

UNIVERSITY OF GHANA

**BRICOLAGE: EXAMINING HOW ENTREPRENEURIAL FIRMS SCALE IN
RESOURCE-CONSTRAINED ENVIRONMENTS**

BY

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**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA,
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FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF A DOCTOR OF
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INTEGRI PROCEDAMUS

DECLARATION

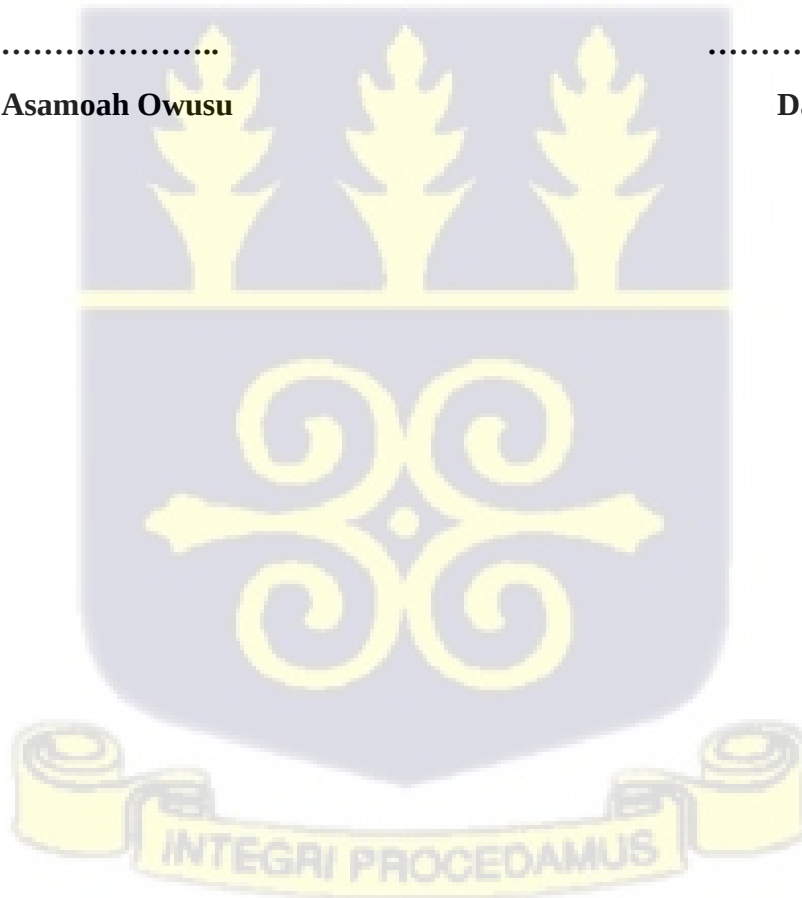
I certify that this thesis, which I submit for examination for the award of Doctor of Philosophy, is the result of my research and has not been presented in whole or in part for any academic award in this or any other university. All references used have been fully acknowledged. This thesis has been prepared according to the postgraduate study regulations at the University of Ghana.



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CERTIFICATION

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DEDICATION

I dedicate this thesis to my family, especially my wife Doris and children Peggy, Justus, and Calister. God bless you.



ACKNOWLEDGEMENT

I've believed in God and acknowledged His divine help in many endeavours, including this tough PhD journey. He made me strong when I was weak, and did not allow fear to overwhelm me to the point of inactivity. That reminds me of an African adage my late father, Mr. Nicholas Joseph Asamoah, told me. "He who is afraid of doing too much always does too little". Thanks also to my supervisors, other faculty members, family, and friends who have supported me in attaining one of my great achievements. I expect God's blessings upon them.



