self-awareness in the process. They argue that "metacognitive processes lead nascent entrepreneurs to go beyond their social networks, structures, and memberships to search for expertise and engage with outsiders. These interactions stimulate entrepreneurs to cognitively adopt feedback, either from the extent to which they leverage human relationships inside and outside their venture, or from the extent in which they benefit from comparison within their social structures." Metacognition has become an important focus in research on entrepreneurial creativity, with scholars exploring how nascent entrepreneurs use these processes in their start-up development. By applying Dervin's sense-making theory and investigating metacognition in the context of entrepreneurial creativity, scholars can gain a deeper understanding of the complex cognitive processes involved in idea generation and improve their ability to support the development of successful start-ups.

Cognitive models of creativity typically shed light on where and how new ideas emerge (Thomas, 2004; Robert and Jintong, 2011; Perry-Smith and Mannucci, 2017). This was echoed by the majority of the participants' comments. According to the findings, the generation of an idea might be either externally or internally driven. An emerging concept from the research findings suggests that interdisciplinarity, the practice of looking across diverse disciplines, is critical for entrepreneurial ideation. This view is supported by the prevalence of start-up entrepreneurs engaging with knowledge for which they have not been formally trained or educated. The internet, particularly online communities, has facilitated this trend by providing new ways of interacting with information that differ from the traditional organization of information resources. The internet's influence on information access and utilization has enabled entrepreneurs to leverage diverse knowledge and perspectives, leading to new and innovative ideas.

6.4 Information Behaviour

The information behaviour of the digital entrepreneurs identified from the current research indicates a variety of information practices. These behaviours include but are not limited to the searching strategy, the mode of access and barriers to access, and information overload and ways of overcoming it. The information behaviours identified also include evidence of serendipity, information filtering, and information avoidance. It is also worthy of note to acknowledge the three most encountered information landscapes (Lloyd et al., 2013) of the digital entrepreneurs, namely the internet, the maternal, and the mentorship information landscapes.

6.4.1 Information Environment

Three information environments have been identified from the current research, namely the internet, the maternal, and the mentorship information landscapes.

6.4.1.1 The Internet as the Information Environment

The information environment of digital entrepreneurs has not been adequately researched (Orrensalo, 2020) despite its significance to the digital environment (Orrensalo et al., 2022). Marton and Choo (2002) provide one of the earliest information behaviour insights into digital professionals. They opined that the internet (the worldwide web) and computer mediated communication are the most popular information sources. Information source selection is crucial for entrepreneurs and "especially important in the case of small businesses and start-ups, because most of their operations rely on small teams or solo entrepreneurs who must perform many tasks simultaneously, such as information-seeking, using information, and making business decision" (Orrensalo et al., 2022: p. 30; Nikou et al., 2020). As a result, entrepreneurs who have higher levels of critical information literacy are better able to deal with digital information sources, incomplete information, and other potential challenges associated with building an information resource base and overcoming resource constraints in our modern information-based economy.

The internet has exerted a tremendous impact on entrepreneurial activities and redefined Users' approach towards the seeking of information (Nambisan et al., 2018; Nambisan, 2017; Nambisan, 2011). The internet has almost democratised access to information while reducing costs (Erdelez and Ware, 2001; BayrakdaroĞLu and BayrakdaroĞLu, 2017). This perhaps is one of the major reasons why it remains popular among digital entrepreneurs (Nambisan, 2017). According to Hektor (2003), the internet has levelled the playing field for all information seekers by requiring a rather insignificant cost for participation: *"I'm using libraries created from Stanford or Berkeley. Still, I have access in a way to the same statistical algorithms that multinationals, governments have that wasn't the case 20 years ago" (DE19).*

Nambisan et al. (2018) shows that digital literacy and digital devices are entry requirements for internet participation. Empirical evidence from the recurrent research shows an overwhelming reliance on the internet to satisfy the information needs of users. DE19's account echoes the impact and acknowledgment of the role of the internet to entrepreneurs: *"In the past, that type of information was gold dust that your competitors would have held, whereas now you can find it. It's the democratization" (DE19).* These needs are met using particular online tools (search engines) and platforms (social media and knowledge-driven online communities, including YouTube and Quora) as discussed in the previous section.

The internet remains the principal source of information for the vast majority of entrepreneurs, according to empirical evidence. DE11 opined that: *"my main source of information is the internet"* while DE18 believes that *"there is no better place to find information than the internet"*. Many studies have shown that entrepreneurs continue to extensively rely on the internet for information searches, and this tendency shows no indication of abating. In addition to its accessibility and ease, the internet's unique ability to facilitate peer-to-peer interaction has largely contributed to its continued dominance as a source of information (Erdelez and Ware, 2001). Entrepreneurs can engage in discourse with experts in their respective industries through peer-to-peer exchanges, thereby contributing to the validation of information and ensuring the reliability of sources. In addition to fostering a sense of community, these contacts allow entrepreneurs to learn from the experiences of others, so enhancing their overall knowledge and skill.

Despite being considered an informal source, the internet is still a widely consulted information source among Nigerian youths, which is the age category to which almost all research participants belong (Igwe and Onah, 2013). However, studies have shown that the internet ranks low in credibility and trust among users (Cerf, 2016). Marcella-Hood and Marcella (2022) made a similar observation, noting that online information seekers should treat online information with a pinch of salt.

6.4.1.2 The Maternal Information Environment

The current research has uncovered a surprising finding regarding the sources of information on which entrepreneurs rely. While traditional notions held that the internet is the primary source of information, current research shows that entrepreneurs often turn to informal sources of information, with their mothers being a significant source. This finding highlights the significance of informal sources of information in the decision-making process, particularly the role of mothers in providing entrepreneurs with valuable information.

As one entrepreneur shared, "We have a home library at home given that my mum is a medical doctor" (DE12). This suggests that mothers may have valuable knowledge and resources that they can

offer to their children who are entrepreneurs. Another entrepreneur stated: ***"My mum was quite the opposite; she had always encouraged me to pursue the things that brought me happiness"*** (DE15). This highlights the emotional support that mothers can offer to their children who are entrepreneurs. Greene et al. (2013) explored the impact of maternal influence on entrepreneurial propensity, emphasizing that mothers play a significant role in shaping the entrepreneurial mindset of their children. Mothers can provide emotional support, practical advice, and a valuable perspective that can help entrepreneurs make informed decisions. It is worth noting that mothers are not typically considered experts in the field of entrepreneurship, yet entrepreneurs still place a great deal of trust in their advice and guidance. This suggests that mothers may possess unique knowledge or experience which makes their counsel valuable.

Adebiyi et al. (2019) examined the extent of mothers" influence on the entrepreneurial decision-making process of their adult children in Nigeria. Specifically, the study found that mothers provided emotional and financial support, instilled moral and ethical values, and imparted practical knowledge to their children about business management and decision-making. Furthermore, the study revealed that mothers" influence on their children's entrepreneurial pursuits was more profound in cultures like Nigeria, where family values and traditions are highly regarded.

Mothers can offer a wealth of information that entrepreneurs may not find through traditional sources, such as the internet or formal business education. Informal sources, such as mothers, are perceived as trustworthy by entrepreneurs, which can be a crucial factor in their decision-making process. As one entrepreneur stated, "***I believe my educational background has an influence, but I also attribute it largely to my family because my mum has had some businesses long ago"*** (DE07). This suggests that mothers can offer practical knowledge and insights based on their personal experiences in the business world.

The significance of informal sources of information in entrepreneurial decision-making, particularly the role of mothers, is an area that has been largely overlooked in previous research. However, this finding highlights the importance of trust in the information-seeking process, as entrepreneurs rely on sources they trust, regardless of whether they are formal or informal. Mothers, in particular, can provide entrepreneurs with valuable information and insights that they may not find through traditional sources, and their counsel should not be overlooked. For example, mothers may have personal experience in starting and running a business or may have connections in the industry that can provide valuable insights. Furthermore, mothers may have a deep understanding of their child's strengths and weaknesses, which can help entrepreneurs to make informed decisions about the direction of their business.

6.4.1.3 The Mentorship Information Environment

The widespread perception that entrepreneurship is a relatively straightforward and uncomplicated concept, requiring only a basic level of knowledge and expertise (Scott and Sankaran, 2000), does not appear to be true about the entrepreneurs in the current research. Mentorship is one way in which the current participants have enhanced their entrepreneurial learning. DE12 thinks his creative capacity has improved because he was encouraged to think beyond what he already knows by his mentor: "***often he would challenge me to do things I was not taught to do by him. This has really enhanced my creative capacity***" (DE12). Social relationships are found to influence entrepreneurial careers (Tartari et al., 2014). These social interactions are not just as a conduit for the transfer of information (Podolny, 2001), but also as a vector for the diffusion of social norms (Granovetter, 2018). This means that mentors exert great influence on their mentee, and they serve as sources of information and ideas, as captured by one of the entrepreneur's remarks: "***my entrepreneurship*** *didn't* ***start as a partner business. But rather it is a kind of mentor-mentee relationship. My friend was very instrumental. I learn basically all the things from him. He's a really magnanimous and generous person"* (17). Social interaction through mentoring, as seen from the findings, can alter a person's intentions, beliefs, and actions, in relation to entrepreneurship (Cartwright, 1971). Experienced entrepreneurs, with their unique insight into the unwritten norms, attitudes, values, and standards of the start-up community, can assist others in developing a more accurate assessment of such entrepreneurship careers. The importance and need for such mentorship guidance is found in one of the participant's narratives: "***I wish I had a mentor early on. I could have done better under the right mentorship. With mentors, one does not need to know or experience everything from the hard way***" (DE09). The literature on entrepreneurship shows that exposure to start-up careers comes through social relationships such as familial ties (Greenberg, 2014), school networks (Stuart and Ding, 2006; Roach (Sauermann and Roach, 2012), and co-workers (Nanda and Sørensen, 2010).

That said, mentorship relationships are usually built through deliberate networking. However, the current research's empirical findings challenge this conclusion. One of the participants was found to have established a lasting mentor-mentee relationship entirely by chance: *"my love for technology has matched my initial interest in games and computers. I was street-hustling in that direction and then stumbled on the right mentor in the same industry segment I was interested [in]"* (02).

Unlike the maternal information environment, access to the mentorship information landscape needs to be carefully negotiated, given that empirical evidence shows that mentors can be reluctant to impart knowledge or share information out of fear of competition: *"I have always been fearful about sharing my idea with people close to me" (DE02).* Leck and Orser (2013) highlight the importance of trust in mentoring relationships, while Erdem and Aytemur (2008) found that trust is crucial in

developing a successful mentoring relationship, which is a mutually beneficial partnership that involves the transfer of knowledge, skills, and experience. They noted that trust is built through open communication, confidentiality, reliability, and respect.

Formal sources of information typically refer to sources that are institutionalized and established through formal channels. Examples of formal sources of information include academic publications, government reports, and professional organizations. On the other hand, personal sources of information refer to sources that are based on interpersonal relationships and personal interactions. Examples of personal sources of information include friends, family members, and mentors (Kaye, 1995; Luca et al., 2012).

However, mentorship programs that provide entrepreneurial guidance and insights to aspiring entrepreneurs can possess both the traits of formal and personal sources of information. While these programs are often institutionalized and established through formal channels, they also involve interpersonal relationships and personal interactions between the mentor and mentee.

As such, mentorship programs that provide entrepreneurial guidance and insights to budding entrepreneurs can be considered to possess the characteristic traits of both formal and personal sources of information. They are formal in the sense that they are institutionalized and established through formal channels, but they are also personal in the sense that they involve interpersonal relationships and personal interactions. Maternal and mentorship environments may not be as obvious as other sources of information, but they can provide entrepreneurs with unique and highly valuable insights into their environment and the markets in which they operate. From a symbolic interactionist perspective, the value of these sources of information lies not in their formal credentials, but in the meaning and context that they provide to entrepreneurs as they navigate the complex world of entrepreneurship. According to symbolic interactionism, individuals rely on a range of sources to construct their understanding of the world and their place within it. These sources may include formal and informal information sources, such as books, websites, friends, family, and mentors. Each of these sources can provide valuable information, but the value of that information may depend on the individual's goals and the context in which it is received (Sørensen et al., 2007; Housley and Smith, 2017). The entrepreneurs do not utilise these sources in any particular order, but rather in a composite fashion. The empirical evidence suggests that the information environment is not an isolated, intentional, or purposeful location or activity, but rather that it can be socially and culturally entrenched into structures that coexist with other phenomena; and as Marcella and Lockerbie (2016) opined, each individual's information environment is complex.
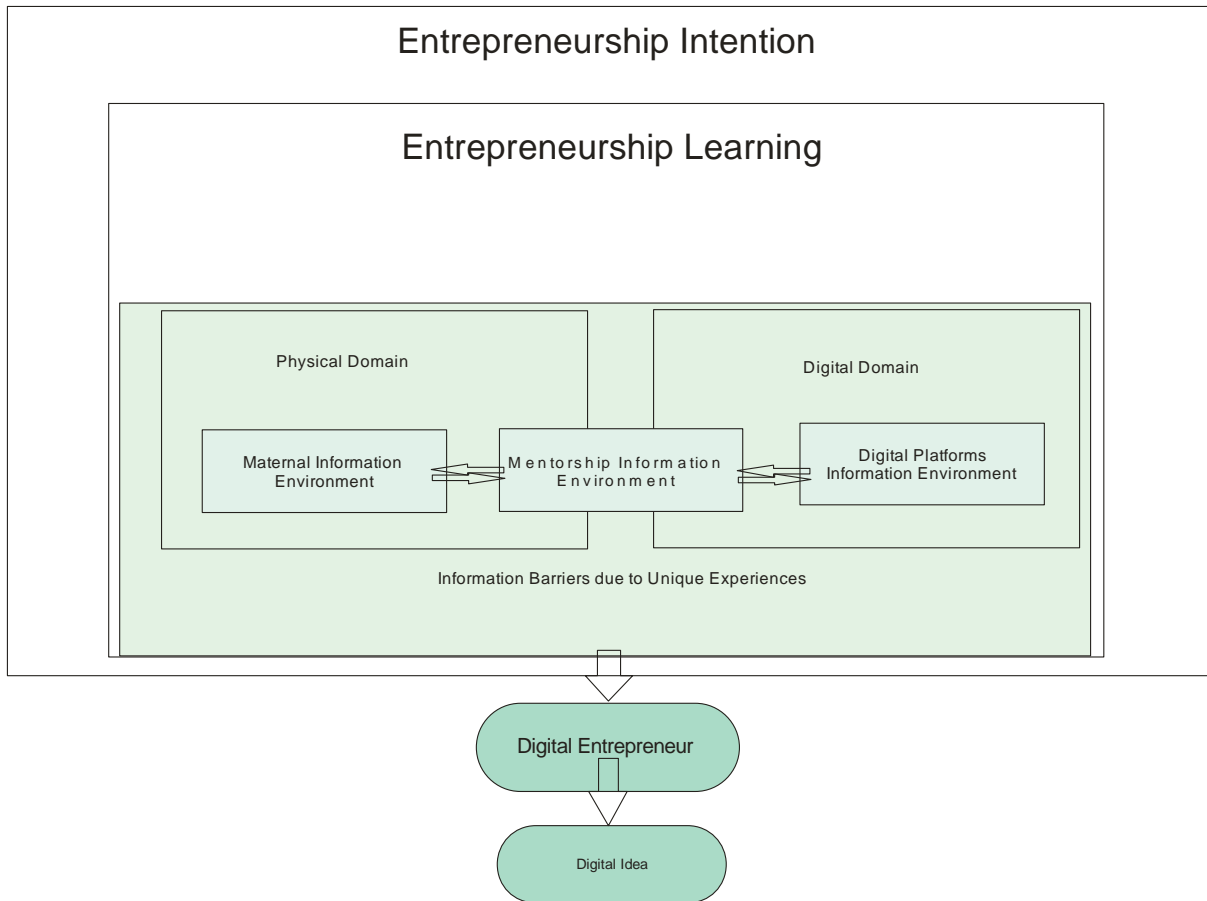
Figure 7: The Information Environment of Digital Entrepreneurs

6.4.2 Information Searching/Seeking skills

The research findings show a variety of unstructured and spontaneous information searching patterns. These information behaviours can be explained and appreciated though the lenses of many theoretical models. The complexity of the information environment might be the reason it evokes such a variety of information searching strategies among the entrepreneurs. Pirolli and Card (1999: p. i) also note that "people, when possible, will modify their strategies or the structure of the environment to maximize their rate of gaining valuable information." Various information models and concepts have been utilised here to drive a theoretical explanation for the empirical findings. Four informational models have been considered in the discussion which follows: namely Wilson, Kuhlthau, Dervin, Taylor, Belkin, Wai-yi, and Leckie

6.4.2.1 Wilson

Wilson (1997) study can be used to elucidate the observed information behaviour of these entrepreneurs, particularly in trying to understand the early factors that gave rise to the entrepreneurship intention, such as ambition. This is captured within the "activating mechanisms" Wilson included in his 1996 information behaviour model. The "activating mechanisms" identify

relevant impetus that prompts a decision to seek information: *"ambitions drive one to search for information or ideas. And you hardly find anyone that is not ambitious. How we react and handle the consequence of your ambition is what makes a difference in the entrepreneurship journeys"* (DE14). This suggests that ambition is a key driver of information-seeking behaviour in entrepreneurship. In the context of entrepreneurship, Wilson's perspective suggests that **individuals'** ambition and motivation play a key role in shaping their information behaviour. Entrepreneurs who are highly ambitious and motivated may be more likely to engage in extensive information-seeking behaviour as they seek to gain the knowledge and resources necessary to achieve their goals. Thus, while ambition may drive entrepreneurs to seek information, the effectiveness of that behaviour is highly dependent on a range of factors beyond the individual's motivation and drive. To maximize the value of information-seeking behaviour in entrepreneurship, individuals must be able to effectively process and utilise the information obtained and must be supported by a social and technological infrastructure that enables effective information exchange and utilization.

Wilson argues that information behaviour is a complex, multidimensional phenomenon which is influenced by a wide range of factors, including individual characteristics, social context, and technological infrastructure. According to Wilson, information behaviour is shaped by both internal factors, such as cognitive and affective processes, and external factors, such as social norms and technological constraints. Empirical findings from the current study indicate that information access barriers also lend themselves to the *Intervening Variables* of Wilson's model.
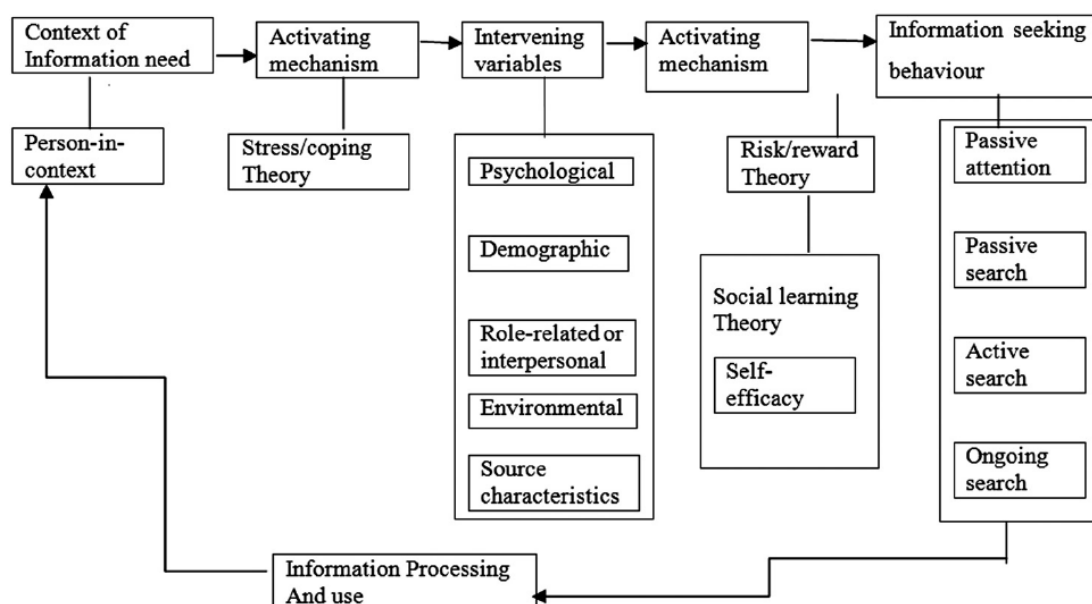
Figure 8: Wilson 1996 Information Behaviour Model

6.4.2.2 Dervin

Dervin (1983) study provides yet another important theoretical function within the ambit of the empirical findings. The model's strength is that it emphasizes the relationship between diverse situations that participants encounter at work and in their usage and selection of information sources. Dervin's sense-making theory suggests that people make sense of the world by actively seeking information and interpreting it based on their prior experiences and current context. The theory emphasizes the importance of understanding the user's perspective and their information needs to effectively provide them with the information they require.

The empirical data provided in the statement "***how one fully articulates the needs goes a long way in helping him/her find the right information"*** *(DE04)* supports Dervin's sense-making theory. The statement suggests that the user's ability to articulate their information needs accurately plays a crucial role in finding the right information. Dervin's sense-making theory would suggest that the user's prior experiences and context influence their ability to articulate their needs. Therefore, it is important to understand the user's perspective and information needs in order to help them effectively navigate information resources. Additionally, the statement ***"the most important aspect is the articulation because information resides externally from us"*** *(DE04)* highlights the idea that information is not inherently useful: its value depends on the user's ability to understand and apply it. Dervin's sense-making theory emphasizes the importance of understanding the user's perspective and context to help them effectively make sense of the information available to them.

Dervin's sense-making theory is relevant to the empirical data presented in the statement. The theory emphasizes the importance of understanding the user's perspective and information needs to effectively provide them with the information they require. The statement highlights the importance of the user's ability to articulate their needs accurately, which is consistent with Dervin's emphasis on the user's prior experiences and context in shaping their information needs.

Dervin sees information as a human tool designed for making sense of a reality assumed to be both chaotic and orderly. Her triangular information model encapsulates the high-level information-seeking of the digital entrepreneurs. The framework is composed of three factors, situation, gap/bridge, and outcome, which are presented as a triangle. The first factor, situation, is related to the context of the study, specifically the challenges faced by entrepreneurs in their socioeconomic environment. This element leads to the emergence of information problems. The second factor, gap or bridge, highlights the discrepancy between the current situation and the desired state of entrepreneurship effectuation. The bridge element refers to the process of closing this gap by seeking and using information, such as ideation. Finally, the outcome represents the consequences of this sense-making process, which

results in a holistic experience. Overall, this framework provides a comprehensive understanding of the sense-making process in the context of entrepreneurship.


Situation

Gap/Bridge **Outcome**
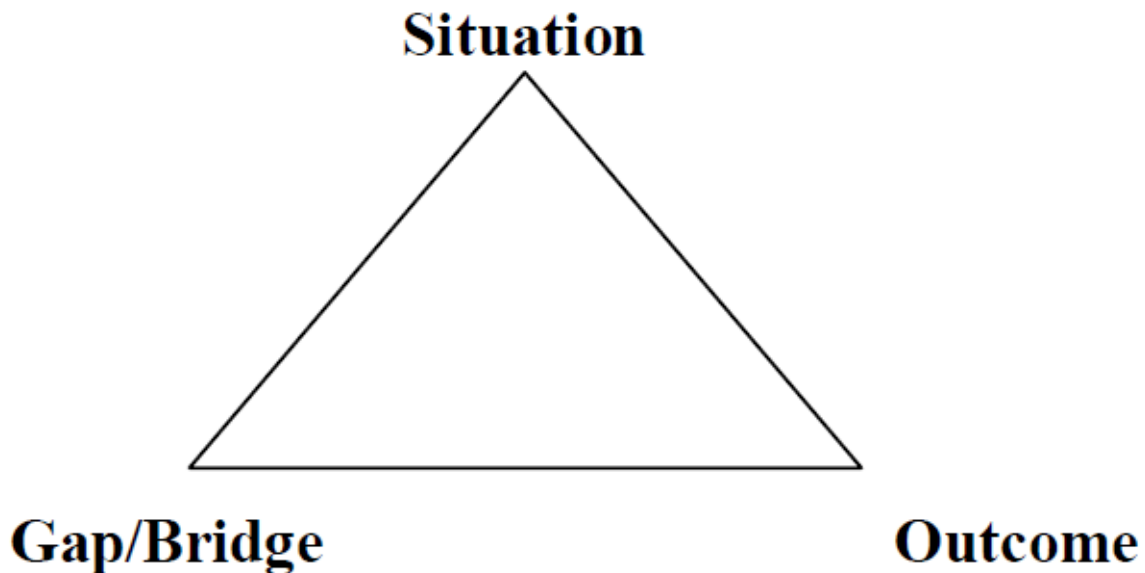
Figure 9: Dervin's Sense-making" Triangle

6.4.2.3 Wai-yi

An information-seeking and using process model in the workplace created by Wai-yi (1998) can also be used to address some of the inadequacies of Dervin's sense-making theory and its assumptions, especially the linearity of the information search process described by Dervin. Wai-yi has incorporated Kuhlthau's assumptions on the information search process, even though his model is fundamentally built on Dervin's constructivist sense-making theory. Kuhlthau (1993: p. 9) believes that "an information search is a learning process in which choices along the way are dependent on personal constructs rather than on one universal predictable search for everyone". This approach to information-seeking is found to reflect the information behaviours of the digital entrepreneurs in the current study.

The model proposed by Cheuk Wai-yi (1998) suggests that information-seeking and use in the workplace is a constructivist process. This means that individuals actively construct their own knowledge through their experiences and interactions with information.

The model proposes that information-seeking and using involves several stages, including problem identification, planning, execution, and evaluation. According to the model, effective information-

seeking and using requires the individual to have a proactive attitude towards seeking information and to be adaptable and patient in the face of challenges.

The empirical data which suggests *that "the best way to look for information is to build the right mindset"* (DE17) is consistent with the constructivist approach proposed by Cheuk Wai-yi (1998). Being adaptable, formless, meticulous, and patient can all be seen as characteristics of an individual who is actively constructing their own knowledge through their experiences and interactions with information.

The suggestion to have an excellent memory and reflect immediately on responses or feedback can also be seen as consistent with the constructivist approach proposed by Cheuk Wai-yi (1998). Effective information-seeking and use involves not only finding relevant information but also processing and applying that information in a meaningful way. Reflection and memory are important tools for integrating new information with existing knowledge and experience.

Wai-yi's model of information encompasses a wide range of elements that can be considered as information, including data, figures, events, words, opinions, comments, and experience. This model of information aligns with the present research and reinforces the hypothesis concerning the participants' wide perspective on information. This suggests that meaning is assigned to information by individuals, and this meaning can vary depending on the context and the individual's perspective. According to Wai-yi's model, information is not limited to mere data or figures but also includes events, words, opinions, comments, and experience. This broad spectrum of information underscores the complexity of the concept of information and highlights the need for a multifaceted approach to its study. In the context of the present research, this model of information resonates with the hypothesis that participants view information as a multifaceted construct that encompasses a wide range of elements.

6.4.2.4 Sandstrom

An equally important information model which can be utilised partly to further demonstrate the empirical findings" alignment to existing theory is the study conducted by Sandstrom (1994), who dichotomised the information searching behaviour into *specialist* and *generalist*. Sandstrom (1994) proposes an optimal foraging approach to understand information-seeking and use, drawing an analogy between foragers in the natural world and information seekers. The approach suggests that information seekers must make decisions based on a cost-benefit analysis, considering the effort and time required to locate and retrieve information, as well as the quality and relevance of the information. The approach also suggests that information users must determine how to efficiently and effectively process and apply the information to their needs. Sandstrom's approach has significant

implications for information professionals and individuals, emphasizing the importance of efficient and effective information-seeking and use.

Sandstrom's continuum theory suggests that there are two main foraging strategies: specialists and generalists. Specialists rely on their own personal collections and a small number of high-quality sources, which they encounter through casual conversation with like-minded individuals. For them, staying within a company which shares their interests, thoughts, or energy is essential to easily locate the information they need. On the other hand, generalists gather sources from a large number of low-quality "patches" that require deliberate searching and other labour-intensive techniques. They search a lot, sometimes with no particular aim, hopping from one place to another as their need changes. According to one participant's narration: *"I stay with a company that shares my interests, thoughts, or energy because it is simple to locate the information";* and *"I search a lot, sometimes with no particular aim, roughly. I hop from one place to the other, you know, it's just my need changes"* (DE19).

The theory suggests that people are primarily influenced by their self-interest, and this can be seen in the search attitude of entrepreneurs, regardless of the type of search they engage in. Some entrepreneurs rely heavily on internet sources, such as YouTube and Quora, believing that all of their learning and information needs can be met through these online forums. Others have relied on a number of informal and personal contacts, such as mentorship groups and peers, to gather the information they need.

Sandstrom's continuum theory highlights the different search strategies that individuals can adopt to achieve their goals. Specialists and generalists approach the search for information in different ways, but both are driven by their own self-interest. Entrepreneurs, in particular, can benefit from understanding the different search strategies and the attitudes that underpin them, as this can help them to find the information and resources they need to succeed in their businesses.

6.4.3 Kahlthau, Taylor and Belkin

There also a good number of theories which help to provide a theoretical explanation of the empirical findings, although in a limited but effective way. For example, the Kuhlthau (1991), Taylor (1967) and Belkin (1980b) theories can all be used to shed light on the entrepreneur's use and interaction with search engines and their processing of keyword formulation, particularly among the immigrant entrepreneurs. Keyword formulation challenges are common among those entrepreneurs that rely heavily on the internet for their information through search engines, given that almost all searches are posed in their second language ,English: *"If English is not your first then you are likely going to*

*encounter the problem of diction and terminology, especially when trying to come up with appropriate keywords in online searching (*DE01). Linguistic flaws may result in poor keyword choice during searches. These limitations will have a negative cascading effect on the entire information-searching process. This means that the seeker may be unable to form the necessary core knowledge/information for the query procedure to progress. This linguistic struggle to express the search query affirms Belkin's (1980) anomalous state of knowledge, ASK, and Taylor's (1962) concept of visceral need, as a linguistically inexpressible discontent, although neither of these theories relate to language issues.

The current research indicates that language challenges are an additional type of barrier that models need to consider, that is that there may be layers of barriers for any individual searcher. The statement also suggests that language challenges are an additional type of barrier that need to be considered when studying information-seeking behaviour. This is supported by recent research which has found that language barriers can be a significant barrier to effective information-seeking, particularly for individuals who are not fluent in the language of the information they are seeking (e.g., Chang & Fisher, 2017; Kim, Lee, & Lee, 2019). Therefore, it is important to recognize that while these theories are useful for understanding the general process of information-seeking behaviour, they do not provide a complete picture of the challenges that individuals may face in seeking information. Language barriers are an additional type of barrier that can significantly affect information-seeking behaviour, particularly for individuals who are not fluent in the language of the information they are seeking.

However, this linguistic struggle and difficulty did not apply to other information-seeking strategies used by the participants as they were not tightly configured, structured information-seeking procedures.

Kuhlthau's information search process depicts how entrepreneurs do information searches using search engines: *"understanding how the technology works is the prerequisite to accessing the information resident there. Technical knowledge is required, such as knowing keyword combinations and the nature of the information being sought"* (DE18).

Empirical data has shown that social support and sympathy can have a positive impact on information-seeking behaviour. In relation to the participants' account*: "that kind of popularity and sympathy has really helped us and our business as well" (*DE17). Rioux and Pennington (2001) found that social support was positively associated with information-seeking behaviour among cancer patients. Kim and Song (2016) found that social support had a significant positive effect on information-seeking

behaviour among Korean entrepreneurs. Sympathy is a form of emotional support that individuals may seek when dealing with uncertainty and ambiguity. When someone is going through a challenging or uncertain situation, like the immigrant entrepreneurs, they may seek out sympathetic individuals who can provide emotional support and reassurance. This can be especially important for entrepreneurs who are navigating the uncertain waters of starting and growing a business.

Sympathy elicitation has not been extensively studied in information-seeking behaviour research, but there is some evidence to suggest that it can influence how individuals seek and use information. For example, a study by Maceviciute and Wilson (2009) found that users who perceived the information provider as sympathetic were more likely to seek additional information from that provider. Similarly, a study by Zhang et al. (2018) found that individuals who received empathic responses during their information-seeking interactions reported greater satisfaction and were more likely to return to the same information provider in the future. These studies suggest that sympathy and empathy can play a role in how individuals seek and use information, although more research is needed to fully understand the impact of sympathy elicitation on information-seeking behaviour.