ABSTRACT

Entrepreneurs in resource-scarce contexts undertake novel and clever ways to assemble and deploy resources to grow and scale firms through bricolage. The ability of entrepreneurs to obtain needed resources through bricolage is a success-determining factor in such penurious environments. This is because firms in developing areas operate under extreme resource scarcity and find it difficult to scale compared to their counterparts in developed areas. Achieving their objectives often depends on the extent to which the entrepreneurs can “make do” and apply existing resources to reconcile resource needs for new purposes. Nevertheless, the scholarly works in the area of entrepreneurial bricolage in emerging market contexts like Ghana is still evolving. Given that, this research aims to examine and provide empirical evidence of how the bricolage theory is utilised to mobilise financial, material, and human resources to grow and scale entrepreneurial firms in Ghana. The research used an exploratory qualitative method with eight (8) case entrepreneurial firms and data was prepared for thematic analysis using MAXQDA software. Empirical findings reveal that the firms repurposed waste that is often sourced cheaply through family and friends to create new products, demonstrating that discarded resources can be valuable. The entrepreneurial team’s background and resourcefulness are also vital for overcoming shortages and scaling firms. Despite literature suggesting that bricolage leads to inferior outcomes, the study found exceptions, such as producing high-quality goods. Networking with external partners was critical for accessing resources, fostering innovation, and speeding up commercialisation. Moreover, coopetition, and training, were essential for scaling. The study found that selective bricolage, supported by education led to greater success in scaling, while parallel bricolage posed challenges. The study elaborated on its contributions and recommends among others that future research on the subject could employ a quantitative research design across different settings to generalise the findings.

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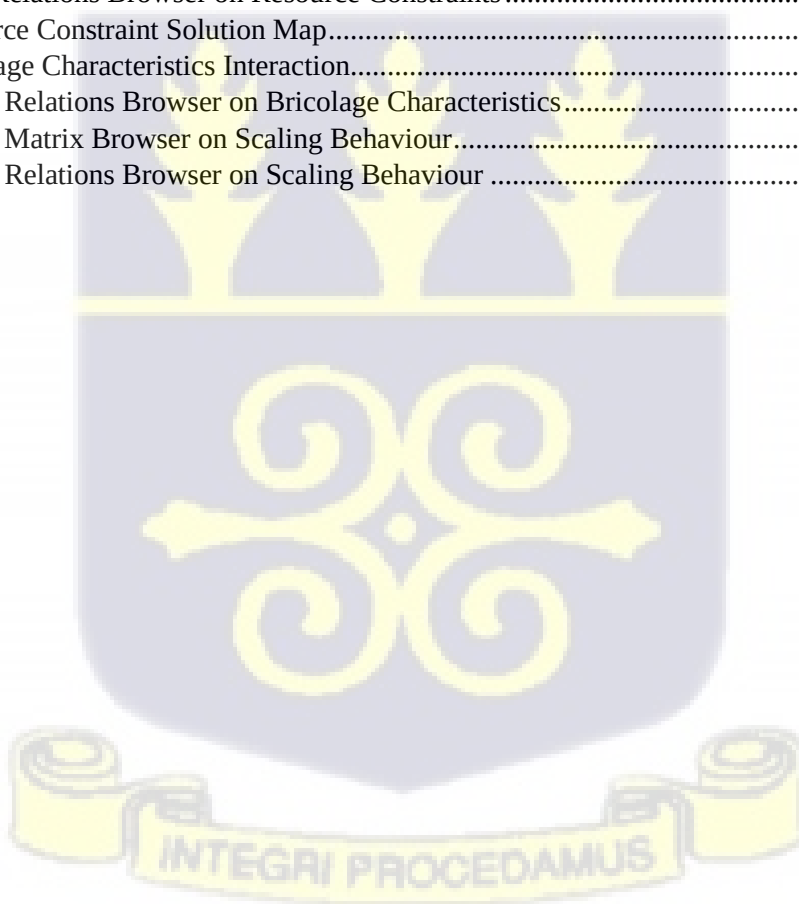
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LIST OF ABBREVIATIONS AND ACRONYMS