In the current research, several theories were considered to explore their efficacy in accounting for the empirical results. These theories were chosen in order to provide explanations anchored in existing literature and theory. The theories considered were Wilson's (2005) model of information behaviour, Dervin's (1992) sense-making theory, Kuhlthau's (1991) information search process model, and Wai-yi's (1998) model of information-seeking behaviour. All of these theories proved to be useful in explaining various aspects of the information behaviour of digital entrepreneurs, although some were more applicable than others. For example, Wilson's model of information behaviour was useful in explaining the various types of information needs that digital entrepreneurs have, as well as the sources they use to obtain information. Dervin's sense-making theory provided insights into how digital entrepreneurs make sense of the information they obtain, while Kuhlthau's information search process model was useful in explaining the various stages that digital entrepreneurs go through when seeking information.

However, the fact that these theories only provided partial explanations also highlighted the distinctive characteristics of the information behaviour of digital entrepreneurs. This further highlighted the need for more scientific research to be devoted to this domain, in order to gain a deeper understanding of the information behaviour of digital entrepreneurs.

Of the selected theories, Wilson's model of information behaviour, Dervin's sense-making theory, Kuhlthau's information search process model, and Wai-yi's model of information-seeking behaviour

were found to be particularly useful in providing insights into the behavioural, cognitive, and mechanical aspects of the information behaviour of digital entrepreneurs. Overall, the current research underscored the need for a more nuanced understanding of the information behaviour of digital entrepreneurs, as well as the need for further research in this area.

6.4.4 Affective Responses to The Information Search Process - Feeling Anxious.

Various affective elements have been identified in the information search processes of the research participants. These emotional feelings as reported by the literature harbour several characterisations including tensed feeling, anxiousness, uncertainty, fear and, pridefulness (Girard and Allison, 2008) (Hallowell, 2005). Beer et al. (1998) have found excessive feelings of self-worth to have inhibited information-seeking. Mullen (1994) also reports how information-seeking is impeded by an attempt to safeguard one's self-esteem. Both studies are demonstrated in the findings of the current research. This implies that users who are overly protective of their public image and reputation will be disinclined to informally seek information if the fear of embarrassment might be. This behaviour can also be a prelude to a theoretically described behaviour, termed information avoidance (Frey, 1982), which has been deduced from the empirical findings: *"**I have practised information avoidance, you know, I don't want to read about how bad, you know, things are going to be with tax rises"*** *(DE19).*

Similar conclusions were also reached by Zhao and Liu (2021) and Tunney et al. (2021) who both found a correlation between negative information and information avoidance. Foglia (2019) also found a number of affective elements such as guilt, fear, and stress that caused or induced information avoidance. His findings also resonate with the research findings: ***"I get stressed whenever I am unable to digest the information. I get worried about it"*** *(*DE15). The empirical findings also reveal evidence of cognitive dissonance among the participants, as one participant expressed his desire to avoid negative information but acknowledged that his intense and sustained information search would expose him to encountering such unwanted information (Frey, 1982).

6.4.5 Information Overload

The current research explores in more depth some of the ways in which individual users interact with information in fast-changing contexts. Participants faced the greatest difficulties in dealing with increasing information overload as a result. Their capacity to process and utilise information is acknowledged by some participants to be limited, in that they lack the ability, in particular, to filter, digest, and apply information. Their absorption of information could not match information influx. Numerous techniques have been proposed in dealing with information overload, which can be applied at various stages within the information-seeking and use cycle. Thus it is important to recognize that managing information overload requires a combination of effective filtering strategies, the development of analytical and cognitive capabilities, and disengagement from the information environment.

The participants generally understand information overload as a situation where having too much information becomes a problem instead of being helpful. This leads to feelings of stress, being overwhelmed, and having anxiety. In other words, having access to a large amount of information can be beneficial, but when it gets too much to handle, it becomes a hindrance and creates negative psychological effects.

Empirical findings from the study identified two important factors causing or exacerbating the information overload phenomenon: i) the technology/internet and ii) Users' inefficient information practices. The existing literature has documented and validated these findings by arguing "information and communication technologies, aimed at providing rapid and convenient access to information, are themselves responsible for a high proportion of the [information] overload effect" (Bawden and Robinson, 2009: p. 184). In addition to the nature of the entrepreneur's environment, poor information practices such as poor source selection and inefficient filtering techniques have compounded the information overload problem for participants in the current research. Bawden and Robinson (2009: p. 182) echo this sentiment by arguing that the "major task for information service providers becomes one of filtering and selecting".

The findings of the current study show the different strategies adopted by the participants in mitigating the effect of information overload. This involves applying criteria when selecting sources of information. *Currency* and *reliability* are the most coveted information qualities cited by the research participants. Informational reliability refers to the process of verifying that information is accurate and trustworthy, and that it does not contain concealed forms of disinformation or misinformation. This

involves applying predetermined criteria to evaluate the content of the information in order to determine whether it meets certain standards of accuracy and reliability (Woudstra and van den Hooff, 2008). Woudstra and van den Hooff argue that individuals use a complex set of criteria when selecting sources, and that these criteria are context dependent. Colepicolo (2015) identifies several challenges that users face in evaluating the reliability of information sources. These challenges include the sheer volume of information available, the lack of standardization in information sources, and the difficulty of assessing the expert opinion. The author maintains that to ensure reliability, information sources need to be reduced, lowering the volume of information flow and ultimately reducing information overload. A reductionist approach to mitigating information overload is to limit the amount of information received to only what is necessary. A participant in the study stated that one can avoid being overwhelmed by seeking information as it becomes relevant, or by searching for information that specifically meets their current needs: "***it is unlikely to easily get overwhelmed if you seek information as you use it, using the information immediately when it becomes available or seeking information that fit in your current need***" (DE17).

In the realm of information search or seeking, filtering serves is a crucial means to manage the overwhelming amount of information available. The process of filtering can take various forms, including information reliability evaluation and satisficing, each of which operates at different levels of the information search process. Prabha et al. (2007) discuss the concept of satisficing, which refers to the practice of seeking out and using information that is deemed "good enough" to meet one's needs, rather than pursuing an exhaustive search for the best or most comprehensive information. The authors argue that this approach is a common and effective strategy used by information seekers, particularly in the context of everyday life and work situations where time and resources may be limited.

The current research findings discover the existence of two forms of filtering strategies based on the empirical data: (1) "rational" filtering, driven by intellectual reasoning, and (2) "visceral" filtering, instinctive or affective in nature. Participants in the study also acknowledged that filtering strategies entail certain risks and require searchers to be prepared to bear the potential consequences of missing out on important information. Hence, when conducting searches it is essential to recognize and weigh these risks.

The current research findings supports the notion that one approach to mitigating information overload is to enhance the user's information absorption and interaction through techniques such as

analytical training. However, simply reducing access to information sources is not the solution. Instead, as one participant stated, *"the solution... is knowing how to find, consume, and filter information in the most efficient way possible"*. This sentiment is echoed by another participant who attributed their ability to handle large amounts of information to their passion for reading, stating that without it, they would "*have a hard time combing through all the information"* (DE03) as part of their job. Existing literature concerning ways of addressing information overload is silent about these empirical findings. However, while these techniques can be effective in improving information absorption and interaction, they also require significant effort and time on the part of the user. Additionally, they may not be suitable for all individuals, as different people have different learning styles and cognitive abilities. As such, it is important for individuals to experiment with different techniques and find those that work best for their individual needs and preferences. Overall, techniques that enhance the user's information absorption and interaction can be effective in mitigating the effects of information overload, but they require ongoing effort and experimentation. It is also important to note the absence of a reliable metric for measuring the effectiveness of these participant claims. Notwithstanding, these are still valid first-hand experiences of information users.

Research suggests that individuals can improve their ability to handle large amounts of information by employing various cognitive strategies, such as chunking and mental modelling (Miller, 1956; Gick & Holyoak, 1980). Chunking refers to the process of grouping related pieces of information into larger units, which can be processed as a single entity. Mental modelling involves creating a simplified representation of a complex system, which allows the user to better understand the underlying structure and relationships between different elements of the system (Johnson-Laird, 1983; Gentner & Stevens, 1983).

Another technique that has been used to improve information absorption and interaction is gamification (Deterding et al., 2011; Hamari et al., 2014). Gamification involves the use of game-like elements, such as rewards, challenges, and points, to engage users and motivate them to learn and interact with information. Gamification has been found to be particularly effective in motivating individuals to learn and engage with complex information, as it provides a fun and interactive way to absorb information.

While some methods entail engaging with the information to enhance one's ability to handle the influx of data, other approaches suggest seeking physical and cognitive distance from the information, through information avoidance. Digital entrepreneurs have suggested removing oneself from the information environment as a way of minimizing the impact of information overload or what is now commonly referred to as infobesity.

Bawden and Robinson (2009: p. 185) describe infobesity as a state of personal information overload, particularly if generated by an overconsumption of information. They argue that "information overload is often dealt with by the simple, if brutal, tactic of information avoidance: ignoring relevant information and useful information sources because there is too much to deal with." This information avoidance is seen in one participant's narratives: ***"So coming back to your question of how I handle such a situation, the first thing is to take a break and get engaged with the outside world or real world. I will remove myself from social networks, emails, or push notifications. Just me and the outside world"*** (DE10). These findings highlight the efficacy of information avoidance and information withdrawal as a viable tactic for managing information overload.

Savolainen (2007a) observes a related phenomenon called information withdrawal, which involves limiting the number of sources considered, as well as more subtle filtering processes, with a quick sorting out of information of limited use. This approach is supported by the empirical findings of the current research, as one participant noted: "***The best techniques to minimize such occurrences is to employ a mental sieve to quickly do away with the unneeded information"*** (DE1). Similarly, another participant suggested: ***"I think the logical thing to do is arrange them in a given order of criteria, say authenticity or temporality, then eventually selection can be made"*** (DE8).

Gerhart (2018) focuses on the development of scales to measure stopping rules in information search behaviour. Stopping rules refer to the criteria or conditions that individuals use to determine when to terminate their search for information. Gerhart proposes a set of scales for measuring three different types of stopping rules: cognitive, affective, and behavioural. The cognitive stopping rule scale measures the criteria individuals use to assess the relevance, usefulness, and quality of information during their search. The affective stopping rule scale measures the emotional states that influence information search behaviour, such as frustration, boredom, and curiosity. The behavioural stopping rule scale measures the behaviours individuals engage in when they decide to stop their search, such as bookmarking or saving search results.

Narayan, Case & Edwards (2011) explored the role of information avoidance in everyday information behaviours. They argued that information avoidance is an important part of information behaviour and can be a useful coping mechanism for dealing with information overload. The authors identified different types of information avoidance behaviours, including procrastination, selective exposure, and selective attention. They showed that information avoidance behaviours are not always negative, as they can serve a protective function by allowing individuals to maintain their psychological well-being. However, the authors caution that excessive information avoidance can lead to negative consequences, such as missing important information or making uninformed decisions. This is a claim

also supported by the current research. Narayan, Case, and Edwards" (2011) study sheds light on the importance of information avoidance in information behaviour and its potential consequences. It highlights the need for individuals to strike a balance between engaging with information and avoiding it when necessary, in order to make informed decisions and maintain their well-being. It is also worth noting the usefulness of information retrieval tools in assisting in the reduction of information overload. However, these digitally supported retrieval techniques, which enable filtering and sieving functions, are also limiting factors in that they decrease the amount of information available for digestion.

Presearch
- **Relevance:** Currency and Reliability

Searching
- **Filtering :** Rational, Visceral and Satisfiing

Engagement
- **Absorption:** Chunking and Mental Modelling

Disengagement
- **Avoidance, Ignoring, and Withdrawal:** fear, boredom, and embarrassment
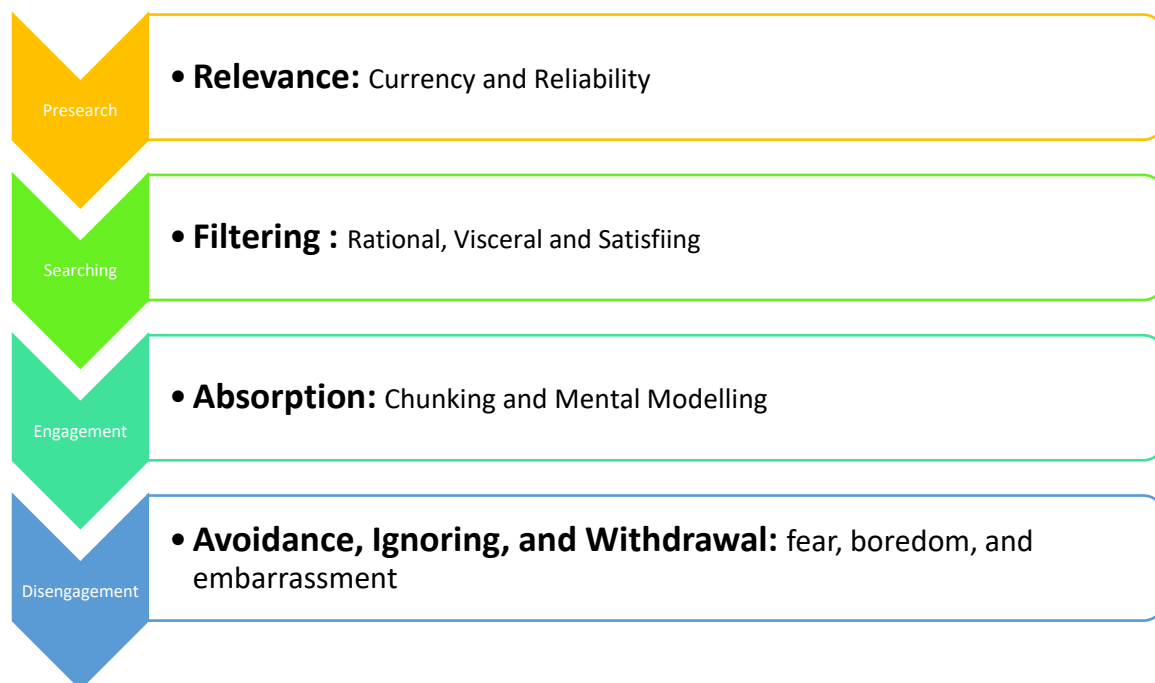
Figure 10: Information Overload Mitigation Strategy
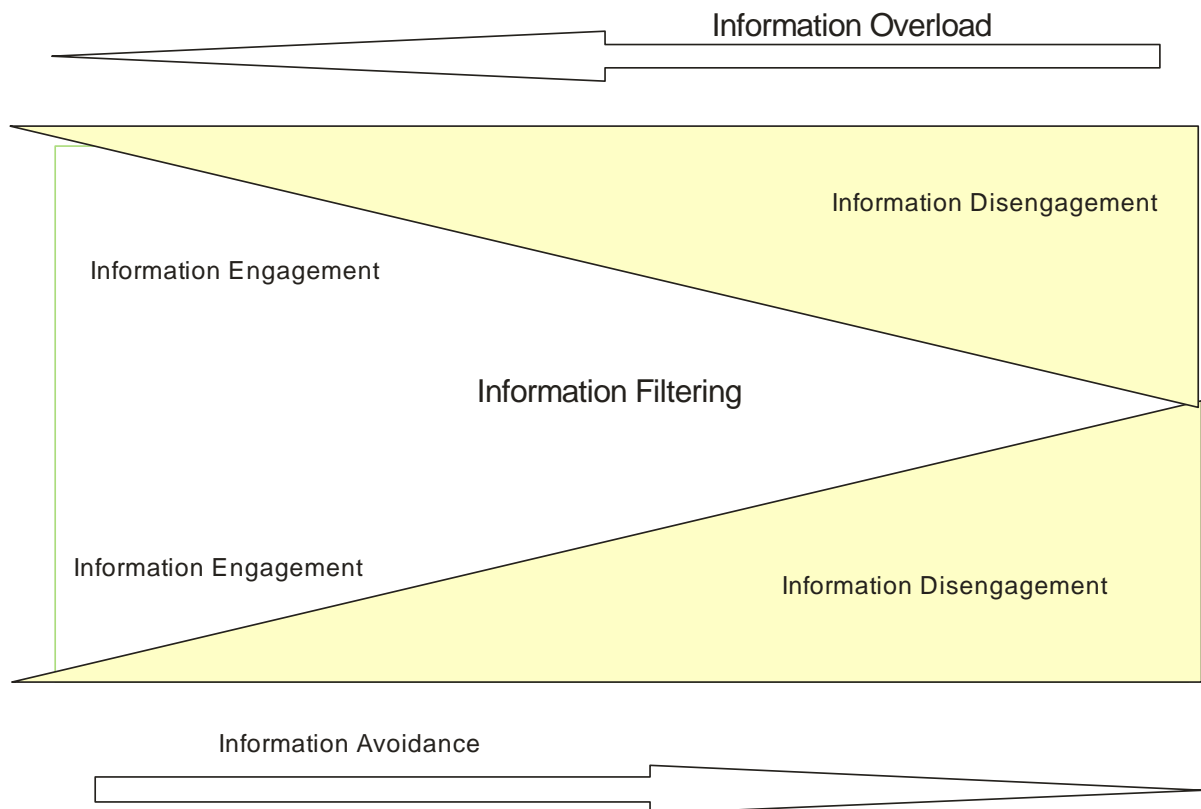
Figure 11: Information Overload Shown Against Information Withdrawal

6.4.6 Access of Formal and Informal Information Sources

Accessing information is a crucial component of the overall information practices of entrepreneurs. Research has shown that there are different ways in which entrepreneurs access information, including both formal and informal methods (Jirojwong and Wallin, 2002). The current research findings indicate that a vast majority of digital entrepreneurs obtain their information through informal channels. This aligns with previous studies that have reported similar results, particularly from the perspective of developing countries (Ozioko, 2019; Mooko and Aina, 2007).

While digital entrepreneurs can benefit from informal sources of information such as online communities and social networks, these sources may not always provide accurate or comprehensive information. Formal sources, on the other hand, are characterized by established standards and regulations, and are often recognized as authoritative and trustworthy. Examples of formal sources of information for digital entrepreneurs include academic research (Amit & Zott, 2001), industry reports and analyses (Hickey et al., 2019), government publications, and professional organizations and associations (Cohen & Soto, 2019). These sources often provide valuable insights into industry trends, consumer behaviour, and regulatory changes that can impact businesses. Formal sources of information can also offer opportunities for networking and collaboration. Professional organizations and associations such as for example incubators often host events and workshops that provide digital

entrepreneurs with opportunities to connect with other professionals in their industry, exchange knowledge and ideas, and build relationships (Kane et al., 2014), thus providing information.

However, the information environment of digital entrepreneurs is marked by a dearth of formal information sources. This means that entrepreneurs may face challenges in accessing trustworthy and accurate information that is necessary to make informed business decisions. While formal sources may offer authoritative and trustworthy information, they may also be limited in their scope and applicability to specific industries or markets (Lee et al., 2018). In contrast, informal sources such as social networks and online communities may provide entrepreneurs with more targeted and relevant information that is tailored to their specific business needs (Girard & Girard, 2014). Therefore, it is possible that entrepreneurs choose to use informal sources not just out of necessity, but also because they believe that these sources offer unique and valuable insights that are not available through formal sources. Thus, while availability may be a factor in the use of informal sources, it is not the only factor, and entrepreneurs may actively choose to use these sources based on their perceived value and relevance. Jin et al. (2017) argue that informal sources could be unreliable or biased, particularly when information was shared by individuals with a vested interest in a particular product or service.

The current research believes that digital entrepreneurs have a unique ability to adapt to changing situations and find unconventional ways of seeking information. They often rely on bricolage and flexibility to gather information, which means they use a variety of resources and knowledge networks to gain insights rather than being limited to one particular information source (De Clercq et al., 2010).

6.4.7 Barriers to Information Access

The findings show that the most significant barriers to information access in the digital environment are related to infrastructure, social inequality, and cultural and linguistic issues. These difficulties have been firmly established by the research evidence. Therefore, entrepreneurs who encounter these barriers may struggle to access information and may require additional support and resources to overcome them. This agree with the opinion of Lingel and Boyd (2013: p. i), who argue that "information practices are understood to be shaped by social context, privilege and marginalization alternately affect not only access to, but also use of information resources". Therefore, the findings validate existing scholarship which argues that information behaviours including access and use of information are affected by contextual factors.

6.4.7.1 Infrastructural Limitation - Electricity and Internet

The two most significant infrastructural obstacles impeding information-seeking are a lack of or intermittent electricity supply and poor internet connection. Entrepreneurs spoke passionately regarding these factors. The slow internet connection not only increases information retrieval time but also prevents carrying out a particular form of query search – image search (an alternative to textual query) - that requires a significant amount of bandwidth. Image searches result in sluggish information retrieval due to a poor connection, in addition to being costly given that they utilise more data. This factor also raises concerns about affordability. Therefore, it can be inferred that poor connectivity affects not only the retrieval of information but also the broader entrepreneurial process of idea generation (Alderete, 2017; Ogbo et al., 2018). According to ITU (2021), internet affordability discrepancies have persisted or widened over time. Fewer economies, including Nigeria, are now fulfilling the United Nations Broadband Commission's reasonable cost target of 2% of monthly gross national income (GNI) for entry-level broadband access.

On the other hand, the other systemic challenge which supersedes the internet issue in terms of magnitude and precedence is the intermittent electricity supply. Electricity remains the first level infrastructure that determines digital participation. Mukhtar et al. (2021) report that the electricity supply in Nigeria is in the crisis state given that over 41% of **Nigeria's** population, or more than 80 million people, have little or no access to power. **Nigeria's** power sector issues affect the electricity network's generating, transmission, and distribution arms. It is worth noting that only 25% of the electricity generated is distributed for consumer consumption while the remaining is lost due to the low capacity of the distributing network.

The concept of the digital divide highlights that without access to electricity and the internet, individuals are at a disadvantage in terms of accessing information. This is because much of the information required for participation in society and entrepreneurial pursuits is only available online. As such, a lack of access to electricity and the internet creates an information barrier that can lead to exclusion from the digital environment and society at large. This can perpetuate existing inequalities and result in individuals being left behind. Therefore, ensuring access to electricity and the internet is crucial for bridging the digital divide and promoting equal participation in the digital economy (Lupač, 2021).

Despite the difficulties faced by the participants in accessing electronic information sources, they did not face similar difficulties with other strategies for seeking information that did not involve electronic sources. This suggests that electronic sources of information are not the only means of accessing information, and other sources of information, such as print or personal networks, may be just as

important. This also highlights the need for a diverse range of information sources and strategies for seeking information, as reliance on a single source or strategy can lead to limitations and barriers to accessing information.

6.4.7.2 Cultural and Linguistic Limitations

The issue of culture and language greatly impacted on the success of information access according to the entrepreneurs. The lack of language proficiency in English among information seekers, as well as social vulnerabilities resulting from cultural identity, converged to create access hurdles to information access, particularly to informal sources. The findings show that a combination of factors resulted from a lack of language competence, creating uneasy atmospheres when seeking information. Entrepreneurs believe that their lack of language proficiency created low self-confidence, leading to a dread of reaching out and asking questions, and this fear of embarrassment prevents them from accessing information.

Findings echo a similar conclusion reached by Ikoja-Odongo and Ocholla (2004: p. 61) in which they reported that entrepreneurs blamed language for an inaccessibility of information, given that "information is available in languages they do not know". Similarly, Bronstein (2019a) describes this lack of access as information marginalisation, a two-tier exclusion resulted by language and cultural vulnerability. Empirical findings, particularly those from the immigrant digital entrepreneurs, stressed the significance of language proficiency in accessing information in order to build their customer base. They also believed attaining *"language independence"* would make them more socially independent as they would not need the support of others, especially in providing translation services as they would in the early days of resettlement and business infancy.

Linguistic shortcomings may result in poor keyword choice during searches. These limitations will have a negative cascading effect on the entire information-searching process. This means that the seeker may be unable to formulate the necessary core knowledge/information search terms for the query procedure to be successful. This linguistic struggle to express the search query confirms Belkin's (1980) anomalous state of knowledge, ASK, and Taylor's (1962) concept of visceral need, as a linguistically inexpressible discontent. The impact of language on information practices has been widely discussed and acknowledged by the literature (Kim, 2013). Similarly, Grzymala-Kazlowska (2018) regards language as "a foothold that allows individuals to acquire socio-psychological stability and security and function effectively in a new or substantially changed life" (p. 235). The findings of this study confirmed this assertion and demonstrated that language proficiency was directly related to entrepreneurs" abilities to solve everyday business problems, meet basic needs, form relationships

with customers, comprehend their reality, and be receptive to the information provided by host communities.

Marcella and Chowdhury (2020) opined that the lack of social structure or norms experienced by marginalized entrepreneurs and immigrants can create barriers to accessing information. These barriers can be related to differences in epistemologies, faith, value, and belief systems, as well as social unrest, displacement, and migration. These factors can contribute to information poverty, as they limit access to information that is crucial for participation in society, including in entrepreneurial pursuits. Therefore, addressing the social and cultural barriers that limit access to information is crucial for promoting equal participation in the information society.

While these findings possess a universal applicability that transcends borders, their relevance to Nigeria is particularly pronounced due to the **country's** rich sociocultural diversity. **Nigeria's** intricate blend of cultures, languages, and identities underscores how these research insights resonate uniquely within its context. The challenges stemming from language proficiency and cultural vulnerabilities are accentuated by **Nigeria's** multifaceted sociocultural composition, creating barriers that are deeply rooted in its heterogeneity.

In Nigeria, a nation encompassing over 250 distinct ethnic groups with diverse languages and cultural norms, the linguistic and cultural aspects illuminated by the study hold heightened significance. The issue of language competence in English, often the language of information dissemination, mirrors the linguistic diversity within Nigeria itself. The presence of numerous indigenous languages means that information accessibility barriers might be further exacerbated by language variations, potentially limiting access to valuable knowledge across different regions.

Additionally, the concept of cultural vulnerability leading to information marginalization resonates with **Nigeria's** complex historical and contemporary sociocultural dynamics. The variations in belief systems, practices, and norms across **Nigeria's** diverse ethnic groups could potentially amplify the challenges outlined in the study. Entrepreneurs from different regions might encounter distinct cultural hurdles when seeking information, further underscoring the study's findings within **Nigeria's** unique context.

While these insights hold universal lessons on the importance of language proficiency and addressing cultural barriers, **Nigeria's** sociocultural mosaic magnifies their impact. However, the applicability of these insights extends beyond **Nigeria's** borders. Countries with diverse populations and complex cultural landscapes, similar to Nigeria's, could find the study's findings highly pertinent. The understanding that cultural and linguistic limitations can hinder information accessibility and

entrepreneurial growth is a valuable takeaway for nations grappling with their own sociocultural diversity.

In essence, the study's findings provide a lens through which to view the dynamics of information access and entrepreneurial aspirations in **Nigeria's** intricate sociocultural milieu. As **Nigeria's** story of heterogeneity might find echoes in other parts of the world, these insights possess the potential to guide policies, strategies, and initiatives aimed at promoting inclusive information access and entrepreneurship on a broader scale.

6.4.7.3 Social Inequality

Social inequality is also attributed to impediments to information access according to the research findings. The rich are found to be information privileged by virtue of the influence they exert and the social circles to which they belong, owing to their economic power. Information poverty scholarship validates these research's empirical findings. Marcella and Chowdhury (2020) cite Chatman (1996) to argue that barriers to information can just as well be an outcome of social rather than economic exclusion. This is to say the ease with which one informally accesses information largely depends on the individual's degree of social cohesion and immersion. Similarly, Martzoukou and Burnett (2018) also believe that information-related constructs drive social inclusion. Lupač (2021: p. 11) also contends that "the question of whether or not a non-user is truly unconnected and falls into the category of the information poor is thus contingent upon the individual's degree of social isolation and the quality of his/her social network".

Some challenges of access have cultural dimensions as reported by some participants not being able to ask question or network with others because of age differences. Marcella and Chowdhury (2020: p. 7) further acknowledge "the existence of cultural constraints on information access and use, alongside the continuing power of cultural myths and icons". They argue this is true even though there has never been a moment when more information was as easily available than it is now, in an increasingly digitised world. However, the benefits of improved information availability have yet to be realized owing to "hierarchical social structures [which] influence or damage information communications and flows, resulting in misinformation and miscommunications, which may or may not be intentional". Therefore, being part of an elevated economic and social class will unlock more social connections that offer rare insights, information, and ideas. This could be the reason Chatman (1996) argues that the poor have the tendency to reinforce information poverty on themselves through their inability to connect with the outside world - the upper or economically elevated class. Spink and Cole (2001) supported Chatman's position when they undertook a study regarding the information-seeking and access challenges of low-income people.

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The current research findings indicate that entrepreneurs face a wide range of challenges in accessing information. These challenges are not limited to a specific group of entrepreneurs and are systemic in nature. However, entrepreneurs with higher social and economic status may be less affected by these challenges due to their attained social position, which enables them to overcome such barriers more easily.

The most significant challenge identified by the research is infrastructural, highlighting the need for access to reliable electricity and internet infrastructure. In addition, cultural and social barriers are also found to hinder information access, which may vary by individual. These barriers can overlap and interact, resulting in a maximum level of exclusion, particularly for entrepreneurs who experience intersectionality of various forms of marginalization. According to the Collins English Dictionary, intersectionality is "the interconnected nature of social categorizations such as race, class, and gender as they apply to a given individual or group, regarded as creating overlapping and interdependent systems of discrimination or disadvantage".

6.5 Marginalised Entrepreneurs - Intersectionality

The multiple layers of disadvantage experienced by the entrepreneurs due to their race, sexual identity, marital status and gender has been reported by the current research findings. The intersection of these disadvantages mostly affect women, given that they are among the most vulnerable members of society, especially from the developing country perspective (Kawar, 2004; Carpenter, 2005). Kim and Ling (2001) argue that women entrepreneurs will continue to face career conflicts due to the gendering of the mothering role. Kim and Ling identified three types of work-life conflicts for women, namely *job-spouse conflict, job-parent conflict*, and *job-homemaker conflict*. Findings show that women entrepreneurs experience at least one form of conflict they identified. One women entrepreneur captures the job-spouse conflict in her account: ***"my husband is a kind of person that** wouldn't **like his wife to work" (**DE06**)**. The *job-homemaker* conflict is observed in one of the entrepreneurs" narratives: ***"It was hard being a woman, particularly being an unemployed divorcee. People would not even want to rent out their properties to you"*** (DE11).

In addition to the gender marginalisation, sexual orientation and legal identity also predispose individuals to persecution or social adversary. The present research came across a lesbian woman, a domestically abused woman, and impoverished immigrants. The unique experience of these marginalised classes has affected their information-seeking capability. However, they have also shown resilience and adaptation through the coping mechanisms they have developed to deal with their multiple layers of exclusion. According to one participant: ***"my first experience was with a girl. So, in***

other words, I identify as a lesbian. Coming out as a gay person in a Muslim-dominated community, or even as a Muslim girl, can get you killed" (DE11).

The immigrant entrepreneurs from the present research recount ordeals of social discrimination which fuelled their feelings of stigmatisation: *"I was a very shy person, so when people made fun of me for my lack of fluency or the rarity of my accent, I became withdrawn and disappointed. This will then dissuade me from seeking information"* (DE18). In their investigation of information practices refugees, Lloyd et al. (2013: p. 138) argue how "in these early phases newcomers to a community find that their previously established information practices are no longer appropriate and thus do not connect them effectively to their new landscapes". This necessitates the use of navigators and mediators, and some people need to spend a long time with these navigators and mediators in order to effectively access the formal and informal organizing discourses of their host community. As with the digital entrepreneurs" experiences in the current research, Lloyd and colleagues also report that "when new refugees feel detached from their new communities" information landscapes as well as from established and localised systems of information production, reproduction, circulation, and modes of access, they experience an information disjunction". This disjunction may result in social exclusion due to the combined effects of socio-cultural factors, such as language and literacy constraints, an inability to grasp the subtle, tacit, and consequential elements of communication and information, and a lack of cultural awareness of pre-existing members of their new communities regarding information practices.

Relatedly, in her investigation of the information practices of low-income public service employees and job seeking (Chatman, 1991), women living in a retirement centre (Chatman, 1992), and inmates in a women's high-security prison (Chatman, 1999), Chatman found that the social conditions of marginalisation shape information practices in highly localized ways; she described the dynamics she saw as "information poverty." Evidence of such violence are found in one of the entrepreneurs" accounts: "*I got separated from my husband. He was a chronic abuser and a very fantastic alcoholic". (*DE14).** Domestic violence has the power to affect information-seeking ability of victims (Westbrook, 2009). The current findings show that feelings of anxiety, timidity, and a loss of self-confidence are some of the attendant consequences that come along with traumatic experiences. Hamer (2003) agrees that "conditions most strongly characterizing information-seeking were the experience of fear and the concealment of information-seeking activities. Information hoarding is seen as one of the signature traits among stigmatised groups" (Lingel and Boyd, 2013). Lingel and Boyd (2013) also discussed similar information experiences when they investigated the information behaviour of a stigmatised group.

It is observed from the current empirical findings that fear and stigmatisation among the marginalised groups, including women, immigrant and gay/lesbian people are the social and psychological factors responsible for a rather remarkable information behaviour. These limitations have encouraged them to come up with alternative ways of achieving their informational objectives, even though information structures have done little to help disadvantaged members of society (Conaway, 1995).

As evidenced by the experiences of marginalized entrepreneurs, participation in a support group or community is one approach to achieve informational and educational goals: "***there is a women's subgroup within that organization. We usually meet every two weeks to talk about common issues that women face." (DE11).*** This queer support group for example assists members as they transition into their new identity and tackle stigmatisation and harassment. Kitzie et al. (2022: p. 499) describe the information practices of the marginalised "as tactical and agentic responses to and refutations of social and structural barriers and risks". Barriers and threats generate two distinct information practices: defensive and protective. The objective of defensive information practices is to offset the negative effects of barriers. The traumatic experience is understood to involve factors that encourage members to share vital information through the story of their experience. This openness stimulates conversation and a sense of community: ***"a lot of the things I've learned along the way are things I"d like to share with other women who may be experiencing similar feelings of helplessness and desperation as I was. So, I belong to this WhatsApp group called Conquer. It is a mutually benefiting communion" (DE14).*** The participants' account of her experience within the Conquer WhatsApp group highlights the importance of collective meaning-making within communities of individuals who share similar experiences and identities. The group serves as a space for women to come together and navigate the intersectional aspects of their identities, such as gender, race, and socio-economic status, as well as the challenges and barriers they face as entrepreneurs. This collective process of meaning-making and support enables individuals to move beyond feelings of helplessness and desperation and take action towards their goals.

The Conquer WhatsApp group exemplifies the power of community-based initiatives in fostering mutual benefit and empowerment. Through sharing experiences, knowledge, and resources, individuals within the group are able to build strong relationships and networks that can serve as a source of support and inspiration. This type of collective action can help to address the structural and systemic barriers that often hinder the success of marginalized entrepreneurs.

Findings from the current research also observed that *technology* is viewed as an equaliser that neutralises the odds stacked against these marginalised entrepreneurs. Newell et al. (2016) reported similar views about technology when they investigated information-seeking among disadvantaged

groups. Haile (2021) acknowledges that technology and specifically "ICTs are often celebrated as liberating" among vulnerable groups. In their account, one entrepreneur believes that *"technology has given us another chance at life. It is a new lease" (DE11).* Another argues that: *"even if you are from an unknown corner of the world, tech is an equalizer folks: when they say it's inclusive it is no lie" (DE14).*

Literature extensively acknowledges the significance of technology in increasing information-seeking and utilization. It is important to recognize that not all entrepreneurs have equal access to technology and information resources. Moreover, the acquisition of technology does not necessarily translate into effective use of information. Even if disadvantaged entrepreneurs have access to technology, they may lack the digital literacy skills needed to navigate and utilize the vast amount of information available online. This highlights the need for targeted training and support programs that can provide the necessary skills and knowledge to effectively use technology for information-seeking and utilization. Therefore, while technology can be a powerful tool in increasing information practices among disadvantaged entrepreneurs, it is important to acknowledge that access to technology and the ability to effectively use it are not universal.

Furthermore, the socioeconomic inequality that occasionally manifests itself as a digital gap hinders the acquisition of these abilities. Interest groups that foster a feeling of community have intervened to mitigate these social constraints and accelerate and increase the adoption of technology by marginalized entrepreneurs (Fan and Fichman, 2022; Westbrook, 2008; Chatman, 1996; Houston and Westbrook, 2013; Fisher et al., 2004; Lingel and Boyd, 2013).

Members of these support groups in the current study have been observed to place an excessive amount of trust in the information shared in their groups and platforms, particularly information shared by the group's moderator or anchor. These findings are consistent with the findings of Kaakinen et al. (2020: p. 1) investigation, which discovered elements of group behaviour in information practice among online community. Kaakinen and colleagues argues that social medial helps in the formation of *identity bubble* which "reinforce shared identities, social homophily, and reliance on the information shared within the bubbles". A psychological phenomenon, groupthink, is being witnessed within this marginalised group of people given that individual members accept a position or conclusion that represents a perceived group consensus, regardless of whether the group members agree the information is accurate, correct, or ideal.

Group behaviour adds another layer to the debate of information quality in connection to group behaviour, as well as highlighting the vulnerability of marginalised groups to groupthink. The research

findings show this group behaviour is viewed as a technique of information-based mitigation - overcoming adversaries through subconscious information practices. This discovery is part of an earlier argument and agrees with the stance of Houston and Westbrook (2013), who show how marginalisation can be combated through the use of information. This opinion is shared by Bronstein (2017) who states that migrant workers frequently experience social exclusion because they lack access to critical information sources and social connections due to their unstable employment situations in foreign countries.

Nigeria is a country with over 250 ethnic groups, each with its unique cultural practices, beliefs, and norms. As a result, acculturation can be a significant challenge for entrepreneurs seeking to expand their businesses across different regions within the country. This is particularly true for entrepreneurs who are not from the regions they wish to expand into, as they may face cultural barriers that can impede their ability to effectively market their products or services to local customers. Therefore, understanding the local cultural dynamics and adapting to them is crucial for entrepreneurs looking to succeed in Nigeria (Halliru, 2013; Falola, 2001).

While it may be claimed that the support group should be credited with assisting marginalised individuals in reclaiming their social and economic voices, it is also vital to recognize the implicit information practices that drive and sustain the group. This assumption is pertinent given that informational challenges faced by these entrepreneurs are rooted in social issues, going by one of the participants' narratives: *"socially elevated individuals will have an easy way smashing informational bunkers without any obvious challenges or difficulty. But people within the lower part of the ladder will experience undue difficulty unnecessarily"* (DE17).

Another marginalised entrepreneur believes: "*Nigeria is a hierarchical society, capitalist, sort to say. The social and economic class you belong to may limit your access to people and sources. So having come from a low-income family I believe inhibited me from accessing some information that I would have otherwise obtained"* (DE02*).* DE03 recounts: *"the money I was requesting put me in a very vulnerable position, a low power position which resulted in me being sexually exploited – will never forget" (*DE03). Bronstein (2019a) argues that information marginalisation being experienced by these entrepreneurs is the result of a widening gap in social inequality. And yet, in spite of this seeming contradiction, it is the information practices demonstrated by the entrepreneurs that would lessen or rather combat the effect of such inequality.

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By leveraging their information practices, disadvantaged entrepreneurs can enhance their knowledge, skills, and social capital, which can ultimately help to reduce the effects of information marginalization and social inequality. Therefore, while information marginalization is a significant challenge for disadvantaged entrepreneurs, their information practices offer a potential pathway to overcoming these barriers and achieving greater success in their businesses. For example, some entrepreneurs have turned to informal information networks, such as word-of-mouth referrals and community-based organizations, to access information and resources that are not readily available through traditional channels.

Sympathy elicitation was observed to be an emotional technique used to negotiate information access or foster information-seeking by the marginalised entrepreneurs in the current study. Nambisan (2011) has found information Users' perceived empathy strengthens their information-seeking practices. He also observed how vulnerable groups exhibit more positive attitudes towards information-seeking if they feel others are sympathetic to their situation. This is not surprising given that *"Nigeria is a hierarchical society, capitalist" (DE02).* Therefore, users must sometimes live at the mercy of others*.*

The lack of formal information sources places a heavy load on informal sources. Even in cases where such formal information structures already exist, human factors like favouritism, nepotism, and other unethical behaviours would be a major constraint (Conaway, 1995; Chiamogu and Chiamogu, 2019; UCHE et al., 2019). However, the information access of marginalized entrepreneurs is defined and shaped by a number of essential social structures (such as support groups and a sense of community), psychological characteristics (such as anxiety, sympathy, and shyness), and technological conditions (such as digital literacy). These are in addition to the other challenges that all entrepreneurs face, such as the costs of information access. The combination of these factors, however, has resulted in the activation of a subconscious coping mechanism that ensures the continuation of information-seeking and access among this marginalised group. These findings provide an update and further extend the discussion about realistic ways in which underrepresented groups can sustain their information practices. This is important given that access to information is essential for survival in contemporary society, the information society, in which those who are disconnected from information are at a significant disadvantage (Van Dijk, 2005: p. 136). In this context, access to information is seen as a critical determinant of entrepreneurial ideation.

6.6 The Importance of Information to Business

While the aim of the research is to investigate the information behaviour of the digital entrepreneurs during idea generation, the role of information has once again been explicitly mentioned in other

stages of the start-up journey, given that *"start-ups are founded on the bed of information" (*DE02). This means that *"business ideas are just like surfboards; all they needs are tides of information to see them sail across"* **(DE03).** These two opinions summarise the overall importance of information as expressed by digital entrepreneurs.

The importance of information to businesses of all sizes has been widely argued in the literature (Vaughan, 1999). However, the concept of information is presented and debated using a variety of terminologies and meanings (Dinneen and Brauner, 2017). Information is described as an object (Krzanowski, 2020), knowledge, intelligence, a resource (Dinneen and Brauner, 2015), and as a process or thing (Dinneen and Brauner, 2017). This semantic plurality has been demonstrated in the current findings, underlining the breadth of significance of information to both the start-ups ideation and the entrepreneurs as well. According to one of the participants: *"the value of information depends on what you make of it. It can be an enabler of success, or an impediment to greatness"* (DE11). It refers to the idea that the usefulness and relevance of information depends on how it is processed, analysed, and acted upon. In other words, the value of information is not intrinsic but rather subjective, and it can vary greatly depending on the context in which it is used and the goals it is intended to achieve. When information is effectively processed and leveraged, it can provide a competitive advantage and enable individuals and organizations to achieve their goals more efficiently and effectively (Widen-Wulff and Suomi, 2007). On the other hand, when information is misinterpreted, ignored, or misused, it can lead to poor decisions and negative outcomes. Therefore, the value of information lies not in its mere existence, but in how it is acquired, processed, and used.

To maximize the value of information, it is essential to have a clear understanding of the goals and objectives that it is intended to support, as well as the context in which it will be used. This requires a strategic and analytical approach to information management which takes into account both the opportunities and risks associated with different types of information sources (Bulley et al., 2014; Marcella and Illingworth, 2012; Gates, 1999). This finding highlights the significance of fostering information literacy skills among digital entrepreneurs, as it can potentially enhance their ability to obtain and utilise relevant information efficiently and effectively in their startup journey.

6.7 Entrepreneurship

This section covers various topics related to entrepreneurship, such as the traits of entrepreneurs, challenges that arise when starting a new business venture, and solutions to these challenges. Informational themes on entrepreneurship are also discussed.

6.7.1 Entrepreneurs" traits

The participants' narratives demonstrated a wide spectrum of perspectives and character traits. The most common characteristics are a strong desire for success, resilience, flexibility, and mental alertness. While personality theory continues to be fraught with disagreements, research has generally moved in recent decades to the dominant personality model, which includes self-efficacy, innovativeness, locus of control, and risk attitudes (Kerr et al., 2018).

6.7.1.1 Need for Achievement

Literature shows that entrepreneurs have a high need for success because starting a business from scratch reveals one's individual strengths in ways that are frequently difficult to match while working in a system where responsibility is distributed (Kerr et al., 2018). A considerable body of literature has established that people who are highly motivated to achieve their goals are thought to gravitate towards settings in which their achievements are more directly attributable to their own efforts, as opposed to larger institutional settings in which the success or failure of a business is less of a function of an individual's own efforts. Stewart and Roth (2007) offer several possible explanations for the higher levels of achievement motivation observed among entrepreneurs. One possibility is that entrepreneurs are self-selected for high levels of achievement motivation. Another possibility is that the nature of entrepreneurship requires individuals to be highly motivated to succeed in the face of uncertainty and risk. This aligns with one of the participant narratives: ***"there is no better energy than passion. It catalyses or softens all the challenges"** (*DE26). According to Collins et al. (2004), the relationship between achievement motivation and entrepreneurial behaviour may be due to the desire to attain success and achievement in a context where traditional organizational structures may not provide sufficient opportunities for these goals.

Zhao and Seibert (2006) provide a comprehensive analysis of the relationship between the big five personality traits (i.e. openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism) and entrepreneurial status. Conscientiousness has been found to be positively related to self-efficacy, which refers to an individual's belief in their ability to succeed in a given task. This relationship suggests that individuals high in conscientiousness may be more likely to believe in their ability to succeed as entrepreneurs, and therefore have higher levels of achievement motivation.

6.7.1.2 Self-efficacy

Another macro trait that was identified from the participants' narratives was the strong belief in their own capability: *"I believe I can be successful in every aspect of life I set my foot on. Military life is hard and involves a lot of sacrifices"* (DE15). Scholars argue that in the uncertain and competitive environment of new venture creation, entrepreneurs thrive on a strong feeling of personal self-efficacy to execute their goals and stay mentally alert to innovation in order to uncover how to generate new value through the introduction of new products or services (Kerr et al., 2018). Self-efficacy describes a person's "belief that he/she can perform tasks and fulfil roles, and is directly related to expectations, goals and motivation" (Cassar and Friedman, 2009: p. 242). High self-efficacy correlates with work-related performance (Stajkovic and Luthans, 1998), small business growth (Baum and Locke, 2004), academic performance (Hackett and Betz, 1989; Luszczynska et al., 2005), and career choice (Lent and Hackett, 1987).

Self-efficacy is measured using two levels of specificity, either as generalized self-efficacy or domain-specific Entrepreneurial Self-Efficacy (ESE). Most researchers focus on the more situation-relevant ESE measure (Rauch, 2014; Patterson and Kerrin, 2014). Chen et al. (1998) define ESE as a composite of self-efficacy toward five tasks, which innovation, risk-taking, marketing, management, and financial control: *"my dad would, every now and then, remind me about the risk of being self-employed…but I would tell him there is a greater risk of not investing"* (DE15). Kerr et al. (2018) find that relative risk tolerance has a strong, positive, and statistically significant effect on the likelihood of self-employment. The weight of the research implies that those with a higher risk tolerance are more likely to engage in entrepreneurship. The realities of business entrepreneurship (and the ensuing failure rates) make it logical that an aspiring entrepreneur must be able to tolerate a great deal of risk, yet it is crucial to persevere.

6.7.1.3 Mental Alertness

Mental alertness was found among the digital entrepreneurs. According to Kirzner, alertness is a process and perspective that helps some individuals to be more aware of changes, shifts, opportunities, and overlooked possibilities (Kirzner, 1985, 1979, 1973 cites in Sharma, 2018). Alertness is considered to be a key pre-condition for opportunity recognition (Baron, 2007). Participants' narratives show evidence of this: *"we identify that there is an outcry from the Nigerian community about the exorbitant photography rates charged by the Sudanese people. We learn that there are not many photographers in the area we live especially within the Nigerian community"* (DE05). The narrative DE09 explains that they: *"stayed keen and observant and eventually I spotted*

an opportunity. It was a short-lived opportunity, though" (DE09). The concept of alertness suffers from a lack of conceptual standardisation, which is the reason it remains broad and unspecific (Gielnik et al., 2014) to the extent that the ambiguity of the concept led some authors to label it as a kind of intuition (Dane and Pratt, 2007), or an academic term for luck (Demsetz, 1983). However, a growing body of scholarship argues that entrepreneurship alertness is a form of information practice with cognitive underpinnings.

Several authors explained the concept in their own words, broadened its scope and linked it to psychology and information science. Zaheer and Zaheer (1997) believe that it is a proactive attentiveness to information about the environment. Tang et al. (2007) argue that it is the ability to accumulate, transform, and select information related to entrepreneurial opportunities. Tang et al. (2012) opined that alertness includes scanning and searching for new information, pulling together disparate pieces of information and building them into coherent alternatives, and finally evaluating whether the new information represents an opportunity. Findings from the current research shows evidence of information consolidation and synthesis among the participants. Such practices ultimately help in opportunity discovery.

6.7.1.4 Resilience

Mental flexibility and resilience are also frequently cited personality traits among the entrepreneurs. They are the ability to change or adapt in response to circumstances: ***"adapting to circumstances perhaps is one of the important traits or skills a digital entrepreneur should have"*** (DE12). DE09"s narratives also demonstrates a strong endurance spirit and ability to overcome adversity: ***"I was spartan and rugged".*** This experience taught him valuable skills and provided him with a foundation for success in his later endeavours. As he adds: ***"I took this doggedness to elementary school and converted it into forte"** (*DE09). Masten (2014: p. 6) defined resilience as "the capacity of a dynamic system to adapt successfully to disturbances that threaten system function, viability, or development". Accordingly, the term entrepreneurial resilience could remain, as Welsh (2014) proposes, a metaphor for any experience of recovery or bouncing back after hardship at any spatial or temporal scale, whether at the person, team, enterprise, society, or corporate level. It was observed from the findings that resilience is instrumental to digital entrepreneurs" economic breakthrough. Fisher et al. (2016: p. 12) agued that "resilience was comprised of hardiness, resourcefulness and optimism and predicts entrepreneurial success". However, given the socioeconomic inequalities that most of the participants have experienced, the question of whether resilience as a trait is inborn or socially conditioned remains debatable. This viewpoint is also consistent with the literature, which

contends that the search for the character, trait, or situational premise that explains a person's ability to function effectively in the face of adversity, stress, and uncertainty is important to entrepreneurship success, and that distinguishes them from non-entrepreneurs, has generated considerable debate.

6.7.1.5 Additional Traits

Research on the personality traits of entrepreneurs has been ongoing for decades, but there is still much debate over which traits are most important. Previous approaches that tried to unify findings from economics, psychology, sociology, and business management have not been able to account for all the empirical findings in the present study (Kerr et al., 2018). The reason for this may be that the macro personality traits such as those identified in previous research are too generic and not specific enough to the context of digital entrepreneurship. For example, traits like being tech-savvy, introverted, and adaptability may be more significant for digital entrepreneurs. Therefore, in addition to the well-known personality traits, there may be other characteristics that are specific to digital entrepreneurs which need to be considered when examining the relationship between personality and entrepreneurial behaviour. However, Gill (2013: p. 345) suggests that the current generation of entrepreneurs who are involved in startups tend to be portrayed or described in ways that are considered more "nerdy" than previous generations of entrepreneurs.

The narratives provided by study participants lends credence to this idea, as they frequently reference their familiarity and comfort with technology. For example, one participant (DE05) described themselves as a "computer freak" since childhood and talked about their passion for technology. Another participant (DE22) grew up as a "digital native". The current literature does not provide scientific validity and acceptance of "nerdiness" or "geekiness" as personality traits.

There is a limited amount of literature available that specifically addresses the possibility of entrepreneurs experiencing feelings of isolation or solitude during the course of their pursuits. However, in their adjunct findings, Marcella and Illingworth (2012: p. 11) document "how lonely the experience of being a small business owner had been". However, there are non-academic theses that examine the trait from a mental health standpoint. These discussions are a cautionary dialogue to bring awareness and place emphasis on the dangers of a socially isolated lifestyle for digital entrepreneurs. One of the participants recalls: ***"I am a very quiet person, well, especially these days. I tend to seek information or rather my moment of ideation is usually when I am alone, and that usually happiness in the night"*** *(*DE09). While non-academic theses have touched upon this topic, there is a lack of scholarly research that investigates this issue in-depth, leaving a gap in the literature.

Entrepreneurs are a diverse group, and therefore it is not a surprise that studies of their personalities are mixed. This discussion emphasizes areas where empirical findings are consistent while also

acknowledging heterogeneity. Given the multidisciplinary nature of research into entrepreneurial characteristics and personality, some of this variation is attributable to conceptual ambiguity. The literature also implies that terminology is not highly standardized, and the research debate does not lend itself well to learning from previous research and making incremental progress as a field. The vast number of journals producing research into entrepreneurial traits, as well as the wide disparities in academic discipline and quality, hampers the capacity to establish a linear, historically progressing research discourse. This challenge, however, is likely to fade over time as the growing field's greater depth and specialization begin to yield returns on scale (Stewart and Roth, 2007; Rauch, 2014; Patterson and Kerrin, 2014; Kitzie et al., 2022; Kerr et al., 2018).

6.7.2 Entrepreneurship challenges

Several challenges confronting start-ups and their founders have been discovered by current research. These problems have been categorized as informational and non-informational issues. The informational aspect of the entrepreneurial challenges is heavily emphasized in the discussion that follows. Nonetheless, this does not diminish the non-informational issues.

6.7.2.1 Informational issues
6.7.2.2 Misinformation and Cost of Access

Information quality has been cited as one of the major problems facing business operations. In his account, DE13 demonstrates the importance of timely information flow for businesses: ***"not all business collapses are due to a lack of access to the right information, a significant number of failures result from not knowing the right thing at the right time"*** *(*DE13). Matheson and Tarjan (1998: p. 27) observe how the lack of effective information flow can "[lay] the seed of disaster" for start-ups**.** They argue that disaster can occur due to the lack of information flows between numerous parties crucial to the firm's success, despite the presence of the essential elements for success, such as an exclusive intellectual property position, significant market demand, a well-qualified, dedicated workforce, and adequate capital. Lack of information and its timely supply can cause business failure (Marcella and Illingworth, 2012).

An account from one of the participants reports the challenges in accessing the wide variety of potentially useful information: ***"there is no single entity that feeds my informational needs. We as entrepreneurs cannot draw operational insights from the existing information structure because information sources are siloed and coming from a variety of sources"*** *(DE22).* The lack of formal information provision service to facilitate ease of access to information for entrepreneurs has resulted in setbacks, particularly in obtaining market intelligence or related information. Market intelligence information is often expensive to access. This is because the information is typically gathered from a

wide range of sources, including market research firms, industry reports, trade associations, and government agencies. These sources often charge high fees for access to their data and reports, making it difficult for small and medium-sized businesses to obtain the information they need (David, 2011; Davenport, 2013). Additionally, broadband connection is often cost prohibitive.

Information reliability also adds to information quality issues in the empirical findings. DE11 recognises the dangers of misinformation or disinformation to businesses: *"one has to be careful surely with information, because once the information is free, it can be misleading or deceitful marketing information" (DE11)*. Petratos (2021) indicates a growing concern over the rise of misinformation and disinformation in the digital age, and how they can pose serious cyber risks to businesses, and argues that inaccurate information, whether it is intentional or unintentional, can have significant consequences for businesses. Accurate information can significantly enhance business success in terms of speed and scope. Conversely, misleading information has the potential to harm a thriving business in various ways, such as damaging its reputation or leading to flawed decision-making (Horn et al., 2015).

6.7.2.3 Anchoring Bias

While sourcing accurate information is fundamental to the success of firms and founders, an equally important element to the mix is its effective utilisation, including the ability to understand the scope of information potentiality. Misapplication of information can be equally detrimental to businesses as evidenced in one of the participants' narratives*: "so sometimes this actually happened in past companies: is that you hit upon an idea, and then you get so fixated on it, that you spend all of your time on that idea, and you read books and they tell you about holding your nerve. And, you know, it's all about passion and believing your idea will be successful" (DE19)*. The participants have admitted being a victim of anchor bias. Anchoring bias occurs when people rely too much on pre-existing information or the first information they find when making decisions (Tversky and Kahneman, 1974). Empirical findings also aligns with the opinion of Furnham and Boo (2011: p. 38) who demonstrated that "anchors that have informational relevance to the task can lead to anchoring effect". The idea is that when people are given an "anchor" or a starting point that is relevant to the task at hand, it can have a significant impact on their decision-making.

6.7.2.4 Others

Another aspect of information utilisation and application is seen from one of the participants: *"we are facing some issues still given that some people don't want the data as a product or resource rather. They don't really see the value of the data or what they can do with it" (*DE12). The findings show that people lack the necessary knowledge about information and its capabilities. The duality of

data's role makes it versatile for use, both as an input and output. However, the majority of people are yet to discover data as being a resource and a product as well.

A lack of availability of spatial information is one of the myriad information issues facing start-ups. Spatial data can provide insights into customer behaviour, preferences, and trends, which firms can use to optimize their operations, marketing strategies, and customer experiences (Dao et al., 2002).

6.7.2.5 Non-information issues

The non-informational challenges, even when they do not have a direct bearing on the information practices or behaviour of the start-up founders, might still have an influence on them.

6.7.2.6 Cognitive Bias

Overconfidence, a form of cognitive bias, is a common trait observed among the participants. Krishnan and Singh (2005) believe overconfidence is a cognitive bias that can have significant negative consequences for entrepreneurs. It refers to the tendency of individuals to overestimate their abilities, knowledge, or performance, which can lead to poor decision-making and increased risk-taking. Findings from the research show that being overconfident can derail one of the goals: ***"I was caught up in a state of euphoria that kept me insulated from the practicalities of the market and reality. I had suffered a number of setbacks that were nearly fatal to my plans"*** *(DE26).* Being reasonably rational and logical is not enough for the entrepreneur to be successful, but they also need to pay attention to the type of idea being nurtured for commercialisation. Whether the business idea is demand-driven or founder-driven necessitates different approaches and has different consequences (Baron, 2006).

6.7.2.7 Systemic and Structural

Additionally, other existing challenges relate to structure. Public service regulation forbids civil servants to engage in entrepreneurship activities. Contravention of such laws attracts a severe penalty and this too may discourage innovation. Other regulatory challenges are the unnecessarily rigid requirements for entry into industry. Arguably the most grievous among these bottlenecks is unethical practices, including bribe-seeking and insubordination by public officials: "***Corrupt officials cannot be able to quicky write off debts or term them as bad because doing so will expose their inefficiency or complicity with the defaulters. So we are being frustrated and pushed to the side***" (DE12).

Operational challenges include rapid changes in the digital space caused by rapid changes in technology and changes in customer habits and tastes. Thus, incorporating feedback quickly from customers and constant environmental scanning become necessary. Skill sets for employees of digital start-ups are in high demand, hence their employability and upward mobility is high. Thus, challenges

exist in recruiting and retaining qualified staff for start-ups. As a result, organisational knowledge management practices such as organisational learning become critical for new businesses owners.

While rooted in **Nigeria's** specific challenges, these findings carry transferable insights. Countries with comparable regulatory complexities, bureaucratic hurdles, and technological advancements can draw parallels and apply the lessons learned. The experiences shared by Nigerian entrepreneurs, combined with the study's analysis, serve as a valuable roadmap for other nations endeavouring to nurture entrepreneurship, manage regulatory complexities, embrace technological change, and build resilient organizational structures.

Nigeria's entrepreneurial challenges offer both a microcosm of broader global issues and a unique perspective due to its distinctive context. The study's findings provide a mosaic of insights that can be applied in various international settings, serving as a bridge between **Nigeria's** entrepreneurial landscape and universal business intricacies.

6.7.3 Solution to Start-Up Failures

Solutions to these start-up challenges are the perspectives reported by the participants regarding the possible ways they believe entrepreneurship failure can be minimised or eliminated.

6.7.3.1 Informational

6.7.3.2 Quality Control and Analytics

The digital entrepreneurs proposed a number of informational challenges which can be solved or mitigated. These include information corroboration and business analytics. Collaborative use of multiple information sources can eliminate the risks associated with misinformation and reliance on a sole source of information. Khan and Idris (2019) conceptualized information verification as an information literacy skill which attempts to counter misinformation and to eliminate possible injury resulting from usage of erroneous information. The authors argue that information verification or corroboration is necessary given the lack of professional information gatekeepers that evaluate information.

The other vital information skill for entrepreneurs is the capacity to extract valuable information from available data to gain a strategic advantage: ***"We need to take full advantage of data as well to improve our chances of success"*** (DE01). In today's business landscape, data is considered a valuable asset, and companies that are adept at collecting, analysing, and utilizing data are better positioned to succeed. Business intelligence is essential for its "ability to provide complex and competitive information inputs for the decision process" (Ain et al., 2019: p. i). Jourdan et al. (2008) highlight the importance of using data and Business Intelligence (BI) to improve the chances of success in business.

By leveraging data and insights obtained through BI, companies can make informed decisions which can positively impact their operations, marketing strategies, customer engagement, and overall performance. Another implied information practice which according to some of the participants will enhance start-up success is engaging in a continuous process of knowledge acquisition and information assimilation in order to support quality decision-making. Davenport (2009) argues that the ability to make better business decisions depends on the availability of information pools which entrepreneurs can access to assist them. For example, FAME (Financial Analysis Made Easy) is a financial information tool that can provide entrepreneurs with access to comprehensive financial information on businesses.

6.7.3.3 Marketing

The other informational solution to start-up failure mainly pertains to marketing and customer-oriented activities. Market research is a vital component of marketing activities which enables entrepreneurs to understand the demand dynamics of their target market (Hair et al., 2012). By conducting comprehensive market research, entrepreneurs can gather valuable insights into customer preferences, pain points, and buying habits, which can inform the development of effective marketing strategies (Smith & Chaffey, 2005).

A common marketing strategy adopted by some of the entrepreneurs is using freebies. Freebie marketing techniques create the idea of a needed product or service awareness and is seen as an effective marketing tool. Evidence of this is seen in one of the participant's narratives: "*I use my blog too, combined with research I'm doing, sort of gradually creating awareness of what's possible. And I give out lots of things for free*" (DE19). Another entrepreneur also recalls his promotional scheme using a gifting technique: "*we started giving free services, getting more attention. People started patronizing us after seeing our quality services, better than the paid services*" (DE05). Zhao, Lynch Jr., and Chen (2010) explain that offering free products or services can generate interest, build trust, and establish a positive brand image. Huang et al. (2017) and Dholakia (2006) show that freebies have the potential to positively influence customers" attitudes towards the product, increasing the frequency with which customers purchase the goods, and stimulating the possibility that potential consumers will make a purchase.

Rudzki and Li (2007) believe the concept of freebies appears to be an economic paradox because it should not take place in a profit-making firm, where there is a fiduciary duty to maximize shareholder return. Notwithstanding, freebies align with the fundamental aims of start-up businesses given that though they do not immediately yield profit, they demonstrate the workability of an idea (Van Gelderen et al., 2006). Social media, particularly LinkedIn and Instagram, are found to be widely and

effectively used for direct marketing by digital entrepreneurs. Appel et al. (2020) acknowledge increasing the role of social media in marketing.

6.7.3.4 Patents and Branding

In addition to market research and offering freebies, two other critical areas of marketing and business protection for start-ups are patents creation and branding. Creating patents around unique ideas is a way for start-ups to safeguard themselves from competition from more established companies. This can be accomplished by obtaining legal patents for innovative products, services, or processes. Branding is another important aspect of marketing that can help start-ups to establish a strong and distinctive identity in the marketplace. Through product or service branding, start-ups can enhance their visibility and project a professional image to potential customers. This can be accomplished by creating a recognizable brand name, logo, and other visual elements that effectively convey the values and personality of the business (Kumar and Christodoulopoulou, 2014; Caviggioli and Ughetto, 2013).

6.7.3.5 Social Integration

Immigrant-owned businesses are mostly affected by social challenges, given that the lack of quick, easy and adequate social integration into the host community will affect their potential to grow their clientele. Flap et al. (2000) suggest that social integration is positively associated with entrepreneurship, as it provides access to social capital and information that can improve business performance. Therefore, social integration should be a core competency for immigrant-owned businesses, which is because entrepreneurs mostly seek information through informal sources and yet this will present a potential barrier to immigrants: ***"the greatest equaliser here will be acculturation. I believe blending and learning about other people's cultures will remove informational barriers to access. I say that some of my bilingual friends have the edge over me when it comes to gaining access to and seeking information"*** (DE13). Another participant narrative demonstrates the effect of integration into the host community: ***"we started socializing widely, trying to get to know more people as possible, going to events and other social gatherings. That is how we networked and strengthened our social capital"*** (DE05).