BOP – Bottom of the pyramid

CBWM – Community-Based Water Management

EC – European Commission

ECH – Ethics Committee for Humanities

GDP – Gross Domestic Product

GE – Grassroots entrepreneurs

GEA – Ghana Enterprises Agency

GEDC – Ghana Enterprises Development Commission

GhBA – Ghana beyond Aid

GEM – Global Entrepreneurship Monitor

GSS – Ghana Statistical Service

IMF – International Monetary Fund

NBSSI – National Board for Small Scale Industries

NGOs – Non-governmental organisations

OECD – Organisation for Economic Co-operation and Development

PPP – Public-Private Partnership

RCE – Resource-Constrained Environment

SDGs – Sustainable Development Goals

SMEs – Small and Medium Enterprises

UNDP – United Nations Development Programme

UNIDO – United Nations Industrial Development Organisation

USAID – United States Agency for International Development



CHAPTER ONE

INTRODUCTION

Chapter Overview

Chapter one sets the scene for the study. It describes the logic and behaviour that underpins the entrepreneurial process and showcases the importance of bricolage resource mobilisation in that process. It outlines the research background, the problem statement, gaps, and research objectives and questions. The chapter also elaborates on the significance of the study, the scope of the research and finally, the disposition with an overview of the contents of the various chapters of the thesis.

1.1 Research Background

The contribution of small and medium enterprises to GDP in Ghana is seventy (70) percent. They are also seen to reduce unemployment in Ghana, as ninety-two (92) percent of businesses are in the SME sector (Ussif and Salifu, 2020; Amoah and Amoah, 2018; Abor and Quartey, 2010). However, according to Gyimah, Appiah, and Lussier, (2020, p. 218), three (3) out of five (5) businesses fail within the first five years of incorporation in Ghana. The rate of business failure is therefore alarming. These businesses fail by ceasing operation, loosing corporate identity, or quitting within the first five years (Amankwah-Amoah et al., 2018). The SMEs fail due to difficult-to-follow business laws, bankruptcy, limited government support, limited access to credit from formal financial institutions, limited formal education, low access to new technologies, and limited market information. The alarming concern about SME failure in the region is not different from Ghana.

Entrepreneurial firms in such penurious environments undertake their entrepreneurial activities with a pattern of resource mobilisation behaviour known as bricolage (Glasbeek, 2024; Abukari, Wenyan, Pomegbe, Alhassan Alolo, and Epezagne Assamala, 2024; Busch and Bakema, 2021; Baker and Nelson, 2005). Such resource mobilisation behaviour is associated with improvisation (Mateus and Sarker, 2024), ‘do-it-yourself’ (da Silva, Zejnilovic, and Oliveira, 2023; Mulhuijzen, and de Jong, 2023; Scribner, 2003; Levi-Strauss, 1967), or ‘fiddling’ (Simba, Ojong, and Kuk, 2021), which is used to overcome extreme resource scarcity in resource-poor contexts. Overcoming resource mobilisation challenges through bricolage is, therefore, a success-determining factor in the entrepreneurial process (Crupi, Liu, & Liu, 2021; Musona, Sjögrén, Puumalainen, and Syrjä, 2020; Acheampong, Odoo, Anning-Dorson, and Anim, 2018; Nason and Wiklund, 2018; DeSantola and Gulati, 2017).

To invigorate minds, theories on resource mobilisation are classified into structured and enactment (Donbesuur, Hultman, Boso, and Oghazi, 2022; Goss and Sadler-Smith, 2018). They are also called discovery and creation perspectives (Chetty, Karami, and Martín, 2018; Sarasvathy, 2001; Alvarez and Barney, 2007; Fisher, 2012; Chandler et al., 2011). They are all under the behavioural theories of entrepreneurship that are used to take advantage of entrepreneurial opportunities, create, and develop new organisations, although in different contexts (Alvarez and Barney, 2007; Bird and Schjoedt, 2009). Structured theories of resource mobilisation, like the resource-based and knowledge-based theories, are rooted in classical rational schools. Their perspective suggests that entrepreneurs are rational economic beings. Such logic asserts that there is a pre-determined goal with the assumption of a predictable future. On the one hand, enactment theories, such as bootstrapping, effectuation, and bricolage, posit that entrepreneurs are less economically rational and obtain resources radically. They pursue a path defined by experimentation, affordable loss, and flexibility, leveraging available resources, namely, who they are, what they know, and whom

they know, to achieve entrepreneurial success (Dias, Sadao Iizuka, & Vilas Boas, 2020; Perry, Chandler, & Markova, 2012).