Kim and Aldrich (2005) found that acculturation positively impacted the information-seeking behaviour of immigrant entrepreneurs. Therefore, the social or cultural barriers that may exist between customers and immigrant entrepreneurs can be removed through acculturation. This can lead to a better understanding of local market demands and enable them to tailor their business strategies accordingly. By conducting market research and engaging with the local community, businesses, especially multinationals, can gain valuable insights into the cultural nuances that may impact their business operations (Kotabe and Helsen, 2014).

Conversely, diasporic communities can also help local businesses to tap into foreign ideas if they engage and interact with the host community. This can be achieved through acculturation, as diasporic individuals can serve as a bridge between the host community and their home culture. Anderson and Jack (2002) found that diasporic communities can be a valuable source of information and resources for local businesses seeking to expand their operations. Through this process, local businesses can gain access to new ideas, products, and services, which can help them to stay competitive in the market.

The acculturation journey of immigrant entrepreneurs, market research by multinationals, and engagement with diasporic communities are all ways to enhance information-seeking and gain a better understanding of local market demands. By leveraging these strategies, businesses can stay competitive and adapt to the cultural nuances that may impact their success in the marketplace.

6.7.3.6 Others

Patience, confidence and enthusiasm are found to be important elements for entrepreneurship ideation and success: ***"entrepreneurship is hard, and it takes more than courage and resolve to succeed. Even though start-ups may fail but entrepreneurs not. It is an infinite learning path for them"*** *(DE12).* The entrepreneurship journey can be tiring and unpredictable and thus require genuine commitment and energy to drive through an idea conception to fruition (Wolter, 2004). As narrated by one of the participants: ***"my strong interest in art has greatly affected my performance"*** (DE02).

6.8 Summary

This chapter has provided a discussion of the overall empirical findings that have been determined to be relevant to the objectives of the current research. The empirical findings have been incorporated into a wide variety of different bodies of literature and theoretical frameworks in order to both explain existing literature and confirm or validate existing literature. The various fields of study, including information science, entrepreneurship, psychology, management, and business, are represented by the various theories that are applied. Despite the fact that these pieces of literature could seem unrelated to one another, they are, in fact, connected to the overarching goal of the current interdisciplinary research study.

6.8.1 Section 1

The discussion begins by examining the initial information environment of digital entrepreneurs, which includes the influence of their parents and society. Specifically, the role of the mother and the experiences the entrepreneurs have encountered, such as deprivation, have been discussed. It is suggested that these factors not only shape their information behaviour but also their underlying motivation for entrepreneurship. The study found that the motivation and inspiration behind

entrepreneurship arise from a mix of positive and negative factors, which are not necessarily binary positions but rather represent a continuum. The mother is identified as a valuable resource for both information and business opportunities. These findings support previous research while also highlighting the novelty of the current study.

6.8.2 Section 2

The second section of the discussion focused on the education of entrepreneurs, both formal and informal. The research suggests that having a diverse knowledge base is an essential characteristic for generating new ideas. However, the participants in the study largely acquired their knowledge of entrepreneurship through informal education. This education was often facilitated through online platforms and entertainment. Additionally, reading as a hobby was found to be a significant tool for entrepreneurial education and idea generation. This highlights the critical role that libraries play in promoting new venture creation.

6.8.3 Section 3

Here the ideation process is explored. This particular analysis delves into the ideation process, specifically the interplay between cognitive processes and information practices in the formation of ideas. It has been observed that this process is influenced by a variety of contextual factors, such as socioeconomic status and lived experience.

In addition, two further categories of ideation have been identified, which are referred to as co-ideation and crowd ideation, collectively known as assistive ideation. This concept emphasizes the role of external factors, such as collaboration and consultation with others, in the process of generating new ideas.

Moreover, the successful formation of ideas requires the integration of diverse sources of information into a cohesive whole. This ability to synthesize information from multiple sources is essential to the ideation process, and is followed by cognitive information processing, which further refines and develops the ideas generated.

Finally, the constructivist metatheory provides a robust theoretical framework for understanding the ideation process. This theoretical perspective emphasizes the role of the individual in actively constructing their knowledge and understanding of the world, rather than being passive receivers of information. It highlights the importance of personal experience and interpretation in shaping ideas, as well as the impact of social and cultural factors on the ideation process.

6.8.4 Section 4

This section explores the central information theme of information behaviour. This discussion addresses the entrepreneurs" information-seeking strategies as well as the theories of information behaviour that were employed to explain their empirical findings. To better understand the information behaviour of entrepreneurs, various theories have been developed, including Wilson's model of information behaviour, Dervin's sense-making theory, Kuhlthau's information search process model, and Taylor's information use environment model, among others. These theories provide a framework for understanding how individuals seek, retrieve, and use information, and the factors that influence their behaviour.

The empirical findings concerning the information behaviour of entrepreneurs have revealed that affective components such as fear, pride, self-esteem, anxiety, and shyness can play a significant role in their information-seeking behaviour. For instance, fear of failure may motivate entrepreneurs to seek out information to mitigate potential risks and increase their chances of success. At the same time, pride and self-esteem may prevent entrepreneurs from seeking help or advice, leading them to rely solely on their own information-seeking strategies.

Understanding the affective components of information behaviour is important for developing effective information-seeking strategies for entrepreneurs. By considering the emotional experiences and motivations that drive their information-seeking behaviour, we can better support entrepreneurs in their efforts to access the information they need to succeed.

6.8.5 Section 5

Access to information is essential for entrepreneurs to make informed decisions, develop innovative products and services, and compete effectively in their industries. However, there are several barriers to information access, including socioeconomic inequality, cultural and linguistic constraints, and infrastructural limitations. These barriers can be systemic, such as unequal access to technology or information resources, or individual, such as a lack of information literacy or language proficiency.

Information overload is a common problem among digital entrepreneurs, particularly due to the complexity and abundance of information technology tools for capturing and processing information. To address this issue, various mitigation measures have been identified, such as filtering and information avoidance. Two types of filtering processes have been identified: rational and visceral. Rational filters involve using logical criteria to prioritize or exclude information, while visceral filters involve using emotional or aesthetic criteria.

Research has also identified three categories of strategies for mitigating information overload, with varied levels or intensities of information engagement. The first type encourages information immersion, where entrepreneurs fully engage with and consume large amounts of information. The second type emphasizes limited interaction with information, such as skimming or scanning. The third type emphasizes both physical and cognitive distance, such as outsourcing information tasks to others or using tools to automate information processing.

While these strategies are genuine experiences for the participants, their preferences and effectiveness have not been established. Further research is needed to understand the effectiveness of different information-seeking strategies and to develop practical tools and resources to support entrepreneurs in managing information overload.

6.8.6 Section 6

The field of entrepreneurship has become a prominent area of research in recent times, with a focus on the challenges and solutions for start-ups. In this context, information is a critical factor in shaping the success of any business venture. However, the quality of information available to entrepreneurs is often compromised due to the prevalence of misinformation, disinformation, and outdated information. This has become a major challenge for businesses, as they struggle to navigate the complex and dynamic business environment.

To address this challenge, effective information utilization has become an essential skill for entrepreneurs. They need to be able to identify reliable sources of information and use them to make informed decisions. Corroboration is another important strategy that entrepreneurs can use to ensure the accuracy and validity of information. This involves cross-checking information from multiple sources to verify its authenticity.

In addition to information quality, entrepreneurs must also recognize the potential breadth of information available to them. This involves looking beyond the obvious sources of information and exploring alternative sources, such as industry reports, market research studies, and consumer feedback.

While information is critical to the success of any business venture, other factors also play a significant role. For example, patent creation can be an important strategy for protecting intellectual property and ensuring a competitive advantage. Similarly, branding and marketing are essential elements of any successful business strategy, as they help to create brand awareness and build a loyal customer base.

6.8.7 Section 7

The concluding section of the study focuses on the information behaviour of marginalized groups, who are particularly susceptible to information marginalization due to social inequality. Immigrants, women, and gay/lesbian people often face challenges in accessing and using accurate and reliable information, which can hinder their ability to make informed decisions.

The study suggests that group behaviour and groupthink can be coping mechanisms developed by these marginalized groups to deal with the challenges of information access and use. However, it is important to note that relying solely on these methods may also lead to limitations in the quality of information being accessed and used. In other words, while group behaviour and groupthink may provide some benefits, they can also result in the perpetuation of misinformation and bias.

Therefore, the study emphasizes the importance of prioritizing the credibility of information sources. This involves seeking out reliable and trustworthy sources, verifying information through multiple sources, and critically evaluating the credibility of information before using it to inform decisions. By doing so, marginalized groups can ensure that the information they use is accurate, unbiased, and reliable. Overall, the section highlights the need for honed information practices that prioritize information quality, credibility, and reliability. By promoting and encouraging the development of such practices, the challenges of information marginalization faced by marginalized groups can be addressed.

It is important to clarify that the researcher in this study only interviewed entrepreneurs who had successfully started their companies and not those who had failed to do so. This means that the findings may not be representative of all entrepreneurs and may not capture the experiences and challenges faced by those who were unsuccessful in their business ventures.

The exclusion of failed entrepreneurs from the study may also limit their ability to fully understand the range of factors that contribute to entrepreneurial success and failure. For example, the experiences and perspectives of those who were unable to successfully start their businesses may provide valuable insights into the barriers and challenges that entrepreneurs face, which could inform policies and interventions to support future entrepreneurs.

Despite this limitation, the findings of this study offer valuable insights into the information practices of successful entrepreneurs, and the ways in which they have leveraged information to overcome barriers and achieve success in their businesses.

Chapter 7: Conclusion

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Overview

The present chapter furnishes an outline of the empirical investigation pertaining to the information behaviour of digital entrepreneurs. The argument posited herein is a continuation of the preceding chapters" discourse. Nonetheless, it transcends the said dialogue as it expounds on the study's intellectual position within the purview of extant literature. The chapter is structured around the official research objectives delineated in chapter one. The research findings and conclusion are presented in conjunction with the original aims. Several noteworthy findings have surfaced that demand further inquiry.

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7.1 Research Objectives

Objective 1: Examine Information-Seeking Behaviours:
• To investigate the various information-seeking behaviours, such as rummaging and foraging, displayed by Nigerian digital entrepreneurs and how these behaviours differ among subgroups like immigrants, university graduates, and socially isolated entrepreneurs.
Objective 2: Assess Barriers to Information Access:
• To identify and assess the socio-cultural and psychological barriers that affect information access among digital entrepreneurs in Nigeria. Specific focus would be given to the role of self-esteem, social class, culture, gender, and language in information-seeking practices.
Objective 3: Explore the Impact of Information Overload:
• To explore how information overload affects Nigerian digital entrepreneurs and to identify strategies commonly employed to mitigate this issue, such as cognitive techniques of filtering and ignoring.
Objective 4: Understand Ideation Processes:
• To delve into the ideation processes among digital entrepreneurs in Nigeria, examining how cognitive, social, and technological aspects interact in the idea generation phase.

Special attention will be paid to the experiences of entrepreneurs living a socially withdrawn life or who have suffered from deprivation.
Objective 5: Investigate Collaboration and Trust:
• To study the extent and nature of collaboration and partnership among digital entrepreneurs in Nigeria, including the role of professional engagement in gathering business intelligence and concerns about idea theft and trust issues.
Objective 6: Evaluate Influence of Socio-Cultural Factors on Entrepreneurship:
• To evaluate the role of parental and societal influences, educational qualifications, and mentorship experiences on the entrepreneurial journey of digital entrepreneurs in Nigeria, with a particular focus on entrepreneurs who suffer from greater social exclusion such as women and immigrants.

Table 4: Research Objectives

7.2 Objective one

The primary objective of the research is to demonstrate the synthesis between information behaviour and entrepreneurship theories. The study utilizes several theoretical frameworks to shed light on the empirical findings. The research is situated at the intersection of entrepreneurial practices and the narratives of individuals who primarily reside in marginal, poor, and excluded places and contexts, such as Nigeria, and their associated information behaviour. The literature has also documented information behaviour within the context of marginality.

The observation from the research reveals that entrepreneurship is frequently an economic response to social inequality, and the effort to neutralize such disparity is made possible by certain entrepreneurs' traits, information, and knowledge practices. Knowledge and information practices appear to be among the salient and often overlooked components of the mix for entrepreneurship behaviour or, more specifically, idea generation.

While entrepreneurship effectuation is a response to social inequality, information marginality is a function of social inequality, which can be mitigated by several factors, including technology-based skills and group-based social structures. The information behaviour of entrepreneurs is shaped and driven by contextual factors, including social, cultural, and economic elements, as well as the adversities that entrepreneurs face.

The macro entrepreneurial traits, such as resilience, mental alertness, and flexibility, as understood, can also be transposed into positive attitudes, which enhance information seeking and access. The research seeks to provide a comprehensive understanding of the interplay between information behaviour and entrepreneurship theories in marginalized communities, and the factors that drive and shape entrepreneurial information behaviour.

Regarding theories and their application across disciplines, Dervin's (1992) sense-making theory appears to be a transdisciplinary theory. The constructivist approach of this theory relates to the contextual elements of creativity and idea generation. Essential behavioural, cognitive, and contextual factors regulate how information is received, processed, and used by digital entrepreneurs, enabling them to generate ideas. Dervin's sense-making theory originated from communication studies, and places great emphasis on the effect of culture and society. Constructivist methods of information behaviour study typically view an individual's world as a product of their own mind rather than of the society in which they live. However, social constructivism allows for the effect of society and culture. This association has highlighted the inter-theoretical fusion between entrepreneurship ideation and information behaviour, as well as the need for more sophisticated empirical research to enhance better theory integration.

The research has found that technology and interest-based groups, such as the lesbian group, can help with idea generation, including assistive ideation. They are used as mitigating tools to address socioeconomic inequalities. In addition to the above roles, interest groups also promote group-based information behaviour, which affects an individual's decision-making by subconsciously absolving the user of some informeational duties regarding information quality procedures, such as vetting the credibility of sources.

The implications of these discoveries are that mitigation strategies for marginality can be considered as an important part of Users' skills for entrepreneurship ideation and vice versa. However, this inference must be made with caution as it cannot be generalized.

7.3 Objective two

The information behaviour models and theories, such as those proposed by Wai-yi (1998), Dervin (1983), Taylor (1962), Belkin (1980), Kuhlthau (1991) and Wilson (1997), are significant theoretical frameworks used to understand and interpret empirical findings related to information practices. Digital entrepreneurs exhibit diverse information behaviours, making it difficult to categorize these attitudes within a single theory. However, these theories, taken together, have provided a comprehensive explanation of observed information practices.

Regarding the general information landscape for entrepreneurs, Wilson's (1997) model offers a comprehensive fit for observed information behaviour. While these models and theories are not exhaustive in terms of applicable theories, they were selected based on several criteria, including their seminal nature and need for validation to reaffirm their effectiveness. A growing body of empirical research, as exemplified by McKenzie (2003a), Fisher et al. (2005), and Leslie (2009), has utilized constructs from these established theories to support their arguments. This helps minimize the lack of theoretical clarity within the information science discipline and fosters the maturity of the field.

It is important to note that while these models and theories have been effective in explaining observed information practices, they are not without limitations. For instance, some of these models may not account for the specifics of digital entrepreneurship, which may require a more nuanced approach to information behaviour. Moreover, it is also worth noting that the application of these models and theories should be done with caution. This is because information practices are not only influenced by individual factors but also by contextual and environmental factors. Therefore, there is a need to consider the specific context and environment in which the digital entrepreneur operates when using these models and theories.

Additionally, while the growing body of empirical research has based arguments on constructs from established theories, there is also a need to explore new and emerging theories that may provide a more comprehensive understanding of digital entrepreneurship and information behaviour. Thus, while these established models and theories are valuable, they should not be seen as the definitive answer to understanding information behaviour in the context of digital entrepreneurship. Rather, they should be used as a starting point for exploration and further research.

7.4 Objective three

The behaviour of digital entrepreneurs in seeking information offers new insights into their idiosyncrasies. They traverse through various information landscapes or employ a composite approach to navigate these environments, depending on their information needs at any given time. However, the internet remains the most widely used source of information, possibly due to its ability to support various information-seeking types.

While ideation generation activities are mainly information activities, digital entrepreneurs are yet to consciously conceptualize these processes as such. Rather, they are mostly concerned with the outcomes of such processes. Adopting better information-seeking strategies can be achieved by understanding their practices through the lens of models and theories. For instance, the weak and strong ties relational perspective (Kolvereid, 1994) serves as an informational network that shows how

the external network functions as a source of information and transmission channel. This supports the hypothesis that innovation processes occur and develop through interaction with various knowledge fields (Johannessen and Kolvereid, 1994; Granovetter, 1973). However, excessive participation across multiple informal networks can lead to information overload. Nevertheless, effective strategies can mitigate these circumstances.

Furthermore, understanding the information barriers that users are likely to encounter will equip them to manage challenges better. Wilson's (1996) model of information-seeking has elaborated on these barriers in detail. Specific information retrieval barriers are highlighted in Belkin's (1980) anomalous state of knowledge (ASK) and Taylor's (1962) concept of visceral need.

Prior articulation of cognitive states before information search can enhance Users' search effectiveness. Digital entrepreneurs, in particular, exhibit a lack of theoretical awareness of their information practices, which can lead to information overload, reversing progress by consuming decision-making faculties. Despite this, mitigation techniques are more apparent and practical, leading to digital entrepreneurs" intellectual awareness of their mitigation behaviours. The current research has identified three positions or camps that reflect digital entrepreneurs" information-seeking behaviour, depending on their engagement with information.

Regarding information access and barriers, digital entrepreneurs are generally aware that social inequality can affect their access to information. However, these sentiments are based mostly on strongly held hypotheses rather than anecdotal experience. It is, therefore, necessary to evaluate real and abstract barriers to information access. Abstract barriers may not necessarily constitute practical barriers, but they become barriers due to the beliefs that they are barriers. Nevertheless, this research suggests the interconnectedness of the barriers results in multiple layers of them that entrepreneurs are likely to face.

Understanding digital entrepreneurs" information-seeking behaviour requires a theoretical awareness of their practices and an understanding of the barriers they face. Digital entrepreneurs must articulate their cognitive states before conducting an information search to enhance their search effectiveness. Additionally, they should be aware of the risks of information overload and adopt practical mitigation strategies. Finally, recognizing and evaluating the real and abstract barriers to information access, such as poor information or digital literacy, will help digital entrepreneurs overcome obstacles and achieve their goals effectively.

7.5 Objective four

The use of information by digital entrepreneurs in the generation of start-up ideas has been extensively studied, taking into account their overall entrepreneurial journey: this has been largely in the management domain rather than information science. However, it should be noted that there are certain caveats to this understanding. Passive information-seeking patterns have been observed, particularly in the early stages of the business ideation process, especially when the idea is not yet fully formed or understood by the founder. Other forms of information searching are emergent, spontaneous, expanded, and unsystematic information searching behaviour is commonly observed among digital entrepreneurs. This phenomenon is frequently characterized in the literature as foraging or rummaging, where seemingly insignificant pieces of unrelated information are amalgamated into a coherent and useful whole. The process of foraging or rummaging entails a non-linear and dynamic approach to information searching, where digital entrepreneurs may engage in multiple and simultaneous search activities across various platforms and sources. This approach is often driven by a need for timely and relevant information to support their business endeavours, which necessitates a flexible and adaptable approach to information seeking.

Despite its apparent lack of structure, the foraging or rummaging approach to information searching has been found to yield numerous benefits for digital entrepreneurs. By engaging in this process, they can uncover unexpected and valuable insights, identify new business opportunities, and develop a more comprehensive understanding of their market and industry. While it may appear unsystematic and haphazard, it allows for the consolidation of seemingly disparate pieces of information into a meaningful and useful whole, ultimately supporting the success of their business endeavours.

Research has identified two modes of information and idea conversion: solo and assistive. The ability of an entrepreneur to transform a piece of information or idea into a viable business is dependent on the information environment they are operating from. This includes mentorship, peer, or family information landscapes. It is important to note that each of these landscapes has varying power dynamics, which will ultimately impact how a piece of information can be transformed into a business idea. For example, entrepreneurs who operate in a mentorship environment may have access to more extensive networks and resources, which can help them generate more innovative ideas than those operating in a peer or family environment. The social hierarchy or power dynamics will impact the entrepreneur's degree of ingenuity by enhancing or limiting their entrepreneurship intention.

Furthermore, interdisciplinary knowledge is seen as an essential component of creativity. Entrepreneurs who possess knowledge across multiple disciplines find it easier to generate business ideas or pivot between related business ideas. This ability to leverage interdisciplinary knowledge in

the generation of business ideas highlights the importance of cultivating a broad range of skills and knowledge.

In conclusion, the utilisation of information by digital entrepreneurs in generating start-up ideas is a complex process that requires a thorough understanding of the information environment and power dynamics within it. The ability to leverage interdisciplinary knowledge is also a critical factor in generating creative business ideas.

7.6 Objective five

The current research indicates that language challenges can act as a significant barrier for individuals seeking information, and they can create additional layers of complexity to the already existing barriers. As a result, it is imperative for researchers to consider the influence of language challenges when studying information-seeking behaviour.

The findings of the research suggest that models need to take into account language challenges to improve the accuracy and inclusivity of their models. This consideration can ensure that all individuals, regardless of language proficiency or proficiency in a particular dialect, have equal access to the information they seek. To achieve this, it is essential to develop models that can address language challenges effectively. This can be accomplished through the use of natural language processing techniques that can identify the nuances of language and provide more accurate and relevant search results.

Furthermore, to overcome language challenges, researchers and developers need to work together to develop more effective information retrieval systems. Further research is necessary to understand how to overcome these language challenges to provide effective and equitable access to information for all users. This can be achieved through a collaborative effort to improve the accuracy of language translation tools and to develop systems that can accommodate dialectical differences effectively.

Social inequality is also a significant obstacle to accessing information, which affects entrepreneurs in various ways. The barriers to accessing information can be categorized as social, cultural, structural, and cognitive, and these barriers are interconnected and complex. Although it is challenging to eliminate these barriers entirely, they can be overcome through a combination of social and cultural interventions, infrastructure development, and cognitive strategies.

Socioeconomic inequality is one of the major barriers to information access. Entrepreneurs from disadvantaged backgrounds may lack the financial resources to purchase information technology tools, or have limited access to high-speed internet. Additionally, cultural and linguistic barriers can

make it difficult for entrepreneurs from different backgrounds to access information. For example, entrepreneurs whose first language is not English may face challenges in accessing information that is primarily available in English.

Systemic barriers to information access can also impact individual entrepreneurs. Information overload is a common issue among digital entrepreneurs who are inundated with vast amounts of data from various sources. As a result, digital entrepreneurs may experience difficulty in processing and utilizing this information effectively.

To mitigate the effects of information overload, filtering and information avoidance strategies are often employed. Two types of filtering processes have been identified: rational and visceral. Rational filtering involves a conscious decision-making process to select and prioritize information, while visceral filtering is an automatic, unconscious process that prioritizes information based on emotions or intuition.

Research has identified three categories of strategies for mitigating information overload. The first type involves information immersion, where entrepreneurs seek to engage with information fully. The second type involves limiting information engagement, where entrepreneurs focus on a few key sources of information. The third type emphasizes both physical and cognitive distance, where entrepreneurs seek to maintain a level of detachment from information.

While all these strategies are valid, the effectiveness of each approach varies depending on individual preferences and circumstances. Therefore, it is essential to consider the unique needs and perspectives of individual entrepreneurs when developing strategies to overcome information barriers.

7.7 Empirical contribution to knowledge

The significance of every piece of research is indicated by the impact it has within its scholarly realm, which is then measured by the contribution it has made to knowledge. Contribution to knowledge has traditionally been determined on two long-standing criteria: *originality* and *utility*, as described in Corley and Gioia's (2011) review of knowledge contribution through theory building. The current research attempts to advance the frontiers of knowledge along these two dimensions (originality and utility), although this contribution is further nuanced within the macro criteria dimensions of incremental and scientific utility. Originality can be classified as either a) incrementally advancing understanding or b) progressively developing understanding in a way that delivers some type of revelation, whilst utility can be classified as a) practically useful and b) scientifically valuable.

It is believed that this research has accomplished a scholarly feat by attempting to assemble insightful thinking in order to develop a more systematic approach to knowledge about the intersection of information behaviour and entrepreneurship ideation, which has helped bring both conceptual and theoretical clarity to knowledge and allay concerns such as the critique of a growing body of information behaviour based entrepreneurship literature for being simply a collection point for anecdotal experience (Case and Given, 2016).

In line with that belief, it is essential also to reiterate the literature gap the current research has addressed. The literature survey reveals that the study by Johannessen and Kolvereid (1994) is the first attempt to investigate the intersection of information behaviour and entrepreneurship gestation. In business, the gestation period is the pre-traction period. That is, it is the time required to build the firm to the point where it can begin displaying results. As a result, gestation is conceptually the post-ideation stage. Johannessen and Kolvereid's study was pioneering and insightful but not seminally influential regarding information behaviour (IB) literature. This assertion is attributed to a number of reasons: the study has failed to account for its empirical findings in the light of IB literature, and such action has effectively dismissed the scholarly significance of the IB seminal theories and models. This is not surprising given the *business and management* scholarship pedigree of the authors. The current research differs from their study in terms of the IB scope within which the empirical data was collected and the extent to which that data was theoretically explained within the realm of information behaviour. However, these studies have united on a concept borrowed from sociology, which discussed the network of social relations and how it enhances informational advantage for users who belong to varieties of the social web. Simplistically, Johannessen and Kolvereid's research was a business management investigation foray into the information practices of some select entrepreneurs, specifically to understand their information source preferences.

A more closely related study to the current one is by Leslie (2009: p. i), who "examines in detail how eight first-time entrepreneurs went about finding out what they felt they needed to know during the *first months of their business's operation*, and in particular how they constructed their problems or questions in discourse and how they went about addressing them". Although unpublished, Leslie's work shares with current research in terms of IB theoretical inclination and focus on nascent entrepreneurs. Her work centres around Dervin (1992) work, specifically to "test the potential usefulness of the sense-making methodology to an understanding of new business owners" information needs" and also draws inspiration from work by McKenzie (2003: pp32-35), who "sought to expose the wide range of information behaviours that form part of **individuals'** everyday life". Both

Leslie and Johannessen and Kolvereid share a commonality in terms of participants' characteristics - nascent entrepreneurs – and they both examine information source preference, although Leslie's study also demonstrates how those entrepreneurs articulate their information needs.

The current research has positioned itself as an update within the research family on the information behaviour of nascent entrepreneurs, particularly by focusing on digital entrepreneurs" idea generation stage of start-up creation. Even though there is a substantial literature regarding digital entrepreneurship, digital entrepreneurs received very little attention. This added dimension brings empirical novelty and theoretical originality in a number of ways (Zhao and Collier, 2016; Nicholas and Huntington, 2004; Nambisan, 2017; Martinez Dy et al., 2018; Kraus et al., 2018; Giones and Brem, 2017; Davidson and Vaast, 2010; Al-Sharhan et al., 2018; Orrensalo et al., 2022; Orrensalo, 2020). Scholarship on their information behaviour during ideation has yet to be recorded. It is believed the current research effort marks the first important step in understanding ideation through the lens of various information landscapes - family, peers, mentors and the internet. Various information practices of digital entrepreneurs have been examined, and findings are communicated in great detail. For example, several information-searching strategies adopted by the entrepreneurs were observed and reported, from the most planned and methodological – active seeking of information – to non-directed scanning or fortuitous and serendipitous encounters within the information, which may involve browsing in likely locations and opportune questioning. This has also opened new research gaps that are worthy of investigation. For example, investigating whether the internet, including online interactive and learning platforms such as Quora and YouTube, are prerequisites to digital entrepreneurship ideation would be an exciting research question to explore.

Furthermore, the concept of intersectionality among digital entrepreneurs has also been explored, revealing layers of adversities among women and immigrant entrepreneurs regarding how it impacts their information behaviours, especially regarding information access, as well as the strategies used to mitigate such marginality. These insights are novel and contribute to knowledge in terms of how digital entrepreneurs address information marginality through overcoming other social inequalities, including exclusion and discrimination. While the research was not purposely enacted along the dimension of marginalised entrepreneurs, however notable findings from the subgroup call for a more exploratory investigation into possible reconceptualising of the notion of why entrepreneurship marginalisation is chiefly assumed to be of material value and not primarily informational. While there is considerable literature on information marginality, intersectionality and exclusion, scholarship has not beamed its light on digital entrepreneurs" information behaviour. Consequently, this achievement has further opened adjoining research gaps. For example, it is essential to understand the relationship

between mitigation strategies for information marginalisation and entrepreneurship traits, if the former could be indicative of entrepreneurship intention. A further important avenue of enquiry would be to examine how digital entrepreneurs transition their information landscapes. Answering these questions will further consolidate the empirical and theoretical understating of the information practices underpinning digital entrepreneurship ideation.

7.8 Theoretical contribution to Knowledge

This research presents a novel and sophisticated approach to rethinking and reordering the conceptual framework that underpins the relationship between information practices and entrepreneurship activities, especially in the digital context. The growing body of literature provides essential guidance for researchers who seek to disseminate their theoretical contributions. According to Shepherd and Suddaby (2017), building theories is essential for advancing knowledge. However, despite the extensive literature that provides numerous theorizing tools, there is a lack of clear understanding of how these tools fit together, and when to use which tool, and which combination of tools can be employed in the theorizing process. To avoid vague operationalization of the numerous theorizing tools available, the current research relied on the guidance of works by Corley and Gioia (2011), Cornelissen et al. (2021), and Sandberg and Alvesson (2021) to demonstrate its theoretical contribution.

To begin with, the research proposes an alternative perspective in terms of the predominantly negative view of the notion of information overload. Information overload is often blamed for instilling mental stress and consuming attention. However, the mitigation approaches to information overload have the potential to turn around the situation by taking the excessive information as an untapped informational opportunity, or at least to consider it a "double-edged sword." This theoretical claim is partially based on the empirical findings, as demonstrated in one of the participants' narratives: "having so much information at our disposal should be a good thing. It should assist us in making informed and wise decisions. In practice, it appears to do more harm than good" (DE14). Another participant suggested that taking a break and getting engaged with the outside world or real world could address the cognitive slowdown often associated with information overload. Furthermore, this assertion is premised on the understanding that a wide range of approaches to information overload mitigation exists. When carefully applied in a synthetic manner, a synergetic outcome can be achieved.

The current research has identified three camps with varying degrees of Users' information engagement, with information avoidance and immersion sitting at the extreme points of the

spectrum. The first type encourages information immersion, where entrepreneurs fully engage with and consume large amounts of information. The second type emphasizes limited interaction with information, such as skimming or scanning. The third type emphasizes both physical and cognitive distance, such as outsourcing information tasks to others or using tools to automate information processing. While it is precarious in a scholarly sense to make such an ambitious intellectual claim based on a fractional, however valid empirical discovery, nonetheless, this will stimulate and advance our understanding of this phenomenon and will cultivate avenues of future research in which answers to questions will be grounded in theory and extant literature.

In contemporary entrepreneurship, the relationship between technology and ideation has been recognized as a crucial point of reference for most entrepreneurs. Empirical evidence suggests that the thinking of entrepreneurs is highly influenced and inspired by technology, thus making it an integral part of their ideation processes. This statement should not be taken as an absolute truth, but rather as an empirically supported opinion about the complex ways in which technology, specifically computers, imbues the developmental stages of young adults. This idea is further supported by Turkle's (2005) commentary on the relationship between humanity and computers and how computing is redefining our very humanity, creating a new category of being.

Based on this understanding, it can be argued with confidence that digital entrepreneurship ideation may not be the exclusive ability of digital natives, but that the latter group may possess greater potency for such ideation when compared to digital immigrants. This argument should not be construed as a denigration of the digital immigrant group, as it is not intended to endorse any position that would see them as runners-up in the quest to generate digital ideas. Rather, it is a recognition of the impact of technology on ideation processes and a call for further investigation into the ways in which digital natives and immigrants differ in this regard. This argument could contribute to a better understanding of the relationship between technology and entrepreneurship, and provide insights into how entrepreneurs can leverage technology to drive innovation and success.

This research has identified several critical theoretical issues that offer a new perspective and broaden the research scope on how information practices impact digital entrepreneurship ideation. Firstly, the study contributes to the debate on marginalised entrepreneurs" information practices, which has been overlooked in previous research. Secondly, the study challenges the predominantly negative perception of information overload by arguing that excessive information can be viewed as an untapped opportunity, or at least a double-edged sword. Thirdly, the study explores the seeming

exclusiveness of digital ideation by digital natives, which adds to our understanding of how technology influences the developmental stages of young adults.

According to Kilduff and Kilduff (2006), one of the crucial criteria for "evaluating theory is the extent to which it runs ahead of existing empirical research in terms of alerting us to research opportunities hitherto unanticipated". The synthesis of existing literature and empirical findings in this study has provided valuable insights that meet the criteria of originality, particularly revelatory, surprising, or transformative thinking, and incremental, which signals the attribution of theoretical contribution. "Advancing incremental understanding perspective has become rather too closely associated with the notion of minor, marginal, or even trivial improvements, where small advances in our thinking about a phenomenon provide the means to progress research" (Corley and Gioia, 2011: p. 16). However, both dimensions (revelatory and incremental) value-added contribution have been achieved.

Furthermore, the study's theoretical contribution aligns with the interpretive and explanatory notion of theorising proposed by Cornelissen et al. (2021), where explanatory theorising involves developing arguments through proposition formulation, while interpretive theorising recontextualises a topic by re-signifying it into alternative, deeper meanings. The research's reconceptualisation and exploration of deep meaning in the identified theoretical issues offer an interpretive contribution that re-signifies how we understand digital entrepreneurship ideation and its relationship with information practices.

This research has made a significant theoretical contribution by offering a new perspective on how information practices impact digital entrepreneurship ideation. The identified theoretical issues and their reconceptualisation provide valuable insights for future research, and the study's originality and interpretive contribution advance our understanding of this phenomenon.

The research discusses several important points related to digital entrepreneurship and information behaviour. Firstly, it emphasizes the need for entrepreneurs to recognize and navigate multiple layers of information access barriers, using models of information behaviour as an analytical tool. Secondly, the research identifies three positions that reflect digital entrepreneurs" information-seeking behaviour with respect information overload mitigation, highlighting the importance of understanding their engagement with information. Thirdly, the study argues that digital natives may have greater ideation potency in digital entrepreneurship. Finally, the research highlights the potential benefits and limitations of relying on group behaviour and groupthink as coping mechanisms for marginalized

groups dealing with information access and use challenges. Entrepreneurs should be aware of these issues to access high-quality information while leveraging technology to drive innovation and success.

7.9 Research limitation

The research focused on investigating the information behaviour of digital entrepreneurs during the idea generation phase, utilizing a qualitative semi-structured interview approach, guided by the critical realism methodological philosophy. The study spanned ten months and involved conducting 26 interviews in two batches.

The first batch of interviews utilized an almost structured interview approach, which was limited in terms of flexibility, hindering participants' ability to express themselves fully and freely. Consequently, the first batch may not have generated rich data as the participants' responses may not have been as insightful as they could have been. The second batch of interviews was more flexible, which allowed participants to express themselves more freely. However, the flexibility also introduced a new challenge of control as many of the participants frequently digressed from the topic, reducing the time available for probing further and delving deeper into the responses.

Furthermore, a significant number of the interviews were conducted in Hausa, a local language, which posed challenges for translation into the target language, as the domain-specific language of information science was not readily available in the target language. As a result, the translations may have lost some meaning or failed to capture certain nuances.

The design of the interview schedule used in the study has generated a diverse range of responses that span across the fields of information behaviour, entrepreneurship, and technology. While this breadth of conversation is desirable, it has posed a challenge of specificity to the research discussion. To address this challenge, the study would have benefited from more follow-up questions, allowing for an exhaustive debate and yielding more insights.

For instance, it would have been helpful to probe further into why the maternal environment exerts more significant influence than the paternal one and which of the two is considered a more credible source of information. Additionally, the study could have explored the amount of time entrepreneurs spend on the internet and evaluated the ideas generated online versus offline.

The study could have also delved deeper into the information practices of marginalised entrepreneurs by asking questions about their information practices in both their home and host communities,

observing any changes over time. However, this approach may have exposed the researcher to the risk of scope drift, potentially leading to a deviation from the research objectives. Nonetheless, including questions like these would have strengthened the reliability of the research findings.

Overall, while the interview schedule used in the study has provided a diverse range of responses, more specific follow-up questions would have allowed for a more exhaustive debate and generated more insights. Future research in this area should aim to strike a balance between specificity and breadth of conversation to achieve a more comprehensive understanding of the subject matter.

7.10 Research impact

The research findings presented in this study carry significant implications for entrepreneurship practice, particularly in the context of start-up creation. Entrepreneurs and founders can utilize these findings as a tool to evaluate their information practices in relation to the wider information landscapes, including maternal (family), peers, mentorship, and the internet. It is essential for entrepreneurs to identify and assess which among these information environments offer ideation value, enabling them to sharpen their information skills that align with the demands and features of the information environment.

Entrepreneurs who predominantly seek information from the internet must focus on enhancing their information retrieval skills and gaining mastery over different searching techniques. They must also comprehend the science behind keyword formulation to optimize their search results. In contrast, immigrant entrepreneurs must strive to familiarize themselves culturally within the host community and understand the social norms and etiquettes that facilitate informal information access.

It is crucial for digital entrepreneurs to recognize that information access barriers may involve multiple layers that obstruct access. Therefore, the most apparent barrier to information access may not always be the primary or significant factor. Identifying and navigating these barriers can be challenging, and digital entrepreneurs can use the models of information behaviour presented in this study as an analytical tool to understand the cognitive processes and capacities that underpin their observable information practices.

Furthermore, adhering to these models of information behaviour can facilitate a seamless information-seeking experience for digital entrepreneurs. They can also use their experiences to further develop and incorporate their practices into the models, leading to continuous improvement and optimization of their information-seeking behaviour.

The findings of this research have significant implications for policymakers, highlighting the urgent need for action in a number of ways. Firstly, policymakers must recognize that information infrastructure and services have cascading effects not only within the entrepreneurship policy space but also in the wider sub-economy sectors, including job creation. This is because research has linked information access and provision to the idea-generation capacities of entrepreneurs. In turn, these entrepreneurs create job opportunities, which are essential for economic growth and development.

However, despite the critical importance of information infrastructure and services, existing systems are fundamentally inadequate and ineffective, even in situations where there is marginal availability. This is a major concern, as research has shown that there is a significant information demand gap experienced by entrepreneurs due to the absence of formal information provision services. This lack of adequate information provision is a significant obstacle for entrepreneurs, who require multiple sources of information to satisfy their information needs and generate ideas.

To address this issue, policymakers must prioritize the provision of formal information services to entrepreneurs. This will help to fill the information demand gap and facilitate idea-generation capacities, ultimately creating job opportunities. The demand for formal information provision services is evident and crucial for entrepreneurs to effectively navigate their information landscapes and make informed decisions. Policymakers need to acknowledge the need for improved information infrastructure and services to support entrepreneurs. To do this, they should take some concrete actions such as providing training or information literacy materials to entrepreneurs or creating better support networks for them. These efforts will help entrepreneurs to access the necessary resources and information they need to run their businesses more effectively.

This research highlights the critical importance of information infrastructure and services in facilitating entrepreneurship and job creation. Policymakers must recognize the cascading effects of information access and provision and take action to address the inadequacy of existing systems. This includes providing formal information provision services to entrepreneurs to satisfy their information needs and support their idea-generation capacities.

7.11 Future Research arising from the Findings.

The research findings on marginalised entrepreneurs and their mitigation strategies to combat informational and social adversity are exciting and intriguing in multiple ways. It is fascinating to note

the paradoxical nature of social inequality leading to information poverty and how social structures, such as support groups, can neutralise this inequality. These findings have opened up new research gaps that require further investigation. For instance, It will be interesting to determining if entrepreneurs" macro traits can underlie the traits needed to mitigate information marginality. The empirical data from this investigation could support this hypothesis, which would be a valuable addition to the field. However, the investigation may lead to oversimplification of complex social and economic factors that contribute to information poverty.

To pinpoint the temporality of idea creation, critical incidence technique can be used to take a snapshot of the immediate contextual factors during the material time of ideation. Achieving this precision could lead to breakthrough discoveries that fine-tune existing entrepreneurship information practices by challenging assumed norms and responding to the unanticipated. Although it can be argued the use of critical incidence technique to pinpoint the temporality of idea creation may not provide a complete picture of the factors that contribute to innovation, as creativity and ideation are influenced by a multitude of internal and external factors that cannot always be quantified or measured.

Cornelissen et al. (2021 p. 13) propose the theoretical construct of prescience, which is in line with the hypothetical questions raised in the research. This construct calls for scholars to adopt an orientation towards discerning and anticipating what we need to know, as well as influencing the intellectual framing and dialogue surrounding it. An orientation towards prescience has the potential to advance the development of our research craft, increase the receptivity of audiences for our theories beyond academia, and provide greater opportunities for influencing the organizations and societies we study. Moreover, an orientation toward prescience suggests that regardless of the theoretical approach, we are more likely to achieve the desired societal influence if the approach can recognize or anticipate theoretically and pragmatically relevant future problem domains. Prescience, as an aspect of theoretical contribution, shifts our focus away from conventional ideas of contribution, and although it makes theory generation more challenging, it takes us out of our intellectual comfort zone and encourages the development of more innovative solutions. Potential prescience for research that can be identified from the current study is the need for further investigation into the effectiveness of different strategies for identifying and navigating information access barriers faced by digital entrepreneurs. While the study presents models of information behaviour that can serve as analytical tools, it does not provide a comprehensive evaluation of how effective these models are in practice. Additionally, while the three positions of information-seeking behaviour are identified, it is not clear which strategy is the most effective in overcoming information access barriers. Therefore, future

research could explore the efficacy of different information-seeking strategies in facilitating access to information for digital entrepreneurs.

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Appendices

Pre-interview information (Appendix 1)

As part of my doctoral research at the Robert Gordon University in Aberdeen under the supervision of Professor Rita Marcella, Dr Alan McLennan, and Professor Simon Burnett, I will be carrying out interviews with digital entrepreneurs across the Nigeria gather their views about the ideation component of their start-up. My research is on information behaviour regarding ideation in a technology-oriented entrepreneurship called digital entrepreneurship. Ideation in this context pertains to the creation of start-ups or enhancement of an existing business. I will be interviewing people who have recently conceived a business idea well as entrepreneurs who are already running a business - whether they recently started a business or have been running it for up to 4 years.

The interview should take no longer than 30 minutes. We hope it will be an exciting opportunity to reflect on the experiences, views, beliefs, and aspirations for the entrepreneurship journey. All interviewees will be anonymised, that is to say, neither individuals nor institutions will be identifiable in reporting the research findings. All data will be held securely.

In the interview, the conversation will be about the journey as a businessperson and the motivation behind it. This will also involve discussion about the role of information in creating star-ups as well the propensity to venture into similar business or complete tangent ones.

INTERVIEW SCHEDULE (Appendix 2)

Question 1: What is the nature of the information environment for start-up entrepreneurs?

A. Tell me about your journey as a businessman, and for how long have you been doing it.
B. What is your motivation behind starting this business?
C. What is the role of customers, individual or organisation in helping you develop your idea?
   - i. Can you recall seeking information from public bodies or individual regarding your business idea.
      - 1) What activity can you recall as an information-seeking process?

Question 2: How can the acquired information be converted into start-up businesses?

A. Have you ever had an idea that was not strong enough to be converted into a business?

A. What can you say about why some business ideas could not end as a business?
   - i. What is the likelihood that ideas end as businesses eventually?
B. What information do you might have supported you in coming up with a better idea if you had known earlier?

C. What information do you think might have negatively affected business idea if you had known?

D. Do you feel you can leverage on your current knowledge to expand into similar or diversity into dissimilar business?
E. Have you ever been inhibited from seeking more information about an idea because of fear of competition or copyright infringement?
   - I. How do mitigate this fear if you have it.
   - II. What is your survival strategy to protect your idea?
   - III. What is your take towards partnership ore collaboration?
B. What novelty are you offering to the market?
F. When an idea is finalised, what might be another challenge for entrepreneurs before it is implemented as a business?
.

Question 2: What are the feelings from access to, or lack of information?

D. What do you consider fulfilling (achievement or relief) at the time of generation your idea?
E. Do you experience any emotive or psychological feeling such as (anxiousness, uncertainty, or scepticisms)?

I. Can you recall a moment when you felt anxious due lack of certain information?
i. Does anxiety ever motivate you?
ii. What do you think would reduce your uncertainty?
iii. Did you ever require information to reduce your uncertainty? Can you tell me when that is the case?
iv. Can you describe a time when you felt discouraged because of a lack of information, or because of difficulty in accessing information?
v. What makes you feel confident or assured when identifying a business idea? Tell me more about it.

Question 3: What are the barriers that hinder seeking and access to information sources

A. Can you tell me about any piece of information you find most challenging to get?
B. Did you recall having any difficulty explaining your business ideas, and how did you deal with the experience?
C. Tell me about any experience where you were overwhelmed by your multiple sources of information.
D. Do you think there are other factors that inhibit information seeking?
E. Is there something in your personal circumstances that prevent you from accessing certain information? (such as religion gender)

Question 4: How can these barriers identified above be overcome?

A. What do you think might have eased access to valuable sources of ideas?
B. How do you surmount challenges which arise when trying to uncover idea or information?
C. What techniques make your idea discovery of information search easier?
D. Did you ever come across information serendipitously, by a happy coincidence?
E. How do you handle a situation where you are presented with too much information?
   i. Do you have techniques that help deal with information overload?
F. When you have too much information or somewhat alternative answers; do you engage one of the following:
   i. Ignoring,
   ii. Deselecting or
   iii. Filtering?
G. What other techniques do you employ?
H. Would you consider or have considered hiring someone to find a piece of information?
   i. In other words, you are comfortable delegating information seeking.

Final Note and reflection
A. In the light of our discussion today, in your opinion what is ultimate role of information on starting a business, and do you believe access to more information could enhance your start-up success?

B. What is your final thought about what makes people anxious when coming up with a business idea?

PARTICIPANT INFORMATION SHEET (PIS) (Appendix 3)

Research Project Title:

The Information Behaviour of Digital Entrepreneurs – Idea Generation in Start-Ups Business

Invitation

You are invited to participate in this research project. It's vital that you understand why the research is being done and what it will involve before you decide to do so. Please take the time to carefully read and share the following details with others, if you wish. Ask us if there is anything unclear, or if you want more information. Take the time to decide if you wish to take part or not.

What is the project"s purpose?

This research aims to analyse and assess the information behaviour of digital entrepreneurs and to determine whether the use of existing information theories can adequately explain such behaviour. Elucidating the behaviours through these lenses will provide an in-depth insight into how to set up start-ups. Understanding how the idea of start-ups occurs may well suggest ways to improve their occurrence and success.

Why have I been chosen?

You have been chosen because as a digital entrepreneur, you have the knowledge to answer questions posed in this research. And, it is about how you come up with your idea and starting the business. Digital entrepreneurs leverage on information technology as well as related technologies to deliver business offerings in the form of content or service.

Participation and withdrawal

Taking part in this research is voluntary, so It is your discretion to decide whether or not to take part. If you do decide to take part, you will be able to keep a copy of this information sheet, and you should indicate your agreement to the accompanying consent form. You may withdraw your participation at any time during or after the interview session up until any potential publication of the findings.

What will happen to me if I take part?

You will be asked to partake in a confidential and anonymous face-to-face interview session which is estimated will take you 20-30 minutes. You may also wish to agree to a follow-up interview to verify that responses match intended information.

What will happen to my data?

For the purposes of enhancing the accuracy of the qualitative analysis of the data from our interview session, with your consent, I will record the audio of the session. Also, with your permission, I may include selective quotes from the transcription to illustrate points in my thesis and any resulting publications. These will be anonymised, and great care is taken to ensure that any quotes cannot be attributed to you, or any employee of your current organisation.

Your interview responses and experiences in forming business will be confidential. Notes and recordings will be anonymised and stored within an encrypted folder, accessible only to the team of supervisors: Professor Rita Marcella, Dr Alan MacLennan and Dr Simon Burnett. Your responses will not be discussed with any fellow interviewees in the study, and your identity will not be discussed with either of the researcher's PhD supervisors.

Who do I contact?

If at any point you wish to communicate your withdrawal or have any questions, please do not hesitate to ask the researcher, Suraj, contactable through s.ibrhaim4@rgu.ac.uk. In addition, for lodging of issues regarding the handling of personal data, participants have the right to complain with the Information Commissioner"s Office (ICO).

INFORMED CONSENT FOR: (Appendix 4)

The Information Behaviour of Digital Entrepreneurs – Idea Generation in Start-Ups Business

Please tick the appropriate boxes   **Yes No**

1. Taking part in the study

I have read and understood the study information dated **/ /2022**, or it has been read to   ☐ ☐
me. I have been able to ask questions about the study and my questions have been answered
to my satisfaction.

I consent voluntarily to be a participant in this study and understand that I can refuse to answer
☐ ☐
questions and I can withdraw from the study at any time, without having to give a reason.

I understand that taking part in the study involves a confidential and anonymous face-to-face
interview ☐ ☐
 which be securely recorded and transcribed.

2. Use of the information in the study

I understand that information I provide will be used for the production of doctoral thesis,
primarily. ☐ ☐ Research output will be deposited with university"s archives, or even published.
This implies content
may be available indefinitely.

I agree that my information can be quoted in research outputs.   ☐ ☐

I understand that personal information collected about me that can identify me, such as my   ☐
☐
 name or where I live, will not be shared beyond the study team.

3. Future use and reuse of the information by others

I give permission for the transcribed data that I provide to be deposited in OpenAir   ☐ ☐
 (RGU digital repository) so it can be used for future research and learning.

4. Signatures

_____   _____   _____
Name of participant [IN CAPITALS]   Signature   Date

I have witnessed the accurate reading of the consent form with the potential participant and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

_____   _____   _____
Name of witness [IN CAPITALS]   Signature   Date

I have accurately read out the information sheet to the potential participant and, to the best of my ability, ensured that the participant understands to what they are freely consenting.

_____   _____   _____
Name of researcher [IN CAPITALS]   Signature   Date

5. Study contact details for further information

Muhammad Suraj Ibrahim
07778832169
s.ibrhaim4@rgu.ac.uk
Aberdeen Business School,
Robert Gordon University,
Aberdeen, Scotland

DE11 Interview (Appendix 5)

SN	Transcription	Codes
1	Tell about jour journey	
	My entrepreneurial adventure Has been spawned by several personal controversies or unpopular decisions I've made for myself and my life. Technology came into my life as a result of a series of decisions. Please reiterate that under no circumstances will this interview reveal my identity. I went on a number of personal journeys. I"m the type of person who asks questions. I"m a very curious person who pays close attention to everything. My first sexual experience occurred when I was 13 years old. I can"t say whether it was mutual. But what happened. I also have no regrets. My first experience was with a girl. So, in other words, I identify as a lesbian. Coming out as a gay person in a Muslim-dominated community, or even as a Muslim girl, can get you killed. As a result, I've had to put on a kind of mask ever since. To conceal my sexual orientation. I was under tremendous pressure to marry. And I had no idea how to come out and tell the world who I truly am. I kept questioning myself and came to the conclusion that I could not be a Muslim. As a result of such decisions, I began to investigate issues concerning belief, religion, and theology. I eventually became a humanist and an atheist. This makes more sense to me than being a theist. So, this decision has pitted me against society on two fronts: denouncing my religion and defying culture and tradition. If my parents or family found out, it would be the end of me in every way. As a result, I had to trade with extreme caution. So as time passed by, my identity fell off, and my employers sacked me. I had to relocate to a different town in order to forge a new identity and move on with my life. Starting from scratch was extremely difficult. It was even more difficult to find people who sympathized with our cause or your plight. I eventually joined the Nigerian Humanist Association. That was the new family I discovered. A very empowering one. There is a Women's subgroup within that organization. We usually meet every two weeks to talk about common issues that women face. I made new friends, including this lovely lady named Jamila. She is technologically savvy. And she told me about what she does for a living, which is freelancing. Writing programs, creating websites, and developing business solutions She was the one who first exposed me to technology and taught me the fundamentals. I had no trouble transitioning to this type of career because I was fairly good at mathematics. Computer programming was extremely simple for me to grasp and master. That"s how I got started. The beauty of technology is that it allows you to earn a living without ever having to meet people or customers in person. I live my life with little	Social and cultural A alienations as a motivation and inspiration. Exclusion and Deprivation As a motivation. Social network as important factor for ideation and entrepreneurship.

	physical interaction or interaction with other people. And it has enabled my way of life.	Science background as an enabling factor for digital entrepreneurships
		You should, entrepreneurship Support isolated lifestyle.
		Digital entrepreneurship. Protect vulnerable groups.
2	So, tell me about the motivation behind your entrepreneurship	
3	My motivation or inspiration is simple. I am on my own. I must strive. No one will look after me. I made some hard decisions which I have to live with the consequences. I. Because that makes my life easier and happy. Happy is one thing. Been effective? As a businessperson is another thing. I admit I have missed the company that I used to keep. It's a bit lonely here. But It's still safer.	Envisaging a difficult time ahead can be a motivation for entrepreneurship.
4	where do you source the informational need for your business? Say For example, do you seek for information from public entities or individuals?	
5	My main source of information is the Internet. I will try to find anything that I need from there. And if I"m unable to get what I am looking I have to revert to my friends. Or I would say that my friend. But as long as you know how to navigate yourself within the Internet, everything is up there. Mostly at no charge. But one has to be careful, surely with information, because once the information is free, it can be misleading or deceitful marketing information. I sometimes would prefer to pay for a piece of information or a kind of subscription-based access to a particular resource. There are a lot of players within the Internet, and everyone has his intention - good or bad. Sometimes an agenda is carefully attached to a piece of	Vulnerable or marginalised entrepreneurs Prefers electronic source of information.

	information which can cause material or emotional injury from its usage. There are several contextualisations with the regard to information. So, it can be an opinion, a criticism, a marketing, a substance. What I mean by a substance Is neutral, unbiased, factual piece of information that is free of any hidden meaning.	Free information. might have reliability issues. Information context is based on the agenda of the source providing information such as criticism, marketing and opinion.
6	Are your customers influenced in any way by your gender?	
	Women are minority business owners. Oh, I would say. They are not known to be very successful entrepreneurs. The Prejudgement is always there. People, usually form their permanent opinion after experiencing our services or using our services. It will Surprise you that even those referred customers, usually have their reservation when it comes to doing business with me. So that kind of moment of "you"re a woman" or "I didn't know if it is you". That kind of statement really puts me off and annoying. Society has Intentionally undermined our Equality as humans. Not even think of promoting or encouraging us as the vulnerable or under privileged section of the society. We are traditionally best known to be carers or home makers. We are practically relegated to a very tight corner. Economically and socially disempowered. Society, or rather, men have failed us, but technology has given us another chance at life. It is a new lease.	women are unlikely to be successful entrepreneurs because of societal prejudgment and bias. Technology has empowered women entrepreneurship. Technology has negated or lessen the impact of social exclusion and the deprivation against women.
7	Do you think you"ve been judged or scrutinized by customers or competitors or suppliers?	
8	Like I said before being a girl or woman who really attracts attention. The society attributes second meaning into whatever woman does.	Females Will always be seen as women first and

		So, recognising that we are monitored really affects one's performance.	then secondly as entrepreneurs.
9		Are there any ways in which your entrepreneurship journey was been influenced by being a woman?	
		these are similar questions, right? apart from other natural favouritism that nature gives to men. If there is anything that am wary of, that would be me recognising there is a limitation of ability to enforce my fundamental rights as a human. I am rather vigilant and careful about fraudsters and scammers. Clients that do not want to pay for offered services. Because I"m a venerable person already, so I cannot really defend myself in every circumstance. The public and social structured is not structured to protect me. I know I would be blamed and scapegoated because of the lifestyle and belief system I choose to follow.	having non heterogeneous sexual orientation makes entrepreneurship journey even harder.
10		What is the role of customers, individuals, or organisations in helping you develop your idea?	
		The services I offer is client oriented, driven by the demand specifics of the client. Unless in cases where I would show my catalogue to new customers, documented from the previous work so that they can choose from the selection.	Product or software development can be customer led and vice versa.
11		Can you recall seeking information from public bodies or individuals regarding your business idea?	
12		I usually prefer information Coming from organisations Rather than individuals. However, some situation may warrant you to look for information from individuals, if that information is a very specific one. My position on information is changing now I believe. I used to think that organisations are more cautious about their reputation or reliability, I"m beginning to entertain the thought that this is not usually the case. Recent experience has taught me that. So, for example, if an organisation Is severely damaged its public reputation. It can simply rebrand it selves or change it names. Life will continue to go on for them. It is hard for individuals to really rebrand their identity or reputation.	Informal sources support targeted information seeking. Informal sources are more concerned about their reputation.
14		What can you say about why some business ideas could not end as a business?	
15		In my personal opinion, one of the biggest encumbrances to achievement is self-doubt or lack of self-confidence. So even with information, best ideas, and supported by adequate resources. That	Ideas will be dormant if there is no self-confidence

	conviction for success must be present for any ideas to be transformed into tangible or practical business. How would you cool?		and conviction to transform them into business.
16	Do you feel you can leverage your current knowledge to expand into similar or diversity into dissimilar businesses?		
17	Knowledge or information is like a watershed or a drainage basin. Do you know what a drainage basin is or a watershed? So basically, a watershed is surface area from which runoff resulting from rainfall is collected and drained through a common point. So that so the analogy here is when you collect or have versatile information or knowledge, or when you have too many ideas, at some point they get drained. That is to say they flow through an outlet, and then reform/recollect as another idea. So, in essence taken hold of ideas or information will eventuate in giving birth to other ideas.		Ideas do self-generate if they achieve certain variegation
18	Have you ever been inhibited from seeking more information about an idea?		
19	If my private life were be exposed and that would present a serious challenge to me reaching out people. That has always been the case with strangers, or I would say with new people you encounter randomly.		privacy oriented individuals might not be keen in seeking information from informal sources.
20	What is your take on partnership or collaboration?		
	I"m inclined for collaboration, but not partnership. This is because I"m a very privacy-oriented person. Partnership will give away your private information because it requires working with your partner for a very Long or unforeseeable future. Collaboration is time bound or project driven. Meaning, as long as the project is delivered. That relationship will cease to exist.		privacy oriented people would prefer to seek collaboration than partnership.
21	What information do you have that might have supported you in coming up with a better idea if you had known earlier?		
	Search strategies really helped me in Looking for information Efficiently. I would say all the information one need is there on the Internet. But requires only an effective and clever strategies and tools to really access it.		effective online information seeking is hinge on diverse search strategies such as image searching Boolean technique

22	Would you comment for the effective strategies that works best for you please?	
23	Apart from textual keyword conceptualisation, another approach to searching information online is the Image search. It makes discovery easy and efficient on. The Boolean technique is also very helpful.	
24	Do you have any emotive or psychological reactions to information seeking, such as anxiety or uncertainty?	
25	Establishing a good rapport is always an important factor in seeking information from people. I enjoyed asking people that I already know.	Rapport building is important in seeking information from information sources
26	Were you ever faced with a difficult time explaining your ideas to others, and how did you deal with the situation?	
27	I don"t think I have ever experienced a situation whereby I will explain my ideas to people. I don"t socialise often. So, such situation is unlikely.	Isolated or introverted people might be unaware of their communication skills
28	Tell me about a time when you were overwhelmed by your numerous sources of information.	
	Information overload is pretty much unavoidable given the present situation. Unrestricted access to academic knowledge, ads, and expert opinion, and endless alternatives for where to hear it, when to hear it, how to hear it, and from whom to hear it. However, one can filter his way out of this mess. The information that we require may now be found very immediately, and this is made possible by numerous developments, including mobile technology, widespread internet connectivity, and many more. No matter how you look at it, the fact that we now have access to more information than we could ever possibly need is, for the most part, a really positive development. Dealing with so much information can be mentally and physically draining, especially when you add in the additional challenges of determining what is fact and what is alternative fact, determining which news sources are reliable, and determining how you can use all of this information to make well-informed decisions.	ubiquitous information technology creates condition for information overload pervasive informatics makes information overload useful

	Have. However, the solution is not to have less information. Learning how to access, absorb in, and sort through it in the most effective manner possible is essential.	information overload drains mental and physical energy
		Information of Avoidance is not a solution to information overload.
29	What barriers do you believe prevent or inhibit information seeking	
30	What usually unsettles me or discourage me or, surprises me when seeking information is coming across something that challenge my previous assumption or knowledge. It got me stuck. Because I have to engage in a deep moment of reflection. So, two things happen there. First to question my comprehension capability at that time or to scrutinise the reliability or authenticity of that source. Until I resolved I dilemma, then I cannot progress with the search. And sometimes. If there is a possibility that I would embarrass myself from Seeking out knowledge from others and that would effectively prevent me from reaching out. I don"t like embarrassment. It takes a toll on my self-esteem.	cognitive disorders may inhibit progression in information seeking. cognitive dissonance may trigger questioning reliability of an information source. Cognitive Dissonance is an opportunity for self-reflection. fear for embarrassment may inhibit information seeking from informal sources.

31	What techniques make your idea discovery of information search easier	
	I engage in target searching. Finding or seeking information is like slack rope walking – a delicate skill of maintaining balance while walking along a tensioned wire between two points is required. So, the delicate balance here in information seeking is to be mentally focused. And not to allow Unnecessary noise by the side to distract you.	targeted information seeking is like tightrope walking. Targeted information seeking is very difficult. Absolute mental attention is needed to achieve targeted information seeking.
32	What do you think might have eased access to valuable sources of ideas?	
	I think if I would be able to remove my emotions or not to care at all about how people think of me, I can be able to place better queries, questions and to even probe more deeply.	apathetic speaker may likely counter socially induced (such as stigma) info seeking inhibition information
33	How do you handle a situation where you are presented with too much information?	
34	My brains begin to worry and get paralyzed as I take in immensely complex information in a shorter amount of time and as I am presented with an increasing variety of choices. I no longer can make sound judgments. I feel stuck and overwhelmed. And under pressure.	Information overload causes decision paralysis
35	you are comfortable delegating information seeking	
	Delegating information makes no sense to me. Because the usage of that information needs to be contextualised. information or	delegated information may not necessarily be accompanied with

	delegating information seeking takes away that context or the ability to contextualise.	the necessary context for optimal usage.
36	What, in your opinion, is the ultimate role of information in starting a business, and do you believe that having more information could help your start-up succeed?	
37	The value of information depends on what you make of it. It can be an enabler of Success, or an impediment to greatness. From my experience, Seed information, are usually embedded in social structure, our conversation, our relationships, the things we choose to do – These are where all ideas emerge, where the thinking started. Ideas needs mental technicality while information needs social interaction to be generated.	value for information comes from the nature of use it is subjected. All the information and ideas emanate from our social dynamics.

DE19 Interview (Appendix 6)

Interviewee 01:51

Hello Suraj

Suraj Ibrahim 01:57

Hi Interviewee . How are you?

Interviewee 02:00

I"m good. Let me turn on my video. I"m doing good. Let me just turn on my light, or you can see me? I can I can. Right. So where are you now? I"m actually in Aberdeen. Okay.

Suraj Ibrahim 02:24

Yeah. And how are you doing Interviewee ?

Interviewee 02:28

Yeah, very good. Very cold here It's foggy in about minus one I don"t know if It's cold where you are, I think it is about the same temperature. Yes, no. is the getting colder, isn"t it?

02:45	
Yeah, It's just suddenly dropped. We"re just outside Oxford. So quite a bit further south but It's still cold.	
Interviewee 02:53	
Yeah. Thanks for pictures, by the way, the photos I"ll post something and see if it generates some activity for you. Oh, Interviewee , that was very silly pictures of me. And I just realized I have I didn't have formal pictures, to be honest. They"re fine. Absolutely fine. And that was actually a very wonderful. Yes.	
Suraj Ibrahim 03:17	
To be honest, It was very heartwarming. I mean, I never even think about it. And I"m very sure it is going to help me very greatly.	
Interviewee 03:22	
I hope so. We"ll see. But yeah, we can try.	
Suraj Ibrahim 03:31	
And apologies for the mix up the other time. I had been actually bombarding you with emails, and I realized most of the email I sent out didn't go so I would just go under my email thread. The one I sent and I would just click on reply. So I was just replying myself, and so when I told Rita, I haven"t I from you. She was a bit worried. I didn't know that I have not been sending any emails.	
Interviewee 04:08	
That"s okay. No, It's fine. I mean, I know I delayed the first time because things are getting a little bit busy so sorry, It's been a bit later than you would like but...	
Suraj Ibrahim 04:21	
No, no, It's actually great. I was able to conduct two interviews with my Nigerian contacts, and they are quite helpful also. And so I"m	

just trying to skill up my interviewing skills. So I would consider this to be my first very formal interview or academic interview that will hold because my other contacts have been familiar contacts I have known for long, and so the kind of synergy and relationship has been there always well as.	
Interviewee 05:01	
Well, we, you know, we"re, we"re in the same university. So we"re	
Suraj Ibrahim 05:08	
Alright, so I thank you for agreeing to interviewed Interviewee . And I believe considering your background as an academician; I don"t need to re-emphasize the research ethics that I"m actually expected to observe. In terms of confidentiality; giving you the opportunity to redact any information, which you think is very sensitive, or you have overshared. So having said that, and considering this is a very novice interviewer, I may most likely be going to ask you questions that are very identical so, if it upsets you apologies in advance.	
Interviewee 05:53	
Okay.	
Suraj Ibrahim 05:54	
Yeah. So and if you already, I would just want to begin the interview proper and, it will take about 40 to 60 minutes at most, but I will try not to keep you longer than necessary.	
Interviewee 06:07	
Okay, that"s fine. That"s fine. All right.	
06:10	

So, um, Interviewee , I"m just interested in knowing your journey as an entrepreneur or business person, as you want to consider yourself.	
Interviewee 06:25	
Okay, yeah, I mean, since a long, long, long journey, I think, **I've always had an interest in, in two subjects. So computer science and Geology**. So it was always a difficult one to, to decide. Because I sometimes think, you know, in school, you know, you get pushed into a sort of one discipline or one area. So I, I do Computer Science at O level, I wasn"t, I couldn"t do it at A level because it clashed. So I went down the geology route, I did computer science, again, university first year, and, you know, two areas, really. So I then did a master"s in computer science and then started work with British Gas, which was in the exploration department of computers really just coming in a lot of work was still done by hand. So it was really one of the first waves of digitalization, you could argue without perhaps the machine learning. So I spent some time there. Always, I like coming up with new ways of doing something, I think I don"t tend to like following other people"s processes. I mean, some things you can"t improve on. But, you know, most things you can. So I always liked doing things a bit differently. So I joined IBM, which was, again in the oil and gas industry, but you know, technical side. And the larger organizations are quite inefficient with how they do things. So there were some frustrations there, It's difficult to leverage all the knowledge inside a large organization and then I went and started working for small companies. You know, you realize the business is done between people. You know, so when you say your name of a company, sometimes that is the case, but quite often people do business with individuals who are in that company. So I think when you start your own business, you always initially leverage your existing networks. And then they run out, and you know, ideally, get to a point where people start coming to you because you"ve established some reputation for something. When you when, you"re in business, whatever it is. And then I guess running all the way to current to where I am most was today. I Created my business two years ago, latest business. You Yeah, you do many things, many things and you tend to see what sticks. You know what, what is right thing at the right time. Which is, you could have a good idea, but It's maybe not the right time. You could spend a lot of energy and a lot of time trying to make it work. It doesn"t. So sometimes it is about just being in the right place at the right time. But it just recognizes that. So yeah, these are just some observations, as far as I"m rambling.	Early drivers Conflicting choice Multi-faceted educational background distinctiveness Reawakening challenges. Role of personal network

	Role of trust in a personal network
	Tenacity
	Idea viability awareness
Suraj Ibrahim 10:17	
Oh, no, no initial question. No, actually, You just mentioned about when digitization is just coming up. Can you just explain further what would be the difference between digitization and automation from your own perspective?	
Interviewee 10:33	
Yeah, I think back in the early 90s, you know, I mean, It's difficult for a lot of people to remember that there was a life without PowerPoint. And these things, so the pace was slower, you know, people produce a report, it would go to a cartographic department and, people to help you create PowerPoints, you didn't create your own that was just, you know, not, suddenly people would do. So things, things sort of changed. And in, in computer software for oil and gas exploration, it was really just coming in that, you know, instead of getting, I mean, literally, a lot of geologists used to get crayons, different colours, and draw on paper, and colouring. So gradually became, you know, there"s a lot more data, digital data. And so they were computer algorithms, and so on to sort of automate it. It's different, I think, from the latest wave, because back then was automation. Whereas I think the current wave today is a bit more intelligent automation. So It's using past digital data, which has an enormous volume of it, you know, to learn, and to be more of a cognitive system. Whereas I think in the 90s 30 years ago, it was really just more than the sort of, you know, the automation of, of things, but, but still the patch to large waves of digital.	Delegation of document creation early on Digitization of visual document creation

Suraj Ibrahim 12:15	
I get it. So you are into, like, say GIS is now. Is that right? Oh, what are the major ideas that actually form what you do as a business? Your ideas?	
Interviewee 12:33	
Oh, yeah. So a lot of my ideas, in the last, you know, five years or so been around documents, so text to text. And because, you know, there were big vendors like Oracle and other companies, and people would store data and structured databases. Still, documents, you know, PDF and PowerPoint word tended to be a bit left behind ignored. And recently, over recent years, companies have woken up to how much knowledge there is, in all these huge volumes of unstructured text documents inside and outside their organization. So my ideas have been around, you know, combining my knowledge of geoscience and computer science, to develop algorithms for that.	Business idea – document management and knowledge extraction Information-rich but knowledge poor organization
Suraj Ibrahim 13:25	
Okay, if I understand you correctly, is it a form of specialized archiving from oil and gas?	
Interviewee 13:34	
I think It's you can visualize the results spatially, that"s one dimension. But the two main dimensions for geoscientist space and time, through geological time and space. So those are two main dimensions. But It's looking for patterns that are interesting. You know, there are, so many things you can do you want to spend your time on what"s most interesting, so that says, Well, why algorithms try and the target is to show interesting things to do scientists in amongst all this text?	
Suraj Ibrahim 14:13	
Alright. That"s wonderful, Interviewee , but any motivation? Why pick up this particular line of business? Any motivation?	

Interviewee 14:26	
I think, you know, reading your PhD intro etc. I mean, I"m one of these people where, you know, I mean, the domain, you know, so I"m not an entrepreneur in the sense of jumping from industry to industry. I"m one of these sorts of experts; I suppose type people. **I've** done pretty much the same thing for most of my career. But I guess what gives me a point of difference because you"re always looking for points of difference. Suppose you"re trying to be successful with a business venture. And I suppose It's that I, It's all very fashionable now they call them T-shaped people, you know, people that have in-depth knowledge of multiple disciplines. And I know, geoscience, and I know computer science, data science. And if you go to most companies, you don"t find that in one person. So that"s what **I've** leveraged in my case.	Choice of Identity Diverse technical skills
Suraj Ibrahim 15:34	
Okay, for how long have you been doing this?	
Interviewee 15:41	
I"d say, you know, in terms of doing my own business, you know, probably last 20 years. But **I've** really ramped it up in the last two years, you know, **I've** seen a market opportunity. And I"m, I want to take advantage of it now. Because, you know, whenever anyone's successful people jump on the bandwagon. Being first is everything.	Opportunity alertness
Suraj Ibrahim 16:13	
So you see yourself like a pioneer in that particular segment.	
16:19	
Yeah, so to suit without blowing my own trumpet.	
Suraj Ibrahim 16:26	

But being a pioneer does it comes with any particular challenges as a business person or as an inventor of that particular idea. Challenges, not necessarily Well, I"m not interested in challenges that have to do with raising finance for procurement of critical equipment or tools for businesses. Challenges, generally, that has to do with some sourcing idea, seeking information, something that has to do with the information in general.	
Interviewee 17:19	
Yeah, I think you when you"re in a niche, and you"ve got an idea, which is different, that maybe hasn"t been done before, then you"re, you have to sort of creating a bit of the market for it. You know, you have to get people enthusiastic companies, It's easier to stick because It's not like a service, you know, where people say, Oh, I need someone to, I need someone to load this data. So you know, you just go and find someone to do it, you"re trying to sell something that they don"t already have. So first of all, they have to come to that realization that they need what you"ve got. And so you have to do a lot of marketing. That"s one of the challenges if you"re a pioneer. People need to know that what you"ve got is something that they need because they don"t have it at the moment. It's not like you"re replacing someone else"s product or you"ve got something new. So I think that that"s a sort of creating that awareness in your customer market. It is probably the biggest challenge, biggest challenge here.	Need to engage and create awareness – marketing Value must be readily assessed
Suraj Ibrahim 18:41	
So you have to develop the idea properly, and then take it to them as a pitch to see how they accept it or otherwise.	
Interviewee 18:52	
Yeah, so you got to, you know, make pitches. I use my blog too, combine research with, you know, stuff I"m doing, sorting of, you know, gradual, you know, awareness of what"s possible. And I give out lots of things for free, you know, I mean. Some companies say you should monetize your blog. Okay, but I use it as a marketing tool. Not when I set it up, which is when I was doing my PhD, actually in 2015 when I set up my blog to motivate myself to keep coming up with ideas every month, but then two years ago, when I set up my company, I use it a little bit more for marketing.	Information search and awareness capability Awareness strategy-gifting

Suraj Ibrahim 19:48	
So what role does this blog play in, in your career or in your business? how central is it	
Interviewee 19:59	
Actually to things ==My blog and LinkedIn, are the engines of my business development, marketing and networking==. I think a lot of people are waking up to, to this, particularly with COVID. Because they don"t go to conferences, you know, and network, but It's how you can create networks with, you know, people anywhere. Which you think, well, how would I do this otherwise? So people read my blog, you know, they make some searches, they discover my blog, start reading, then they contact me. And that"s happened in many cases. And also LinkedIn, you know, you most interesting things, now and then people, you know, contact you. So, those two things, particularly, I don"t have an office, you know, I work from home— really, really good ways. I don"t have to sell so I, I just share what I think some useful things. ==And but I only share a certain level, you know, give people snippets there.== Well, there"s a lot of knowledge down which is I guess, my proprietary knowledge. So, but, that itself is useful, so people can take some stuff I do. And, okay, **I've** never engaged my business tool, but still, it"d be useful for them. So a bit of a mixture.	Information tools

COVID redefining connection

Susceptibility to collaboration or partnership |
Suraj Ibrahim 21:42	
Alright. So taking about how you allow a lot of people to take away things freely or things freely from your blog? Aren"t you scared that you"re going to prospective competitors, or rivals to you. Aren"t you afraid of, you know, intense competition or taking your place as a pioneer? Are you not worried?	
Interviewee 22:10	

Yeah, I mean, there"s always that, you know, I think was it the CEO of Intel said that only the Paranoid survive, you know, with this paranoia that someone will come out with something better than you. And I think one of the defences of that is continuous innovation. So, you know, if you were asking me about what **I've** been doing, and quite technical things about some algorithms, you know, It's quite different to the conversation, we would have had, say, three months ago or six months ago, so you can never standstill. And that"s one of the biggest defences. The second, I suppose It's a balance, because, you know, you can, obviously, be careful how much you put out. I mean, you wouldn't want to put lines and lines of software code, you know, in GitHub. But, but at the same time, there are the benefits, obviously, of getting involved. And there"s always the outside bet that actually one of the competitors, I mean, any end game for a start-up is to be it for a tech start-up is pretty much to be sold. In fact, some tech start-ups have no ambition to ever produce something that is profitable, useful, and their goal is to get to a point where they can be bought. So, you know, having some potential competitors knowing about you know, our view because those could be your target companies that can buy you out. So it"s, It's just getting that balance, and you just have to make your judgments on what you put out in the public domain.	Vulnerability to competition Survival strategy - continuous innovation Survival strategy – cautious gift-giving Start-up core motive
Suraj Ibrahim 23:57	
All right. So would you agree, like, say, for a partnership, or close collaboration with someone that does similar trade with you?	
Interviewee 24:11	
Yeah, I think, you know, there"s this righteous thing. So like, if you think it was a global market, you know, the, you can"t do everything at once. So you know, if there are companies in the Middle East or Africa or Russia or South America that want to, you know, use some of the intellectual property in my company, It's highly unlikely that I"m going to just be able to deal with them directly. So you"d want to go through another channel. So channels to market you know, give you size whilst you can remain small. So you can choose those wisely. And then of course, that that gives you, you know, greater, greater, greater penetration of the market. So yeah, it"s, I think, again, you know, you do business with people. So you sort of judge you know, there are competitors, and then there are competitors, you can sort of make judgments about the sort of companies that you think they"re never, they"re just really going to	

do their own thing and want to take everything they"ve got, and do it themselves. And then there are others, where they realize that they can just get a head start by getting you involved. So you just, you know, you have to make judgments, partnerships and things like that takes an enormous amount of energy, **I've** been involved in them in the past, with the company I was a director of, and so you have to be very careful about reseller agreements and channels, etc. Because just because you, you only have a start-up, very small amount of bandwidth, you know, you got to choose what you spend your time on. And, you know, sometimes you just have to say, at this moment, you know, unless there"s some monetary incentive on the table immediately from another customer, or from them themselves, you just think, you know, for now, you know what, let"s, talk about it next year or something. So you"ve made those judgments.	Cynical partnership
Suraj Ibrahim 26:33	
Yeah exactly, but talking about you being a pioneer, obviously, it comes with a kind of baseline assumption that you have to bring novelty into this particular segment of the market or business, I would say. Have you ever consider patenting your inventions?	
Interviewee 26:59	
Yeah, I have filed patents. I think, you know, the protection that you have, as a small company is, it"s, It's difficult. Because I think when push comes to shove, you know, you"re never going to go up against a big company, you know, even if you have, you know, even if you have that. But, you know, sometimes patents can be used as defensive mechanisms. So you can, you can file patent. And even if it doesn"t get, you know, approved by the examiner, you the fact that you"ve just put it there, in a way it means It's then prior art, so no one else can stop you doing what you"re doing. So sometimes It's a sort of, you know, you, It's just a way of, you know when no one else can, I haven"t been able to pass it, but then no one else can either. But, yeah, It's one, It's one strategy. And I think, you know, create a little bit of a mystery over what you do, is always useful. So explain 80%. Because if people don"t understand what it is that you"re doing, It's very difficult to sell it to anyone. So you"ve got to, you know, you"ve got to do that. But there"s 20% that maybe they quite understand. But, but that"s okay. So I think It's always keeping something back to, you know, where you can.	Bigs companies as threats Survival strategy - Patents Survival strategy- mystic operation

Suraj Ibrahim 28:57	
Okay. Okay. That"s interesting. But do you believe there is still room for you to actually improve your business if you had done something prior to this situation? Having anything that has to do with knowing any heads up you wished you have known?	
Interviewee 29:25	
Yeah, I mean, **I've** run a couple of businesses. So I think **I've** done some things with this one, which I"m quite pleased, or which, which I didn't do with my previous business. But if I were advising someone, I would say it depends, of course, on business, you know, depends what you"re selling. You know, I"d say they"re quite different mass consumer businesses completely different to a niche. You know, but if someone was setting up a similar business to mine, dealing with big, big companies, not individuals, you know, I would, I would say, you know, right from the beginning, you know, make sure you"ve got some registered trademarks, fastened patents, create a blog, be quite active on LinkedIn, create a bit of a buzz about what you"re doing giveaway some stuff, but keep what you"ve got and avoided anchor bias. So sometimes, you know, this actually happened in past companies; is that you, you hit upon an idea, and then you get so fixated on it, that you spend all of your time on that idea, and you read books, and they tell you about holding your nerve. And, you know, It's all about passion and believing your idea will be successful. And that"s all true. But I just think people have more than one idea in them. And you know, that you, you sometimes miss out on enormous opportunities by just sticking with that. And what **I've** done sometimes is just made a judgement and sold it, get a bit of money, and move on then to another idea, sell it move on to another idea, and **I've** done that with algorithms. I think of my current algorithm, and I, you know, I probably wouldn't have done this algorithm, if I hadn"t moved on, because I will still be stuck on my first one.	Legal protection from competition Online presence Multiplicity of ideas and serial identification of opportunity Fixation on an idea stifle entrepreneurship

Suraj Ibrahim 31:30	
Yeah, I can see.	
Interviewee 31:32	
So I think there is that case of the balance between, you know, being so passionate about your idea, you know, you"re the inventors, your company you founded, you know, wanting to succeed, etc, within sort of slight variations of your idea, or maybe quite conceptually different ones in the same space. And just knowing when to move on. And I think I, I look back, and I think I did the right thing, by moving on from my first algorithmic idea to the next one to the next one.	
Suraj Ibrahim 32:22	
So does this serial invention makes you happy or create special feeling within yourself?	
32:37	
I think it"s. I think it keeps you, you know, you can get very, you know, cozy with your idea. I mean, there"s always a creaming curve, you know, with anything, so you"ve got, you know, time along this axis, and then you"ve got value. For most things, there"s always there"s always a curve, you know, people It's called different things in different industries, you know, the law of diminishing returns. And so, it would; It's just sort of knowing when you think, you know, I"m sort of at that point, I could spend another two years, you know, just sort of tweaking this thing, probably not gonna make a huge amount better. And I don"t know if I"m going to make much more money. Okay. But at that point, you know, you"ve just got to maximize, and, you know, I now need to jump to another, you know, it can be quite adjacent. It doesn"t have to be, you know, a completely different industry doing completely, we can be slightly just slightly adjacent. But which is just conceptually different in some way. And then you want to start the creaming curve again. So, you know, you always like to think you"ve got it right, that you you"ve, you know, moved at the right point. Now, but I think sometimes if you just stay in the same and I did this, the previous	Ideas are pets Ideas are timebound

company should have stayed in you know, comfortable. But really flatlined	Adjacent movement likely feasible
Suraj Ibrahim 34:22	
Okay, okay, interesting. But what generally makes you feel anxious.	
Interviewee 34:30	
Oh, everything. I mean, you know, you when you know, you I think It's when you"re looking at finances coming in, of course, it"s, It's purely from, you know, your own company, so, you"re always you"re always anxious about you know, The future. And actually one of the things that I think from a mental state that be interested to see if other entrepreneurs feel the same is that, you know, mindfulness is about living in the moment. You know, and I find that quite hard. Because you"re constantly looking. I mean, you can you can do a great deal. I did a good license deal this month, you know, I should be excited and delighted and yeah. But you just think about what"s gonna happen next, you know, what"s, what"s coming next. And there may be there"s a sort of personality element into it of, you know, maximizers and satisficers. And, you know, about maximizers and satisficers. If you have you come across that	Anticipatory anxiety
Suraj Ibrahim 35:58	
Maximizers and satisficers? No.	
Interviewee 36:02	
It's a great book by a chap called Schwartz called the Paradox of Choice. Basically, he said, the more choice that we"re given, you know, the unhappier that we feel. And there are, you know, two traits of personality about people where they"re, you know, good enough, and then maximizes that is a great questionnaire actually used in my PhD thesis, where, you know, some people want to see all the options before they make a choice. And maximizers generally do better, but they feel worse about it. Okay, and I wonder to what extent, you know, some entrepreneurs will maybe fall into that, but I sometimes feel like I do, sometimes better than some of my peers, but I probably feel worse about it. The people that are not performing as well. Okay, because It's a trait, so you don"t want	

to really, you want to try and fight against it because you don"t go through life to maximize it because you"ll do your business-wise, you"ll be very successful, but you just won"t be very happy about it. Yeah, you need a little bit obviously, of, if you rest on your laurels, okay, and you"re quite happy and, generally, I think you are going to struggle as an entrepreneur, so it"s, but It's a fine balance, obviously.	Complacency and confidence
37:39	
Okay, so you mentioned being delighted, or having a sense of fulfilment in what you do. Ah, anything very specific that you would attribute that sense of enlightenment?	
37:58	
I think Yeah, you get nice comments, like people going, Oh, this is great. So that"s, you know, that"s a bit of an endorphin, you know, little kick, people like your blog post, that"s, you know, the studies on that are well known, obviously, getting a deal. Whenever you sell anything, there"s something about human nature, whether we"re selling on a market stall, you know, apples and oranges, or we"ve sold a, you know, when you sell something, you know, it feels good. Yeah. It doesn"t matter if you made the product; it could be selling someone else"s product. But, you know, it"s, there"s, there"s a, you know, it is good. I think, as well as the financial side; you get a bit older, you sort of, you know, do unpaid work as well. And so It's nice when you stuff search algorithms are used for nonprofit, you know, that"s a nice feeling doesn"t have to be about you know, the monetary side of things. Right. So, yeah,	External motivation - Positive comments and charity work
Suraj Ibrahim 39:13	
Yeah, so you mentioned this, you have this kind of uncertainty that makes you feel anxious. Is there anything you do, particularly that you try to reduce this uncertainty.	
Interviewee 39:28	
I search a lot in fact, I mean, I don"t know if It's actually encountered anyone else but often when I am on Google Now I have to fill in the	Incredible search skills

captcha you know, you have to select the cell for where, you know, where"s the traffic light to check that you"re not a robot.	
Suraj Ibrahim 39:47	
The security check you mean?	
Interviewee 39:49	
Yeah, I like it. I get it. I get it from Google now because the do I think they don"t believe a person can make that many searches in a day. That"s it actually. You think of a robot	Intense and sustained information search
Suraj Ibrahim 40:02	
That is so intense, Interviewee .	
Interviewee 40:04	
So I get these, so I search a lot, sometimes with no particular aim, roughly. But I read about what your competition is doing. I read about what"s going on and other industries, and, you know, your creativity, I think It's about making connections. You know, people say, how do you Be creative? You know, I think if you immerse yourself in any information, you, you"ll increase the chances of being creative. So, I read a lot about what"s going on in, you know, a broad area. Okay. But, you know, with lots of sort of tangents outside what I do, that I could sort of bring in, I mean, I use the DNA profiling in cases, which is inspired my method that my, my latest algorithm, you know, it was clearly nothing to do with oil and gas. So I read a lot of biological papers. Okay, so yeah, so I read, you know, I do a lot of reading and I, you know, I think when I"m, when I"m doing things, or I like to finish it or have this sort of, you know, **I've** got to go and do that now. So, if I say stay up to three o"clock in the morning, doing something? I really, I"m doing it because I probably like doing it. Not because I have to do it. Okay, so I don"t really feel most of the time that I"m working because I probably enjoy doing it.	Passive searching Industry trends awareness Role of information on creativity Information from the tangent field is also pertinent Passion watershed for creativity

Suraj Ibrahim 42:03	
Yeah, because of the passion.	
42:06	
Yeah, there"s a there"s an interest, the need to find out. If I come up with an idea, I mean, I"ll absolutely blitz it until I get it to work. I mean, you know, a really intensive, you know, won"t move from my chair for a few days until **I've** got it to work. It becomes an obsession, I would say, which may be a character trait, again.	Fixation on idea yielding positive outcome
Suraj Ibrahim 42:36	
Yeah, I can see it. But you mentioned something about you searching without any aim. Have you ever come across any information that appears to be very valuable to your business or your work? Just by a mere coincidence?	
Interviewee 42:58	
All the time! All the time! Okay. All the time. Is serendipity, isn"t it? Yes. But you"re just going to increase the chance of that happening. If you, you know, you immerse yourself in in the information. I have practised information avoidance, you know, I don"t want to read about how bad you know, things are going to be with tax rises. Okay, the oil industry and COVID. I mean, sometimes if this isn"t making me happy, so I just avoid it. So I do practice information avoidance. But, I searched a lot, I mean, I if would just probably be shocked to know how many searches are doing a day.	Accidental information discovery.

Information avoidance |
Suraj Ibrahim 43:55	
Well, I was kind of tempted to ask you this question then when I heard about how intense your searching is, and I think it will be a bit silly for me to ask and I was just about trying to know whether you have actually considered delegating information search activity	

to someone in the past? Because you are you were unable to do it or something is preventing you from doing it. I would just be wondering if you can shed more light on that. Yeah, like, like kind of outsourcing but not formal outsourcing.	
44:45	
I think <mark>I think searching is it can be quite interactive.</mark> So I think unless you"ve got a very defined need. Like you know, a need to find the nearest garage that can change the tires in my car, for example. I could go and ask someone else to go and do that. But I think I hop from one place to the other, you know, It's just, my need changes by what I then see, and It's so complex that I wouldn't even be able to outsource what it is that that I"m, that I"m searching on.	Ideation search is complex – Personal, private, and interactive.
Suraj Ibrahim 45:35	
Because It's very dynamic.	
45:38	
Yeah, It's almost like, yeah, there"s almost like a conversation, it"d be like, you"re just going and talk to that customer to see what they think. I think some people feel that there"s some, sort of universal truth out there that, people can then go find out what it is, in interviewing in organizations. I often hear people say, oh, anyone can go and interview someone. And It's like, you know if you interview a geologist, you depending on how you have back and forth, you will uncover and arrive at quite different conclusions, different people will arrive at quite different conclusions. You know, so as you know, you bring your own as a researcher, you bring your own knowledge with, open mind, but, not an empty head. So, so I sort of see that with some searches that I can"t. I wouldn't know where to sort of how to package I could package very narrow things. <mark>But I"d say I make connections.</mark> You know, just searching, browsing. And I end up in a place, you know, over here, say, after sushi for an hour or somewhere, I could never have told you, I would end up over there.	
	Collaboration

Suraj Ibrahim 47:09	
What do you consider it within the context of your business, information seeking? Or do you think information search and seeking is central or core to your business?	
Interviewee 47:31	
Yeah, it is. I think it"s, and it"s, you know, I think It's a big part of how I come up with new ideas. You, because you know, ideas are supposed to be a combination of what you already have, and then what other people have. what information is out there and you, you sort of put it together and sometimes you have a eureka moment, you know, I can tell you I've never actually had a decent idea of sitting in front of my computer. I always have them when I"m out walking. But then that"s almost a simulation, you know, you need to sort of downtime to try to simulate everything that you"ve heard, read, seen, done, trying to, you know, put the jigsaws together. So, yeah, and I never ceases to amaze me how poor some people are at search, who are in information, you know, who are information professionals?	Role of information in creativity. Co-creation of idea Locationality of idea Information search deficiency among information professionals
Suraj Ibrahim 48:44	
But are you implying, like new ideas are contingent on such skills?	
Interviewee 48:53	
Yeah, particularly, you know, I work from home. I mean, you know, when I occasionally flew to places or got on the train to go to an office, but not very often. So, I don"t lean over and have an opportunity to chat to somebody, you know, in the way if I was put in a big organization. And so, you know, where"s the stimulus come from? You know, obviously, you can have teleconferences with people. So I learn by being in project teams, in different companies.	New ideas are contingent on information search ability

And so that"s one big input. You know, someone says something, and I think, you know, I haven"t, I never thought of it like that, you know, so that"s, that goes in now. But searching is a big input, particularly because I"m a remote virtual company, if you like.	Search is an edifice of virtual companies
Suraj Ibrahim 49:52	
I get it. Interviewee , in your, in your opinion, within the context of your business. What do you think can impact or inhibit this type of searching; anything that makes information searching or seeking a bit difficult.	
Interviewee 50:24	
I think I mean; these are, these are like little micro tactics, I suppose that **I've** sort of developed but I often use image search. Because I can stumble across information that I won"t find just using text search. Okay, so It's quite good for serendipity. I often use Bing and DuckDuckGo, as well as Google, because what I find with Google is that it sort of reinforces what you"ve already done. So it doesn"t, sometimes allow you to discover some things because it"s, It's just reinforcing. You know, you the ELI passes, you know, the filter bubble. Where, you know, so using other search engines, you can type exactly the same thing in them. And actually, you find quite different things. So, so I use those sorts of tactics. It's still a frustration, and you know that a lot of stuff is behind firewalls. As a researcher, you know, pretty well that and, but that"s not such a major, major issue from for myself, I would say at conferences. So conferences, **I've** attended many, many conferences. And I would say that I have learned very little, by going to conferences, over a period of about 30 years. Because mostly, they"re eulogies by various organizations about all the good things that they did. You know, we"ll just blatant sales pitches, but you make good networking, so you can meet people and have good chats, that"s where the knowledge is. But sort of due to Joe Daedric digressing, off searching there. I find things like LinkedIn are enormously powerful because they, they push things too, you can create your network and you don"t be too narrow. You want to, you know, variety of people. And you get pushed things that you would never	Image search and serendipity Search engine peculiarities make a difference in information search LinkedIn holds greater informational

have searched or found. Now **I've** never. So I"m not on Facebook. I don"t do any of that, you know, use a picture of the meal I had yesterday. Although, yeah, I"m just to baby over the wrong generation. But I use LinkedIn a lot.	value than academic conferences
Suraj Ibrahim 52:59	
Does it have to do with your kind of, I would say safeguards for privacy, or what?	
Interviewee 53:11	
I"m not. Well, I suppose **I've** never been there. Well, there"s about privacy. I, tend to write very useful reading I research business stuff. I mean, I you know, to be fair, I if I find a fossil, I sometimes, you know, on there but I"m not as extreme as some people I know, who basically are just consumers, they that they will not put anything on these things. And part of it is because I suppose my business is myself. <mark>So I can"t really separate myself from my business. So there is some personal stuff about me, I suppose out there. But I"d say</mark> It's <mark>all relatively superficial.</mark> Okay. There"s nothing like, you know, people put on Facebook. So **I've** no, I"m not. It's not something that nobody concerns me.	Start-up as an embodiment of personal identity
Suraj Ibrahim 54:14	
Okay. But any particular piece of information that you think is very difficult to find within the nature of your business. Any piece of information, you think is very difficult to get.	
Interviewee 54:35	
<mark>I mean, what you"re after, in a way is when you deal with companies is you know, who is really the key people. The budget holders who can buy your product?</mark> It's <mark>basically you know, a one on one of the sales. You don"t want to spend hours and hours and hours with someone that you know that you can"t be of influences. So they"re important. But</mark> It's <mark>I mean, LinkedIn has allowed you to find those people to the extent that, you know, you wonder how you did it before. So</mark> It's <mark>still, you know, it"s, it"s, it still takes some time, sometimes a bit of time to sort of finding that out. But I, you know,</mark> It's <mark>enabled companies, I suppose, like small companies, if you</mark>	Information about influential business leaders is hard until LinkedIn came into being

were start-up today, yeah, you could go and create your own, you know, find out who these people are in LinkedIn, you know, whereas, in the past, that type of information was Goldust, you know, that your competitors would have held that Whereas now you can find it. You know, It's the democratization, you know, the laws, the algorithms, so my algorithms more like recipes, you know, where I"m combining things. I"m using libraries created from Stanford or Berkeley. Still, I have access in a way to the same statistical algorithms that, you know, multinationals, governments have that that wasn"t the case, 20 years ago, you know, they had special algorithms that members of the public, like you and I did not have access to, now we have access to the latest stuff that comes out. Apart from the very, very extreme edges, you know, we can use stuff that comes out of Google, Berkeley and Stanford, we have access to the Internet, enormous amounts of information, we can find out who our customers are. So the barrier to creating a start-up in the digital sort of eras, so easy to create a company. I mean, it"s, it"s, It's completely different to what it was 20 years ago. It's a lot easier.	Online channels are equalizer to information access
Suraj Ibrahim 57:12	
But, just um, in the line of discussion, I"m wondering, as you mentioned, that you conduct quite a pervasive and comprehensive search, does this kind of information search ever made you feel very overwhelmed, due to the content quantum of information that you have to absorb? And how do you deal with that?	
Interviewee 57:48	
Yeah, I think, if I get overwhelmed with an area, it sort of the sometimes what it makes me realize is, I don"t know as much about this area as I did. And I"m there I then have a burning desire to reduce that. And so sometimes it makes me a bit more anxious. I think, you know, anxiety is a difficult one, you know, it"s, it"s, it drives and motivates, but it can be very unhealthy. And It's just, and It's just having a balance of, I mean, you"re a bit anxious before a presentation, you know, it makes you focus. You know, we have anxiety for a particular reason, you know, of our evolutionary backgrounds. But It's when it gets unhealthy. It"s, it"s, It's sending to something to manage, but most of the time we search to reduce	Information overwhelmingness an indication of lack of knowledge Anxiety as a motivator for information searching

some level of uncertainty. And It's mostly one of the key drivers why we seek information to reduce some level of uncertainty. But one of the key things, I think, is metacognition. So you"ve got to realize that you have some uncertainty event, something because if you don"t realize it, then you don"t think you do have any uncertainty. And I think the reflective processes of being self-aware to sort of understand where your weaknesses are, I think is key for an entrepreneur. So you, you reflecting, knowing, yeah, that"s quite strong there. But actually, I"m not as good as I thought I was in that area there. So no need to spend a bit of time on that. So I think that sort of learning to learn element is quite key. But yeah, I"d say being a bit anxious is certainly Is a motivator. But you don"t want it. Don"t let it get you to unhealthy. Yeah.	Information reduces anxiety Metacognition a key entrepreneurship trait
Suraj Ibrahim 1:00:13	
That"s true. So you, you mentioned earlier about some of the barriers that actually stand in the way of seeking information or searching for information—any thought on how these barriers can be overcome.	
Interviewee 1:00:41	
I think I do most of my searching on my phone. I do, you know, I do some searching, here on the desktop, but if I do probably most things on my phone. You know, and I think, I think one good option, I would be perhaps quite nice is just don"t show me anything that I"ve, **I've** seen before. Because It's actually one of the principles behind some way algorithms is that when you deal with an expert in something, I mean, they could be a, you know, a surgeon or an experienced geologist, or, you know, someone who"s someone who"s quite an expert in an area, almost showing them what is most popular or most obvious is they"re unlikely to learn anything from it. So you really want to go after the edges, you know, to things that perhaps they haven"t seen, or don"t already know. And so sometimes when I"m looking at an area, that"s what I"m after, you know, I don"t want to find the stuff I already knew. So I can see, you know, I think there was, really heard of it again, but there was a start-up. And they called something like 1,000,000, rather. And what it was is, is that they would only show you Google search results from rank number 1 million and onwards. So they were trying to get rid of the, you know, the top. I don"t know what happens to it, but it was a similar sort of thing. We have some	The handheld device as a dominant search tool Avoiding the already known information key to discovery

knowledge that can be hidden from us because of its obscurity. If you see what I mean.	
Suraj Ibrahim 1:02:50	
Alright, but just I"m trying to dig more. And that is, if you ever have any idea which you intend to convert it into a business but faced a challenge that makes you unable to combat that idea into a business? In the sense that information or access to information proves to be a bit difficult in that context? I don"t know whether I made myself clear.	
Interviewee 1:03:39	
I see what you mean. I"m not really, I mean, I think, you know, there are some things that, you know, everyone has to go through creating a company if you think of in the UK, sort of side of things, and you often think that it could be, it could be some sort of guide, which, you know, is a bit more straightforward. You know, registering companies pretty straightforward, you know. I mean, there were little things, for example, I wish I could tell people, so, you often see, and because a lot of people now have been made redundant because of COVID. And I see people creating companies, and they"re creating companies in their name. So, you Suraj Global limited. And you don"t want to create a company, a limited company in your name, because in the UK, because of IR35. You know, the government is going to look at companies created, you know someone's name and say, Well, that"s a personal services company. Yes, so almost wish that you tell people, if they"re going to create a company, it shouldn"t be in their name, because you can trade as a sole trader under your name. So you can always do that. I did that. If you"re going to create a limited company, don"t you don"t create it, you know, Interviewee cleverly limited. Because, A, there"s no point in doing that and B, you"re just going to attract the attention of HMRC tax revenue. So they"re like little things like that It"s like, people spent thousands and thousands of pounds on logos and websites, waste of money and absolute waste of money, **I've** done it, **I've** spent 25,000 pounds on the logo, my previous company, waste of time, you can do it yourself. And you create very professional one, and you create a website free, what you want to do is register your domain. They"re just like little things like Registered Trademark, you know, that costs 170 pounds. And that"s it, and you don"t have to pay anything else. There"s almost like a sort of set of like, things that a small company would want to do and help people. So I think it was easy for me two	Redundancy due to COVID-19 Registering a business in personal a name is a tax liability

years ago set up my company because I"d a previous company, so you sort of getting to see what you need, the accounts and how much that"s going to cost blah, blah, blah. And I didn't come across any really good sort of material that, you know, could give some guidance to people.	Lack of own skills to create company identifiers - logo, website etc. – expands capital take-up
Suraj Ibrahim 1:06:58	
Well, thank you very much, Interviewee , I think I must help finished all the questions that I needed to ask very specifically. And on this note, I think I would just want to ask you a few more questions for three to five minutes, just as a reflection of what we have been discussing or talking about. And that has to do with your belief about the role of inflammation to enhancing start-ups on enhancing existing business in general? Or what is your thought on that? Your role of inflammation to start-ups?	
Interviewee 1:07:44	
Well, there"s tacit information and explicit, so do you mean both? You know.	
Suraj Ibrahim 1:07:49	
Well, But just generally, your opinion on that.	
Interviewee 1:08:20	
Yeah, I mean, well, I mean, an idea is information. So it"s, you wouldn"t, I don"t think you can start any business without information. Because you, you need to have some sort of idea. such information you need to know, your market. Is it commercially viable? I mean, that"s information you need to know, customers. So it"s, it would be like having a car without any wheels. I think you wouldn't go anywhere. I think It's so big. Yeah, I think I think maybe people don"t necessarily think of some of these things as information. But, you know, information seeking is just, it"s, you know, I think everything to start-up, the fuel to your business. And	Idea and information are mutually inclusive for start-ups

then you react with feedback. You know, because just like, you know, your PhD you start with a title now then it changes quite a lot. And It's exactly the same as a start-up. So you have an idea, but, you know, six months later, It's never quite the same. So you"ve got to react to feedback. And some people don"t stay; they just say all these stupid people. Yeah, I"m right. And there"s some argument to trust, and you know your judgments. But, you know, most people incorporate feedback. You know, It's how we learn, and you normally end up with a better business if you incorporate feedback.	Information seeking and feedback are central to start-ups
Suraj Ibrahim 1:10:34	
That"s true. And any thought on why some business ideas could not end as a business	
Interviewee 1:10:41	
I think it depends on the expectation. I mean, you know, some people, you know, have a lifestyle business, and they have certain revenue expectations. And so, you may flatline, but your idea generates, you know, whatever it is product service, whatever it generates, enough to meet your expectations. But if your expectations are significantly greater, and it flatlines, then, you know, you reach a point, and you say, It's the markets just not there. It's just too saturated, or your idea isn"t going to be taken up by enough people or whatever. And then, of course, you"re not meeting your expectations of either growth or revenue and whatever. And then it will fail. So, but I think your expectations are quite key. I mean, my expectation is not to be, Steve Jobs or Bill Gates, because I"m in a very narrow niche. And It's unrealistic. Well, **I've** met some very passionate people in the same space as me that, that had very, very, very big ambitious ambitions. But I just think it isn"t realistic. There"s a case where, you know, It's not being negative, It's just being realistic. No, if you you"re developing something, which is horizontal. Yeah, like, right, like PayPal, you know, like Elon Musk"s? You know, you can see the size of that idea that comes in, etcetera. So I think It's expertise. If my expectations were, that I would make, you know, 200, license sales a year, blah, blah, blah, blah, I"d be very disappointed, you know, was actually, I"m quite pleased because **I've** exceeded what I thought I would do this year. So expectations, determine how satisfied you"ll be, and whether you determine your business"s success. And a lot of start-ups never make a profit. But then they"re sold for a lot of money. So it isn"t just a case of where your business	Character trait sets out barriers – far greater expectations and poor verisimilitude Niche does not support the vast market

needs to make a profit. As you know, Google Facebook ran many, many, many years, before making a single dollar in profit. ==So it"s,== It's ==I think your expectations are key. As to whether your business is successful, obviously, for most people, if you don"t make any money, we don"t make enough money to meet all your overheads. You"re going to get into debt==. <mark style="background:yellow">There"s only so long you can do that. That"s interesting.</mark>	Expectation indicates satisfaction and successfulness
Suraj	
So you think having such opportunity that Bill Gates or Interviewee Allen Had in terms of this very transformational idea of entrepreneurship doesn"t exist any longer	
Interviewee	

Oh, no, I think it does. I think it does. I think that if you look at the creaming curve, you know, when the Internet came out, you know, in earnest, you know, there was a huge kicker of dominance. And some companies, you know, won that battle. And in a way internet frees up competition because It's allowed. For example, I had a meeting with a large, multi billion-dollar organization referred to me as a competitor, right, and I"m, It's just me. So the Internet, and then the things such as we talked about LinkedIn, and blog and Python, being open source, people can use it that has allowed people increased competition. But there"s a downside, which is, in some areas, It's had the exact opposite effect. And now It's very difficult for companies to compete with Microsoft and Google and Amazon, because of their total and utter dominance. And I think I wish I could dig it out. But there"s an article talking about the Internet enabling a bookshop on every corner, and there would be all these sites selling books. And I think It's ironic because we, in fact, now just have one - Amazon. Yeah, so I think, you know, the Internet"s enabled competition, in some areas, is opened it up, reduced the barriers, but in other areas has had the exact opposite effect. But I think this, you know, it just depends on your idea. And I think if you, if you"ve got something where It's quite generic, then obviously you calculate your market size. So, obviously can make a lot of money. But if you"re producing something that"s very, bespoke in a particular domain, it would be unrealistic to think you"re going to be the next, Elon Musk. So, I think it"s, you know, expectations and, you know, do what you"re good at. I was just wondering to add, as well, I think, you know, generally it has nothing to do with you your questions, but when you"re when you"re in a company, now, when people don"t buy your products, or services or whatever, you can actually always fob it off in a company, if you"re an employee, is easy to say, well, our products are rubbish, or our services are rubbish, it wasn"t my fault, it was their department, but when you have your own business, you can"t do that. And it all becomes very personal. So when people don"t buy your products, or they don"t take your services, and that does create a different mindset. So I don"t think, you know, I don"t think everybody would enjoy running a start-up	Supremacy in the digital invention has been settled, mostly
	Internet has enabled as well as stifle competition
	Particularity and genericism of idea determines idea success
	Founders are sentimentally tied to their Start-ups

Suraj Ibrahim 1:17:50	
Because of the energy that is required, or what?	
Interviewee 1:17:55	
Because it because of the energy. And I think, some people work is just work, but their real passions lie elsewhere, golf, or, you know, something, you know, whatever it is. And, so you really do have to love what you"re doing, to be, I think, to do start-up, I think there"ll be a lot more people that will, perhaps over the next 10 to 20 years, create start-ups, because It's so easy to do. And if it doesn"t work out, well, then you can go do something else, but you"ve tried, you know, you give it a go. It would be terrible to get to the end of your career and say, wish I"d started my own company.	Start-ups will easier to create in the future
Suraj Ibrahim 1:18:50	
Yeah, that feeling.	
Interviewee 1:18:52	
And of course, the large companies, you know, the the job for life pension benefits, you know, that"s all gone. So you can join IBM tomorrow, but you won"t get the benefits that used to say 30 years ago, and there"ll be no loyalty. No, I"m not picking on IBM, it could be any company, to be honest. So I think people will think, you know, the company man or company woman concept I think will go away in the future. I think the real key is just to manage that anxiety because when you think your job is not safe, or where"s the money coming from, it makes you anxious and you"ve got to be; you"ve got to manage; be careful.	The employee is commitment is changing
	Financial uncertainty breeds anxiety
Suraj Ibrahim 1:19:52	

That"s interesting Interviewee , So you believe it is always about the money that bring anxiousness when it comes to business.	
Interviewee 1:20:08	
I think you have an issue with the source of income; obviously, it gives you; It's the judgment, really, It's the feedback on how well you"re doing. And I think when you when you deal with companies, it can be quite binary, because if you"re selling, you know, toothbrushes, you know, you have thousands and thousands, hundreds of thousands of customers, and, you know, you can afford for a few customers not to come back and buy a toothbrush. But when you"re dealing with corporate companies, you have a much, much smaller number of clients. Yeah. So the balance between doing really well, and doing appallingly bad, you know, one or two companies turning around and saying, Yeah, we do not want to have your products anymore. So that"s, a bit of the downside, but obviously, as a small start-up, It's much easier to deal with a small number of customers. So you sort of weigh that out. But you know, I would say, you know, if you enjoy, if you"ve got passion, enjoy what you"re doing, then, you know, It's your start-ups great. Because it doesn"t feel like working for it, this doesn"t feel the same as to when you"re an employee.	Customers can be a source of anxiety Passion ease start-up building
Suraj Ibrahim 1:21:49	
Sure.	
Interviewee 1:21:50	
Although Now, a lot of companies are trying to create these start-up feelings within their company. And you"d have to, yeah, there"s a few, there are quite a few people in my network doing that. So maybe they"ll contact you after I posted my, okay, my invite because I don"t, you know, I don"t know how that will evolve wiki be very successful or not? I don"t know. It's almost an oxymoron, you know, a start-up type, but within a large organization, so can it be done? So like, it is like an employee innovation.	

Suraj Ibrahim 1:21:49	
But who is going to claim the ownership of that? Is it the employee or the organization eventually?	
Interviewee 1:21:50	
<mark>Because you"re an employee, everything you do is still owned by the company. So there are some differences. So be interesting, though, there are some different models. I think it might you might see, over the next few years, some different things come out. But you need to be highly</mark> incentivized, because, you know if you"re going to get rewarded.	Employer-employee innovation
Suraj Ibrahim 1:23:21	
Well, thank you so much for, and I appreciate the opportunity. I sincerely apologize. I have held you longer than I thought I would.	
Interviewee 1:23:33	
Not at all, I just hope something **I've** said is of reasonable interest.	
Suraj Ibrahim 1:23:37	
Yeah, it is particularly rewarding, tapping from experience. And then your actually academic insights, in addition to your business, business background. And before I would say anything, I just want to ask if there"s any piece of advice you would like to say regarding how the interview went? Or anything more general?	
Interviewee 1:24:07	
No, I think I think it was good. You provided semi-structured, but then allowed, you know, me to just talk and I felt it was a natural conversation rather than, you know, a checklist of a series of questions that it can feel like if you"ve got a questionnaire. So I know I thought they were very well. And I"d be intrigued. Because I probably think of myself as a super searcher. Okay. I"d be	

intrigued. If, you know, I"m odd in that sets whether It's perhaps a trait of some other people that created the start-ups.	
Suraj	
I ran two interviews like I told you before, the first one was kind of very technically inclined person. And I find some of your responses very identical, or I would say very similar. But I think you have provided great detail, far greater detail than he did. And if I would have to factor your level of academic achievement, I would actually excuse him for that, for not giving me enough data that I would require, but then, and that also gave me an opportunity to actually reconsider the background of my research interviewees. It made me to actually adjust my questions more properly in the future. And I did sincerely thank you for this great opportunity.	
Interviewee	
Great, and thanks, Suraj, wish you all the best. I"m going to make the post right. today. So I"ll put your email your Robert Gordon email.	
Suraj Ibrahim 1:26:07	
And please do me a favor to it to edit out all the all the rubbish.	
Interviewee 1:26:14	
Yeah, I"ll just I"ll cut it down. You know, I think people are about 40% more likely to click on anything in social media if there"s a picture on there. And I the first line is so important, because on things like LinkedIn, you see about the first 20 words. `And people, just like on a search engine, you look at that and say, am I going to go and click More to read it? So, instead of trying to, you know, I think quite hard about that first 20 words, or do you want people to read your post? So I will just do a bit of editing with that. And hopefully you"ll get somebody that will pop you a notes.	

Suraj Ibrahim 1:27:12	
Alright. Thank you. Great. Thank you so much for I really appreciate	
Interviewee 1:27:18	
anytime you go, any follow up questions? Okay.	
Suraj Ibrahim 1:27:21	
That was very helpful. That was very helpful. And I won"t hesitate to do that.	
Interviewee 1:27:27	
Have a good weekend.	
Suraj Ibrahim 1:27:28	
Alright. Thank you. You too.	
Interviewee 1:27:30	
Take care.	
Suraj Ibrahim 1:27:31	
Bye now.	

DE14 Interview (Appendix 7)

SN	Transcription	Codes
1	Tell me about your entrepreneurship journey	
2	I started coding in 2018 when I was 31-year-old I am a Zimbabwean woman living in Nigeria. My father was a diplomat. So, we moved to Nigeria when I was a little girl. I had my primary and secondary school here. So eventually I married a Nigerian. Which turns out to be a very tragic decision. For about a year I was coding in isolation. I was not even on Twitter that time, but I had faith. I was offered my first developer role in 2019 at Andela, months later. How did I learn about Andela? I Googled bro had zero connections. I have held a couple of roles over the years backend dev, frontend, team lead and technical writer. And I am only getting started, the number of opportunities in tech are staggering and the taste of success intoxicating. Even if you are from unknown corner of the world. The secret, be hungry, learn to say no, sometimes, you will make many losses initially its part of the journey Handwork: software development is very demanding u must learn all the time it is no cliché, Be open: actually overcommunicate. Just for context, I am not even degreed I dropped out of college when I was doing my third year of Chemical Engineering. I got separated from my Husband. He was a chronic abuser and a very fantastic alcoholic. I had a child with him. So, when the child died, I decided to end the marriage and be on my own. It was hard being a woman, particularly being unemployed divorcee. People would not even want to rent out their properties to you. Many people consider my journey as trial as an inspirational story of how a setback cannot stop you for looking for ways to change your life and use your analytical mind in a different profession. Tech is an equalizer folks when they say its inclusive it is no lie. If I put my mind to it, I know I would end up working for a FAANG company in 2years. Message is keep pushing you got this!!!	Ambition and drive conditioned minds to innovate Loneliness and isolation triggers ideation Life trauma can be motivating a factor for entrepreneurship Technology is an equaliser
3	What is your motivation behind starting this business	
	the idea or story behind DitchDebt friend when I visited her. She was a call centre agent for one of the telecom companies. We were talking about money issues, family, and relationships. She reached her shelf and handed me a book called Clever Girl Finance. It is a financial literacy book That helps educate tech savvy women about finances in	basic literacy reading passion can be an

	order to achieve financial independence. That book was an eye opener and has made read more and money and finance. So, I am not only a tech innovator, I have also diversify into traditional investment.	accessory For innovation and entrepreneurship.
4	How many Financial literacy books have you read so far?	
5	I can"t remember the number of books I have read in the past two or three years. But there are quite many. The current one that I"m reading is by Tiffany Aliche. I"m even motivated by the woman. She"s truly an inspiration. I"m beginning to think even of documenting my personal experience and anecdotes To see if I can be Able to come up with book also?	
6	If you are to publish the book. What do you think will be the central message for the book?	
7	That"s a good one to ponder. A lot of the things **I've** learned along the way are things I"d like to share with other women who may be experiencing similar feelings of helplessness and desperation as I was. It's possible that society has deceived them about the liberating and socially uplifting aspects of marriage. Woman"s financial freedom is more vital than having a decent husband. As a woman and as a human being, financial independence gives you a voice and self-esteem. it is really hard to innovate under the patriarchal subjugation.	marriage and patriarchal society stifle innovation and creativity. financial independence helps people to innovate and be enterprising, especially women.
8	What activity can you recall as an information-seeking process	
	So I belong to this WhatsApp group called Conquer. It is a mutually benefiting communion. In addition to sharing of personal thoughts and feelings, The group also serves as an information pool and counselling initiative. It is like a customise on personalised Quora. We have recorded great achievements and successes towards orienting women to achieve self-sufficiency and financial independence through entrepreneurship.	Women entrepreneurs partake in aggregated information seeking. Aggregated information seeking helps vulnerable entrepreneurs?

9	What information do you might have supported you in coming up with a better idea if you had known earlier	
	I like reading about Peoples business failures and miseries and how they stood up and turn around the bad situation. That always give me courage and greater insights about what I should be doing and things that I must avoid.	Having information about business failures improves business success.
10	Have you ever been inhibited from seeking more information about an idea because of fear of competition or copyright infringement	
11	I believe fear does nothing than prevents one from knowing and prevents you from connecting and Forging beneficial business alliances. I believe isolating yourself will not make you more successful. whether or not one shares his ideas with others. It doesn"t really matter in the entrepreneurship environment as long as that innovating quality and capability is there.	fear inhibits information seeking. Recognising ideas or information about ideas can be stolen or used by competitors stimulate creative minds and enhance productivity.
12	Is there something in your personal circumstances that prevent you from accessing certain information	
13	Before I integrate fully both culturally and socially I had difficulty reaching out to people and making enquiries. I still use to feel a bit different from others sometimes. Perhaps I have overly internalised that difference.	Not having a sense of conformity socially can prevent one from seeking information
14	Tell me about any experience where you were overwhelmed by your multiple sources of information	
15	Ambitions drive one to search for information or ideas. And you hardly find anyone that is not ambitious. How we react and handle the consequence of your ambition is what makes a difference in the entrepreneurship journeys .	Highly ambitious people are likely to be overloaded with information

14	How do you manage a situation where you are presented with too much information?	
15	The way I manage information overload depends on the urgency of the situation. If there is no immediate pressure to make decision, the strategy is to work, absorb it in a bit-by-bit basis. However, if there is need to take prompt action then I will base my decision on the source of information I trust the most. and the currency of the information is second important criteria. How recent is the information.	Currency and trustworthiness of information source are important criteria when filtering information
16	What other techniques do you employ	
	The obvious thing to do with information that you cannot utilise is to pretend it does not exist. But knowing you ignore something that might valuable may induce a feeling of regret and leaves you less confident about the decision one has already taken.	Information avoidance might make decision makers less confident about their decision. Information avoidance can invoke negative emotions
17	you are comfortable delegating information seeking	
18	Information seeking is just a component within the entrepreneurship journey. Doing that will free up valuable time for concentrating on other things. But would you say you own the information; how would you own that information. Even if ownership is agreed to be yours, what can you do about the s agent"s state of knowing. These are serious concern for me. So, deciding on whether to delegate or not depends on one's susceptibility to injury from abuse or misuse of that information.	Information delegation poses threats and question information ownership

19	Did you ever come across information serendipitously, by a happy coincidence?	
20	Occasionally one come across unsolicited yet important information. I will attribute this to pervasive online advertisement and aggressive collection and sale of user data. This piece of information might not be immediately relevant to the current search but almost certainly in the near future. Social mediate especially Twitter, IG and Facebook are the greatest force and catalysers behind serendipitous information discovery.	Social media aid Serendipitous Information discovery because of quantum of user data generated

Serendipitous information might not have immediate value to the information user |
| 21 | What barriers do you believe prevent or inhibit information seeking | |
| 22 | There are two things that enhances information seeking in my opinion. Knowing the appropriate people and having the right equipment are essential. So, if you are part of a knowledgeable cycle, a group of intellectually oriented pals who are motivated by desire and ambition, you are more likely to come across essential information, counsel, or general insights. When I say proper equipment, I mean the digital devices required to capture, analyze, and present information. So anything On the contrary Will provide Counter result? | Infrastructural And social good positioning will Enhance information discovery.

Lack of social skills and Poverty or deprivation Inhibit information seeking. |
| | What, in your opinion, is the ultimate role of information in starting a business | |
| | Many things, including business, rely on information. Information helps to solidify ideas and deepen knowledge. Knowledge and ideas are the foundation of any business. As a result, the importance of information in business cannot be overstated. I believe the most important thing about information or business information Is how fast or early an entrepreneur get hold on the information. those entrepreneurs that know early will have a magnificent edge over their competitors. A huge advantage will be | first seeker of information stands to gain the most. |

	given to those business owners who are on top of the situation from the beginning of the game.	Information fuels ideas and knowledge which in turn support business ideation
	do you believe that having more information could help your start-up succeed?	
	Without a doubt, yes it will.	

DE09 Interview (Appendix 8)

SUMMARY KEYWORDS	
SPEAKERS	
Interviewee, Suraj Ibrahim	
Interviewee	
Good morning Suraj	
Suraj Ibrahim	
Morning [name of the interviewee]. How are you?	
Interviewee	
Long time, Suraj. I learned that you had left the country last for your PhD. Bashir told me about the development. I am happy for you.	
Suraj Ibrahim	
Thank you. And forgive me for I was unable to bid you farewell. Things are a bit tight for me, and I had to keep things in place before I left. I learned to you have opened another branch in Lagos.	
Interviewee	
Yeah, that is true. But how did you know?	
Suraj Ibrahim	
You forget that we are friends on Facebook, and you usually post things up there.	

Interviewee	
I have expanded to Lagos recently; Bauchi did appear to be a promising hub these days. A lot of tech startup exodus happening, happening mainly due to wider economic and governmental issues. I must acknowledge, it is very hard to keep up.	
Suraj Ibrahim	
I believe this is the same for almost all the sub-sectors. Our economy has been underperforming for about six consecutive quarters. Very poor economic outlook, I must say. The government has overborrowed with a significant amount going to recurrent expenditure and very little to infrastructure. If things continue to go like this, Nigeria will be Africa"s capital of poverty.	
Interviewee	
Or next Werst African Somalia [laughter].	
Suraj Ibrahim	
I know you must have read the information sheet I sent you regarding my research and the things I want to achieve from this interview.	
Interviewee	
Yes, I have read them. It is about the information behaviour of digital entrepreneurs. Such a nice topic. But I have never heard of the term information behaviour until then. I had to google it and know a bit more about it.	
Suraj Ibrahim	
Mr [name of interviewee], you have been in the technology business for so long. Share with me your journey as a businessman and for how long have you been doing it.	

Interviewee	
What I have become today started with an incident that happened more than 20 years back. I found a book on my classroom desk called Rich Dad Poor Dad. That is where it all began. Although the book story was based on a real-life story however in my case, it is like a fiction turned reality. I was popular during my primary and secondary school days, partly because of how often I land into trouble and partly because of my small body. I leveraged my popularity selling pens and pencils. That was the first business idea. I had been saving up my lunch break money the raise the capital. I raised about 20 Naira as of then. This is how my journey as a businessman started. I will never forget this. Whatever I become in this life, I owe that to this moment. The story of why I was troublesome and smallish goes back to how I was raised as a child. An unemployed single mother raised me. We were really poor. Thus I was severely malnourished. I was in the street to scavenge for food and shelter. I was spartan and rugged. I took this doggedness to elementary school and converted it into forte. Even though I am not proud of my childhood days because they were laden with crimes and chaos, I learned the basics of life from the streets, such as being discreet, watchful, hardened, courageous, and persistent. These are things that cannot be taught in classes. I consider them the foundation of a meaningful life. It surprises me every time to see no one was smart enough to put these in the curriculum.	Role of literacy in ideation Self-awareness / emotional intelligence Troubled upbringing/ parenting type Street life
Suraj Ibrahim	
If I understand you correctly, pen selling was your first business. How do you gravitate towards technology-oriented business? Give me an account of how it happened.	
Interviewee	

In 2000, GMS telecommunication was just springing up. People were just enthusiastic with new era of communication. It brought along many opportunities and disruption as well. I stayed keen and observant and eventually I spotted an opportunity. It was a short lived opportunity, though. I was into SIM-Swap segment of the industry. Sim swap is a recovery and replacement process for people that lost their SIM card. The process was hectic as there were lot of bottlenecks and long waits in the process. This is because there are no sufficient customers centers to handle large volume of request in an expedite fashion. The issue is even severe in cities where no single customer office is opened. My city, Bauchi, is in this category. Hence there was high demand in such services. This was this as a challenge which I can convert into opportunity. I reorganize my thoughts and came up with an Idea. I realized I can cut the wait time by a half if I take the customer request to a nearly city which 90KM away from my city Bauchi. The commute time is roughly an hourly. And given that I had go to school at 7:30AM in the morning on workdays constitute a barrier for me to travel to such great distance. So I had to meet my goals halfway. This means that setting out very early in the at 6:00AM so I can reach the city, Jos, by say 7:00AM or there about. I usually get back to Bauchi at around 9:30AM. This means is cutting back schools hours. Because arriving at school 9:30 or 10 means getting late by two and half hours. So the only option I had was to sneak in at Break times. That goes on for so long until one day when a line Manager, the Jos customer center, asked me why I always appear in school uniform. I told him I that I am a secondary school student that is what I do to earn a living. And I told him I come from Bauchi everyday. Hearing that I commute long distance everyday at such a young age made him astonished. He authorized that I am given a SIM swap Pack which I can be able to do the SIM swap at Bauchi without coming to Jos. That singular act of kindness was the turning point. I came back to Bauchi and opened a SIM swap shop. Cut down cost by almost 50nper cent, reduce the wait time for customers from fives day to just 24 hours, and increase my profit margin by almost 400 percent. I enjoyed a bit of monopoly although morally bad but good for business. This position has connected me legion of high value customers. Some of this customers are highly placed politicians and business people. Within short time, my customers base grew to several folds. I enjoyed this positioned until when the company, MTN decided to open their customers Centre in Bauchi. This development drastically affected my turnover, forcing me to significantly reduce the service charge. So during this period of operation power (electricity) issues was supply was the dominant problem along with associated issues such as burnt out computer and devices chargers. So at lowest point of my business profit, I began to think inwards regarding next possible business	Mental alertness School truancy Sympathy and External help

opportunity. I said to myself that most problem are can be converted to tangible business opportunity. I started by identifying the most common operational issue for my business which is about backup power system and chargers. I began to look for manufactures or suppliers dealing backup systems and chargers. This how my interest have shift gradually shifted to energy and eventually in surveillance systems.	
	Turning challenges into opportunities
Suraj Ibrahim	
Who was instrumental in helping you ideate or giving proper direction.	
Interviewee	
The ideas I have now I own no one credit but Google, the search engine You see I don"t keep friends, google has been my companion for so long. Look at my phone right now, I have 250 GB of data subscriptions. I spend hugely on cellular data. I am always on the interest connecting with people and creating solution and designing products. Most of my business partners are in foreign countries now, thanks to internet. I learned everything I came to new on the internet. So the interest or interwebs are my idea incubation space.	Internet (search engine) as idea incubation tool

Suraj Ibrahim	
What characterized your significant moment of information seeking?	
Interviewee	
I am a very quiet person, well, especially these days. <mark>I tend to seek information or rather my moment of ideation is usually when I am alone, and that usually happiness in the night.</mark> Although, is sometimes difficult to make sense of the available information one gets from the web. At times one needs human layer of explanation and wisdom to really articulate and assimilate the information. I would say, at time, human are information or rather knowledge validators.	Diurnal ideation /Mediation of ideas
Suraj Ibrahim	
Would you have come up with a better idea if knew about something earlier?	
Interviewee	
I would say if had known better ways of finding information perhaps I would become a tech billionaire by now. <mark>Google has been my dominant search</mark> engine. But I came to know of other search engines of recent which are also good or even does better in specific situation than Google. DuckDuckGo is particularly good at image search.	Role of information tools
Suraj Ibrahim	
Can you tell me about any piece of information you find most challenging to get	

Interviewee	
My way of searching or my perspective about information may not fit within the context of this question. I engage in a technique which likens foraging or rummaging – <mark>it is a kind of broad unsystematic search for information. I utilized the information I have rather spend time</mark> worrying about the information I could not get.	Information foraging
Suraj Ibrahim	
What factors do you believe can inhibit free flow of information	
Interviewee	
I think factors <mark>of inhibition of flow of information start with the information itself. It is like the idea of bootstrapping</mark> – starting from inside to get to outside. One must have minimum amount of information to get a sufficient amount of information. So I believe the barrier to getting that minimum could be the general illiteracy itself and some infrastructural barriers. <mark>The infrastructural barriers in my case could the internet and related enabling devices</mark>.	Information about information - intellectual
Suraj Ibrahim	
Tell me about any experience where you were overwhelmed by your multiple sources of information	
Interviewee	
<mark>Too much information comes at a cost. The cost of acquiring and processing it.</mark> For me this not an ideal or optimal way of dealing of information. The first step is avoid such occurrence if possible. However, on the upside, decision which is carefully reached or harnessed from an atmosphere of much information may have best effectiveness. <mark>But the question is who has the skills in dealing with too much information or under what circumstances does too much information may be valuable.</mark>	Expensiveness of information Information overload and skills for handling

Suraj Ibrahim	
What role do your client have on your ideas?	
Interviewee	
I have not experienced or rather recall any moment when a client had input in my ideation or ideas. My services I delivered are usually novel. Novelty can be a mystery for customers. <mark>They might not fully understand the idea let alone to spot flaws or rather suggest any improvement. Though I am not entirely saying is not possible, however is very unlikely to happen</mark>. I wish this is not the case, because it have present valuable insights or ideas that could further be used for improvement or creation of new ideas. I believe this is case for any swing entrepreneurs.	Novelty inhibit co ideation
Suraj Ibrahim	
What do you mean by a swing entrepreneur?	
Interviewee	
A <mark>swing entrepreneurs is a kind person is that constantly on look for a short-lived business opportunity</mark>. The moment an opportunity is identified, he/she will swiftly swing into action. This type of opportunity easily gets saturated.	Mental agility
Suraj Ibrahim	
Is there something in your personal circumstances that prevent you from accessing certain information?	
Interviewee	
There are numerous factors prevented me from accessing information. Although that prevention may be temporary. <mark>But the</mark>	

most important factor which played a role is the economical factor. Money is the most important factor of prohibition behind knowing that money is such a factor. Money is not an end but rather a means to an end.	Information access is resource-dependent
Suraj Ibrahim	
Do you believe access to information is dependent on gender	
Interviewee	
The issue and role of gender has cut across several aspects of life in Nigeria. Gender can of course be an advantage as well be a disadvantage.	Gender influence is systemic
Suraj Ibrahim	
What do you think might have eased access to valuable sources of ideas?	
Interviewee	
I wish I had a mentor early on. You remember when I say human validators! I could have done better under the right mentorship. With mentors, one does not need to know or experience everything from the hard way. One needs to just tap from their experience, saving time and energy. But one this that obvious is that, I am not is saying as a general statement, it is perhaps peculiar to Nigeria. A mentor, especially in a technological space, is likely going to see his or her mentee as a potential competitor in the future. So the question is who can volunteer this dig his own business grave. No one would do that I think. So this issue that further raise the problem of trust in mentorship and to what extent that might affect or rather stifle strategic and progressive collaboration.	Mentorship enhance quality of ideas Mentorship undermines trust and partnership

Suraj Ibrahim	
What is the likelihood that ideas end as businesses eventually	
interviewee	
Transformation of ideas into business require several factors to materialize. <mark>Staying less hypothetical and more practical is the first logical; and honest step to take. The others may include persistence and commitment to learn new ideas.</mark> News ideas offer alternative and objective perspective of viewing and evaluation of old ideas. So if one lacks the capacity to generate new ideas will not be able to pass a judgment on the old ideas.	Pragmatism is essential when turning ideas into business
Suraj Ibrahim	
In the light of our discussion today, do you believe access to more information could enhance your start-ups success?	
Interviewee	
For any start-up to succeed, it must be built on good pillar of information.	
Suraj Ibrahim	
Well, thank you for your time. I really enjoy talking to you on this important and interesting entrepreneurship journey of yours. I wish you success in your future endeavors. Anything that would you like to add which you think is important?	
Interviewee	
It is my joy. It was also a pleasure to converse with you. Please do not hesitate to contact me if you require any additional information. I wish you the best of luck in your future interviews..	

Suraj Ibrahim	
That will be greatly appreciated [name of the interviewer]	

DE12 Interview (Appendix 9)

Tell me about your journey as a businessman, and for how long have you been doing it.	
So little background about myself is I study computing in the university. So while in school I did a lot of start up activities. For example, start-up weekends, bootcamps and ideations. I have always been keen about technology. Especially how to use it to solve societal problems. So I went to the school in the UAE. So whenever there is local problem, we try to see how we can solve it through technology. So that is how I started thinking. So we tell ourselves how can we turn this things into business? There are other people that I have always been working with me since when I was in JSS 3. These people are my neighbours, and introduced me to animations and computer games right from my early days. So when I finish school, I now join them as a fresh graduate. But they have been working on a particular project. They just finished project funded by DFID.. That is the British Government. The project is about land titles. It provide a certificate of occupancy to land holders and household. Most especially in Northern states such as Kano and Jigawa. So this land titles were issued to farmers to give them, a kind of getaway to access financial facilities such as bank loans in order to grow. So after they finished that project we decided to continue along that line. Into other relevant areas. So We believe more than 99% of farmland doesn"t have titles. So we decided it is a good idea to. We digitise Farming plots. So that they too can have titles which they can use it as collaterals. This was done in collaboration with state government because they are a relevant authorities to issue certificate of ownership to this farmers. So we kept on expanding along the area and fortunately for us. Political atmosphere was favouring because at that time Buharin was just coming into power and it was just the right time as there was a lot of shakeup in the agricultural sector.	Computing background
	Relevant start-up
	Oversea exposure
	Early Mentorship
	Games as early on inspiration
	Ideas generated through partnership
	Favourable political atmosphere

	enhances ideation
That was really interesting Mr Al"amin. I was going to say this your project likens one project that Kaduna State government is executing. Is it like what you guys are doing?	
Yes, of course. Because it makes it easier for the state government to issue certificate of titles too. But government approach to this to this type of land digitization and certificate issues is so slow and ineffective. And it takes a lot of time and money for them to process and deliver this certificate to land holders. So what we usually do is. We do play a drone over an expanse of land. So that it will get the aerial view of a particular land that we are interested in. Alternatively, we can get a satellite image of that particular location. So we eventually demarcate the land boundaries and offer certificates. So we provide drone because it provides a precision.	Bureaucracy slows down innovation
But why would you prefer drone than satellite imagery. For example Sport images image provides higher resolution, hyper resolution imagery that you can be able to also use in that regard.	
Drone is better for us considering our size of operations. Let"s say 500 hectares. 500 hectares is something huge but is something that you can cover. It is more cost effective for small sizes farms. And it minimise the possibility of conflict because land demarcations are community validated. If it is a drone, one can point out feature such as tree or boulders and the community will approve identifiers. It is very hard to hard to point out such feature with satellite imageries.	
This idea is of interest for me having done a masters in GIS, and having interest in farming as well because I do a lot of farming.. So I was taking to a friend the other day, he also have master on GIS from Malaysia. So I was telling I am interesting in mapping our chilly farmers spatially. I want to from like form a mini "cartel". I want to use such information for market intelligence. So knowing where the	

supply hubs are located can enable me have an edge over other players. Secondly, we can create a white paper regarding chilly farming in that area which and be a sort of academic advantage for him because white papers are considered scholarly paper hence he can be used in the university where he teaches a town planner.	
So basically we digitise farms fields and issue virtual assets titles to farmers which they can use as security to access credit facilities. This was not possible before because it was not possible to tie a particular plot of land to an individual. This virtual assets title are backed by the authorities; meaning bank would accepts them as collateral. This ideas is also beneficial to insurance companies who give cover to farmers. We also do geo risk assessment and ascertainment to insurance companies to show for example if there was a flood in particular area so that to prevent farmers from making unfounded claims. So this risk assessment relies much on the satellite imageries because it can provide time series data or historical.	Business idea may come from unadressed ancient problem
I can see you are passionate about this agro allied digitisation. What other subsector are going to likely be in if you to leverage on your existing skills.	
Thank you for this question. We are at the moment working on moving away for this area of business because there is lot of sabotage from the farmer and from some corrupt public officials. This idea of virtual asset title has brough lot of transparency into the system by exposing inefficiency, redundancy and corruption. For example, a farmer cannot lie about having a flood because it can be verified. Defaulting on credit facility can make farmers lose their titles and they don"t want that. This is because collaterals are now traceable and tied to individuals. With that, corrupt officials cannot be able to quicky write off debts or termed them as bad because doing so will expose their inefficiency or complicity with the	Digital business brings apparency

defaulters. So we are being frustrated and pushed to the side. What we are looking at the moment is into geodata retail. We are building a platform for other business to use and expand from. So spatial and nominal data about retailer such as vulcanisers and or street food vendors. So our platform intend to link buyers and seller easily and efficiently. So we collect information such as number of staff, opening and closing times, years of operations and the rest. We provide very rich data, from example, user can search for Hausa speaking female owned businesses. And one can be able to visualise their geographical spread. However, we facing some issues still given that some people don"t want the data as a product or resource rather. They don"t really see value of the data in itself or what they can do with it.	Corruption hinders innovation
	Adjacent ideation or business
	Mobility of ideas
That is interesting. I appears what are you doing require deep knowledge of GIS, and having came from a computing background. How do you close the knowledge gap.	
Well, because this is a team-led project of business. You have diverse skills set distribution across the company. Because of the interaction and cohesion, knowledge or information will gravitate, levelling up the entire knowledge base of the group. So one can find himself doing things that he or she was not originally trained to do. But as one observe, ask questions and interact, knowledge transfer will occur subconsciously. And this one of the benefit of having diverse workforce because it minimise the need for formal retraining and upskilling..	Group leaning, interactionism enhances ease knowledge and information transfer
Who would you rather point at, or say inspires you in this direction	
Yes, I have a mentor and he happens to be my cofounder, and a neighbour too. Whenever we are on breaks from schools during my high school days, he would invite me over to his house to help him with computer related tasks. Often times he would challenge to do things I was not taught to do by him. This has really enhance my creative capacity. Being forced to think beyond what I already know	Mentorship by virtue of proximity

makes the act of learning exciting and fun. I would say, it is the problem-driven learning process. I have applied this concept in almost all my professional dealing, from partnering with others, to information seeking.	Role of mentorship to ideation
It is interesting you mention information seeking. Tell me more about it please. What motivate and demotivate you in seeking information.	
Well, if one is determine to have new ideas or creates something new, then information is the most important resource, not just information but new and constantly incoming information. And for one to achieve that, a top notch searching and seeking skills is required. So, as new information comes, certainty and confidence increases. Anything contrary to will create discomfort and feeling of anxiety.	Information is an idea resource
	Constant flow of information nourishes ideation
	Information reduces uncertainty
	Lack of information create anxiety
What do you mean by contrary to that.	
I mean, if one is not getting new stream of information, then that will create mental stagnation, low confidence or feeling of uncertainty.	Mental stagnation happens as new

	information ceased to come in
Well, do you equate low confidence and uncertainty to lack of new information?	Information lightens up the path
Yes, yes. Do you remember the saying that light trumps darkness?	
Yes, I did.	
So that also applies here. Knowledge or information trumps uncertainty or low confidence. However, too much information can be counter productive, at least from the beginning. Because it requires one to perform extra work on it, in terms of say, categorising and sorting it out. Because there is no way one can be able to make use of the whole information. You know they say, not all trees bear fruits. So not all information is usable. To much information can cause distraction. So this distraction can be minimised with the right methods or rules or criteria. So with these rules, is easy to sort out information that is out of place. This is necessary because getting overwhelmed by information cannot to be completely avoided. I will advise entrepreneurs not to avoid or attempt to discard information entirely. What I will advise entrepreneurs to do is to embrace the discomfort of information overload if they are to reap any associated benefits.	Information overload is inevitable

Information is cost

Information delays decision

Sorting and categorizing are techniques for info overload |

	Cost of inf overload worth the benefit
What barriers you think stand in your way to getting information.	
As far as I am concerned, if you take away the broader challenge which infrastructural; a typical problem to developing countries. Other barriers are found within self. So for example, how fast can you process information, comprehend or read? These capacities might depend on the amount of working memory, the computer equivalent of RAM. And of course traits such as drive and persistence are important too. This is because dealing with information consumes our mental energy.	Barriers to info access are external and internal

Internal are cognitive and physiological |
Tell me about how you think reading enhances information seeking as you said earlier.	
Of course. Reading or rather passion for reading is the primer or underlining force that enhances productive engagement with information. My likeness for stories since when I was a child flued or help my general interest in books and reading. We have home library at home given that my mum is medical doctors. One of my favourite novel is Medical Romance: a doctor in err. Is a beautifully written workplace romantic story.	Mother role to ideation

House set-up-architectural design can be a remote ideation trigger

Information literacy |

	important to ideation
Will it be okay to say the passions you have for reading or books was underpinned by the library you have at home?	Role of library to ideation
Yes, that is correct and my mum as well.	
Have you ever experienced difficulty in seeking or getting access to information?	
Well, information being a resource needs tools for its harnessing. These tools can categorised as tangible and intangible tools I would say. The infrastructure including the internet and devices belong to the tangible category and are the entry points. The same way one needs Visa to be allowed entry into another countries; So these devices play same role as per as information society is concern. Having them gives one a level ground to play and participates. How one participate depend on the intangible tools: the search mindset, emotional state, search skills, the social recognition and the rest. So these factors would definitely affect seeking and access to information.	Digital device are Visa for Information society

Personal traits determines effective access to information |
What do mean when you social recognition?	
The social class you belong or the wealth one posses will catalysed and eases access to human information keepers. Sometime one needs to entice, incentivise or bride the way, unfortunately. The bribe aspect is reality of the society we live in. so people with strong sense of morality or ethical stance will lost out here.	Economic power affect access to information

Moral and ethical stance |

	affect access to information in some cases
Thank you so much for this. Relatedly, Can you describe a time when you felt discouraged because of a lack of information, or because of difficulty in accessing information?	
There are just two logical reaction to difficulty in general. And I think it also applies to information seeking or access. That is to persevere or give in, in the event of difficulty. the former may or not lead to success but the later will cause immediate change of emotive state – becoming sad, feeling defeated or unsure about what to do.	Difficulty in access to info may reenforces or weakens personal traits
	If traits are reenforced, access to information may be successful and otherwise

Weakened traits may create feeling of uncertainty |
| We talked about difficulty in access or seeking information. Now, about the opposite. How would you feel about getting excessive amount of information? | |
| Anything in excess comes with a cost and with an advantage on the upside. Too much information drains energy, I mean mental energy. Not all people have enormous energy for such intricate mental activity for having to filter and process it out in order to make the information very relevant to the decision at hand. People that | Inability to deal with info overload creates confusion |

cannot handle that will be left in that game. They would become confuse and lost direction. What they can do is just to make whimsical decisions which will be dicey, or just like going to casino. And you know what that means.	Whimsical decision is result from poor handling of info overload
What do you mean by whimsical decisional?	
I mean irrational to some point. I mean no disrespect here, and I did not mean they are gaga. But it is an impulsive decision.	
Thank you for that. Say you have too much information, do you engage one of the following: Ignoring, Deselecting or Filtering?	
Well, I would say, I sometime ignore, or I rather just say defer to take action. Sometimes is good not take action if there is no urgent need or immediate consequence from doing so.	Deferring to take action also strategy of dealing with overload
What information do you think might have negatively affected your business idea if you had known?	
That is interesting. Mum always say I should avoid negativity for it destroys creativity. I don"t like doubters, pessimist or losers. If I have heard unhealthy dose of start-up failure stories probably I wont have muster up courage and enthusiasm to start that this journey which is full of challenges, reworking, patience and perhaps bricolage.	An overly engagement with negative news and stories can dampen spirit of creativity

What do you mean by bricolage?	
Adapting to circumstances perhaps is one of the important traits or skills a digital entrepreneur should have. The environment is dynamic, information flows faster so is easy to get lost and become uninterested. The question how long can most people tolerate or endure this dynamism? Not many to be honest, in my opinion.	Bricolage is a key survival traits in digital environment
How easily do you think ideas can be converted to business.	
I will not sugar-coat this, entrepreneurship is hard and it takes more than courage and resolve to succeed. Even though start-ups may fail but entrepreneurs not. It is an infinite learning path for them. One needs the right information to keep the boat of ideas floating. Being afloat is not the only important thing, one needs rowing for direction, that is the search skills.	Start-up failures are invaluable learning lesion for entrepreneurs
As a final note, do you think is ultimate role of information on starting a business, and do you believe access to more information could enhance your start-up success?	
Mr Suraj, the world is all about information. Almost everything can be explained within the context of value of information. National security, love or relationship , trade and business, you name it.	
Can you comment further lease?	
Why do you think Russia doesn"t want Ukraine to join EU or NATO? Because the West will have or collect information, military information supposedly, about Russia. While what the West intend to do with the information is immaterial here, but the root of the matter or the source of the conflict is about access and information. Information makes people powerful, powerful people are informational. Think about spies, think about mentors, they are all	

information brokers. Think about why insider trading is prohibited, it is about information, is about the power of preknowing. In the world of business, information is an armour. You know what armour means.	Information is an armour Preknowing is highest form of informational power Information is resource and a weapon
That you so much for your time. I really appreciate. I think this the end of the interview. However, I don"t know if there is anything you like to add, advise or something in general.	
No, no no, you are great. Just keep me in the know when you come up, with your findings.	
I would love to do my PhD someday, but four years of PhD will seems like eternity for me. All the best Suraj. Let know how I can help. Stay in touch and bye for now.	

Postmodernism (Appendix 10)

Postmodernism places an emphasis on the importance of language as well as power relations, with the goal of questioning commonly held scholarly beliefs and providing a platform for perspectives that are often marginalized (Kilduff and Mehra, 1997). The realization that the power relations between the researcher and the research subjects shape the knowledge created as part of the research process is essential to postmodernist research. They question the ideas and theories in research and they try to show what kinds of viewpoints and realities those theories and ideas overlook or ignore, as well as whose interests they serve (Kilduff and Mehra, 1997; Saunders et al., 2015). Postmodernism and the philosophical trend known as poststructuralism are historically intertwined with one another (Sim, 2001; Saunders et al., 2015), because the distinctions in emphasis between postmodernism and poststructuralism are nuanced and have become less obvious throughout the course of their respective histories. According to Saunders et al. (2015) postmodernists investigate phenomena in greater depth, much like interpretivists do, but with a different focus. They take their criticism of positivism and objectivism one step farther than interpretivists do, attributing an even greater level of significance to the function of language in the process. They do not accept the contemporary realist and objectivist ontology of things, but instead place an emphasis on the chaotic predominance of flux, movement, fluidity, and change (Saunders et al., 2015). They are of the opinion that any sense of order is illusory and without a solid basis, and that it is only possible to achieve it via the use of our language with all of its categories and classifications (Chia, 2005). A postmodernist is open to the deconstruction of all forms of data, including but not limited to texts, images, conversations, sounds, and statistics. However, according Calas and Smircich (1997), it is essential for researchers to be transparent about their moral and ethical stances, and as a result, they should endeavour to be radically reflexive about their own thinking and writing.

Pragmatism (Appendix 11)

According Saunders et al. (2015), the philosophy of pragmatism appeals to researchers who are growing restless with the struggle of ontological, epistemological, and axiological assumptions that takes place between the many philosophies and are instead focused on making a difference to organizational practice. Research is viewed from a pragmatic perspective as beginning with a problem and working toward the contribution of practical solutions that can inform future practice. The pragmatist view maintains that ideas are only worthy of consideration insofar as they contribute to practical outcomes (Kelemen and Rumens, 2012; Saunders et al., 2015). Pragmatism seeks to strike a balance between subjectivism and objectivism, facts and values, precise and rigorous knowledge, and a variety of experiences that are contextualized in a variety of ways (Dousa, 2010). To do this,

pragmatist researchers consider theories, concepts, ideas, hypotheses, and the findings of research not in an abstract form but rather in terms of the roles they play as tools of thought and action, as well as in terms of the practical repercussions they have in specific situations. This is because knowledge is valued for enabling actions to be conducted successfully. Therefore, reality is important to pragmatists as a measure of the practical impacts of research and ideas. The values of the researchers are what drive the reflexive process of inquiry, which is kicked off by uncertainty and a feeling that something is off or out of place, and which re-creates belief once the issue at hand has been fixed (Elkjaer and Simpson, 2011).

Because pragmatists are more concerned with concrete outcomes than with abstract distinctions, the degree to which their study may be classified as "objectivist" or "subjectivist" may vary quite a lot depending on the circumstances (Hawkins, 2008). In the context of pragmatic research, this indicates that the research problem being tackled, and the research question should serve as the primary factors in determining the structure and approach of the investigation. Pragmatists recognize that there are many diverse ways of interpreting the world and conducting research. They also acknowledge that no single point of view can ever present the complete picture and that there may be several realities. This does not imply that pragmatists always employ numerous approaches; rather, they use the method or procedures that enable credible, well established, dependable, and relevant data to be obtained in order to advance the research (Kelemen and Rumens, 2012).

The learning from Pilot (Appendix 12)

Given the level of experience available, a structured interview was used during the pilot study. Because of the degree of control it provides, inexperienced researchers can readily handle a structured interview, yet the potential of obtaining valuable serendipitous information can be hampered because participants are constrained in the extent to which they share their insight. (Warren, 2002).

Consequently, as the research progresses, the researcher's skill was able to adopt the semi structured mode of interviewing.

Details and dates of the interview are provided in the table below:

Date	Case	Time	Duration	Gender
31/10/2020	A	03:00 PM West Africa	02:12:14	Male
14/11/2020	B	08:30 PM London	01:58:21	Female
27/11/2020	C	11:30 AM London	1:27:36	Male

Case A: The Interviewee is a principal partner at a rapidly expanding e-commerce retail business. He is an IT grounded individual who devotes time to web development and apps building.

Case B: The interviewee is an online trading entrepreneur retailing consumers goods, especially wearables for women. The entrepreneur uses WhatsApp as an online catalogue and business contact point.

Case C: The interviewer is a tech start-up founder whose aim is to extract and present knowledge from redundant geoscience documents stored within the organisations. The founder is versed in Geology, Computer Science, and Data Science and has maintained an interest in Big Data, Information Management, and Innovation.

The pilot exercise turns out to be a methodological learning and reawakening activity by revealing areas of weakness and lack of expertise. The pilot exercise revealed a need to redirect questions because the difficulty in asking the same question from multiple angles was experienced. Thus It is critical to understand how to instantly rephrase questions to boost comprehension among participants. Sometimes, lack of comprehension caused awkwardness. Furthermore, it is was found information about educational level or tribe could help with approach taken on certain questions, especially when conducting research among participants from multi-cultural settings (Goldstein, 1995).

A challenge was also encountered in administering the question to some of the interviewees due to the requirement to conduct it in their local language, Hausa. The challenge resulting from this requirement is that domain language translation is lexically delicate, as meaning will be lost if not managed appropriately (Filep, 2009). It is critical to anticipate confusion and produce possible answers when an instrument requires translation. It was discovered that utilizing phrases instead of words for translation provides more flexibility and enhances understanding among participants. Although despite adequate planning prior to the start of the exercise, "inexperienced researchers may struggle to conduct an effective qualitative interview (Sampson, 2004: i).

Interview piloting is seen as an important part of the qualitative research process because it highlights the improvisation to the main study.

The research has steadily progressed over the past year and has maintained its fundamental intent, although with minor but important adjustment and expansion of the research objectives. The research journey has taken on board changes owing to findings and difficulties faced during the pilot project. The consequence of the pilot has been broadening the research objectives and honing the research questions so that they align with the overall aim of the study. As a consequence, the significant part of the original interview questions has been reworded resulting

from the discovery that certain questions were highly abstracted, leading to ambiguity conveyed to the participants, and the intended meaning thus not conveyed. An additional objective (Objective 2) was added as findings from the analysed data reveal new pertinent research elements. The chosen methodology and data collection techniques have proven to be successful in terms of producing the required data to answer research questions, and the approach to assessing the validity of the data has been strengthened.

Challenges, Strength, and weakness Research

These interviews were conducted remotely via a web-based video conferencing service (Zoom) and collaborative software, Teams. The information sheet was sent to prospective interviewees in advance to provide background information about what the study entails. Negotiating access to interviewees caused no problems, as no opposition to the invitation was registered. However, deciding on timing was a challenge worth learning from as this necessitated a number of rescheduling and compromises that have taken place for example, in the case of the B participant, the interview was conducted in the late evening (08:30 PM London), in which the time falls outside the regular business hours in Nigeria. The participant"s magnanimity and benignancy might not be unconnected with a long-lasting personal relationship – an important consideration to note.

A remarkably tight schedule was noted among the participants and may justify the two months to taken perform three interviews while considering that there was no need to co-locate physically. Delaney (2007) discusses the challenges encountered in interviewing organisational elites, such as entrepreneurs. He argues that negotiation over access and control are specific dilemmas when interviewing elite subjects. The implication for this observation is the time-sensitivity need to be factored in the design of a subsequent interview schedule, and the unavailability of the participants is likely even with prior agreement to participate. The learning point of this experience is to recruit more than enough willing participants so that absentees can easily be substituted.

Some unexpected discoveries in the pilot study's conduct made it challenging to learn about the things that initially seemed the most apparent and the least troublesome. For example, there was struggle asking questions straightforwardly, capable of yielding academically grounded responses that will be used to answer the research questions comprehensively. Hence this development might affect the richness of the data. Another aspect of the Pilot that can be considered one of its imperfections is the inability to be assertive, resulting in the participants swaying off or digressing in the conservation. Moreover, it is also essential to acknowledge that

the participants' characteristics do not cover the extensive spread of the digital start-ups" varieties. This might have the potency to obscure valuable insights that can further hone the research questions.

On the other side, one of the most important strengths of this Pilot is the manner and structure in which the interview was conducted. The semi-structure has allowed the participant to flexibly respond, giving them ample freedom to discuss without imposing a rigid structure. This has been made easy and possible, considering some participants could converse in their native language (Hausa). Consequently, this has allowed the research to get closer to the data, and that is following the tenets of Grounded Theory methodology adopted in this research (Strauss and Corbin, 1994). Another note in favour of this Pilot is the issue of participants' characteristics mix. The gender and cultural distribution of the pilot participants have also added to the strength of the exercise. The pilot data was analysed and that furthered the effectiveness of the interview design and tested its robustness as a data collection instrument. The Pilot has demonstrated methodological feasibility and proved that conducting the main research project is an achievable outcome. This was evident in the overall amount of data generated by the exercise.

	Transcription guidelines
1.	Maintain the naturalness of the morphologic structure during transcription. Maintain word forms, the form of commentary, and the use of punctuation in a manner that is as close to the presentation of speech as is possible while remaining compatible with what is normally accepted in written text.
2.	It is important to maintain the natural structure of the transcript. Maintain a lucid structure for the text using voice markers (i.e., like printed versions of plays or movie scripts).
3.	The transcript must be an exact replica. Make a verbatim account. Do not shorten text overly.
4.	Universality should apply to the transcription rules. Make transcripts compatible with human/researcher and computer usage.
5.	The rules for transcribing should be independent. In addition to being independent of transcribers, transcription standards should be comprehensible and applicable by researchers and third parties.
6.	The guidelines for transcription should be intellectually robust. Keep regulations few, straightforward, and simple to learn.

Transcription guidelines (**Appendix 13)**

	Excerpts	Open coding	Axial coding	Selective coding
DE01	After I started my first company, my team and I were working on Internet-based services, building web applications for SMEs and large enterprises.	Co-ideation	Assistive ideation	Ideation
DE16	I co-founded a software company with two colleagues in the year 2000. Back then, we were all software engineers.	co-ideation	Assistive ideation	Ideation
DE16	customers have helped in fine tuning my outputs, they have challenged to give greater quality, and that has helped me uncover my hidden potentiality and distinctiveness	Crowd-ideation	Assistive ideation	Ideation
DE10	The Crater Library is an e-publisher platform. I founded it because I noticed we have issue with access to local content especially online	Solo ideation		Ideation
DE09	The ideas I have now I own no one credit	Solo ideation		Ideation

Grounded Theory Coding *Appendix 13)*

Tentative Codes (Appendix 14)

Name	Files	References
Collaboration and Partnership	13	34
Reason For	8	11
Reasons against	6	8
Social Media Induced	4	8
Creativity, Innovation, and Ideations	19	131
Adjacent Ideation	7	9
Anti Ideation	5	6
Co Ideation	11	13
Assisted Ideation	3	5
Entrepreneurs" Traits	14	33
Nature of ideation	9	22
People"s Attitude to Technology	8	13
problem induced ideation	2	4
Solo Ideation	3	4
where Ideation takes place	11	13
Education	17	48
Digital Literacy	7	9
Devices	1	1
Diverse Knowledge Base	5	7
Entertainment as Educational Support	1	2
Formal Education	10	11
informal Education	2	3
household level of education	1	1
Library and Reading Passion	8	10
Tech as a Educational Supoort	4	7
Emotional feeling about the bsuiness	5	12
Anxious Feaaling	2	4
Releived feeling	5	8
Entrepreneurship Challenges	18	61
Cultural Problem	7	10
Customer Feedback	2	2
Emotional Problem	2	2
Informational Problem	11	21

Internal Operations	5	6
Personal	3	6
Societal and Institutional Problems	7	14
Information behaviour	18	91
Information Access	4	4
Access Challenges	11	23
Access Enhancers	11	20
Information Source	1	1
Information Delegation	2	4
Information Dissemination	2	2
Information Overload	17	61
Causes	7	8
Effects	10	14
Information Poor	3	4
Mitigation	17	29
wrong techniques	1	1
Information Seeking	7	8
anxious feeling	5	11
Challenge	8	26
Delegation of Information Seeking	9	15
Enhancers	12	23
Srendipity	7	8
Techniques	6	11
Misinformation	1	2
Source Preference	4	7
using information	1	1
Parental and Societal Influences	15	25
Mentorship	11	16
Finding Mentor	5	6
Motivattion	8	9
Deprivation and Exclusion	11	14
faith	1	1
Family	8	13
inspiration	12	18
Legacy	1	1
Role of Mother	7	7

Role of information	14	31
Uses to Information	5	10
Satisfying Aspect of Entreprenuership	1	3
Solution to Start-up failures	18	85
founder"s Role	11	39
Govermental	2	3
Group or Union Effort	3	4
Informational	9	16
Role of Family	4	6
Soceity, social and cultural role	5	11
Special (Marginalised) entrepreneurs	5	36
dealing difficulty and challenges	4	11
entrepreneurial Challenge	1	1
Infromational challenges	2	4
support network	3	6
Vulnerability and Abuse	5	14
Intersectionality	7	9

Strongly Related Studies (Appendix 15)

Date	Authors	Title	Objectives	Questions	Methods
2009	Leslie, susan elder	An examination of the information behaviour of new entrepreneurs in the start-up phase of a business	1. To gather information about the actual behaviour of new entrepreneurs, 2. And to test the potential usefulness of the sense-making methodology to an understanding of new business owners" information needs.	1. How do new entrepreneurs determine and categorise the kinds of assistance or information they need? 2. How do they know what sources of assistance or information are available and what is appropriate to their needs? 3. How do they evaluate sources and come to privilege some over others?	Qualitative sensemaking Discourse Analysis Cognitive Authority
1994	Johannessen, jon-arild Kolvereid, lars	Information search behaviour during business gestation	1. Identify an information search pattern among entrepreneurs,	1. How do entrepreneurs seek information during the business gestation phase, and 2. Which individual and venture characteristics	Quantitative Inferential

				influence the information-search Behaviour	Correlation Regression
2012	Gemmell, R.M., Boland, R.J. and Kolb, D.A.,	The socio–cognitive dynamics of entrepreneurial ideation. **Entrepreneurship Theory and Practice**		How do entrepreneurs obtain the creative ideas they need to develop innovative new products?	Qualitative Grounded theory
2017	Link, A.N.,	Ideation, entrepreneurship, and innovation. **Small Business Economics**		Why do scholars of entrepreneurship, innovation, and enterprise dynamics need to know about the sources of ideas that lead to new technology and innovation.	Conceptual

2021.	Pittaway, L.,	Entrepreneurship theory and ideation techniques. Advances in entrepreneurship, firm emergence and growth, **SSRN**		This chapter considers the role of entrepreneurship theory in the development of ideation techniques for entrepreneurship education. It begins by considering how metatheories impact theory construction in entrepreneurship research and discusses the role of ontology, epistemology, axiology, as well as the role of assumptions about human nature and social change.	Theoretical
2018	Kier, A.S. and McMullen, J.S.,.	Entrepreneurial imaginativeness in new venture ideation. **Academy of Management Journal**		Research suggests that new venture creation, including ideation, tends to involve multiple individuals, who are in the process of becoming a team for the first time. Given	Quantitative

| | | | | myriad possible combinations of individual imaginativeness in newly forming teams, we ask

whether team configurations might vary in composition and performance when seeking to

generate and develop new venture ideas | |
|---|---|---|---|---|---|

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