The core of entrepreneurship research is grounded in the causal reasoning framework of neoclassical economics (Perry et al., 2012). Several studies have therefore presented the structured or discovery perspective as popular than the enactment or creation perspective. However, there are concepts and theories tailored to specific contexts in entrepreneurship, but slow to reach universal acceptance in the entrepreneurship literature. Therefore, little consensus has been reached (Pfeffer, 1993). Such concepts and theories include bootstrapping, effectuation, and bricolage, with their conceptualisations not sufficiently understood, measured and tested. Bootstrapping financing refers to measures entrepreneurial ventures undertake to preserve liquidity (e.g., reducing expenses, collecting receivables, delaying payments, preselling) (Block, Fisch, and Hirschmann, 2021). While bootstrap financing is most effective for supporting the growth of early-stage ventures with limited resources, the foundational papers of effectuation (Sarasvathy, 2001; 2008; Racat, Ricard, and Mauer, 2024; Dutta and Packard, 2024; Kitching and Rouse, 2020) asserts that, under uncertainty and dynamic environments, goals are changed, shaped and constructed several times – sometimes by chance (Fisher, 2012). Thus, (1) the entrepreneur exerts control over the available set of means instead of establishing goals, (2) applies affordable loss, instead of expected returns when options are evaluated, (3) leveraging relationships, instead of competitive relationships with individuals and organisations, and (4) exploiting without avoiding contingencies. Effectuation, therefore, is to curtail uncertainty. Bricolage refers to the process of “muddling through” (Levi-Strauss, 1967; Baker & Nelson, 2005; Bojica et al., 2018; Sarkar, 2018), emphasising two core principles: ‘making do’ with available resources and creatively recombining

them for new purposes (Baker & Nelson, 2005). Bricolage is a complementary strategy to effectuation and bootstrapping (Mateus and Sarkar, 2024). Although the enactment theories of bricolage, effectuation, and bootstrapping, which focus on financial resources, are different, they share some common characteristics. For example, “making do” and resources at hand characteristics of the bricoleur are the same as the bird in hand principle of the effectual entrepreneur (Rod and Rod, 2020). Entrepreneurs using effectuation, bootstrapping, and bricolage consider the means at their disposal and refuse to be constrained by working flexibly with resources at hand (Servantie and Rispal, 2020). However, bricolage is chosen among the enactment theories in this study because, firstly, the process of “muddling through” and the element of “making do” combine the characteristics of effectuation and bootstrapping. Such elements of bricolage make it more capable of mobilising both tangible and intangible resources in a constrained environment. Secondly, according to Mateus and Sarkar (2024, p. 845), “...bricolage tends to be applied by non-expert actors and effectuation by experts”. Bricolage is a good choice because, in the context of developing economies, like Ghana, illiteracy is relatively high among SMEs.

There are three (3) behaviours to exhibit when entrepreneurs are faced with resource constraints (Baker and Nelson, 2005). First, they obtain resources from the external environment with the use of the structured theories. Second, entrepreneurs can change direction and avoid the challenges if they have ever failed in their resource-seeking efforts, and third, they can engage in bricolage, which is the focus of this study. It is therefore appropriate to meet the objectives with reasons. Bricolage is attested to thrive in resource-constrained or poorly developed environments (Janssen, Fayolle, and Wuillaume, 2018; Bacq, Ofstein, Kickul, and Gundry, 2015), where entrepreneurs

often make do by using resources at hand when confronted with new problems. Therefore, bricolage can serve as a valid mechanism for driving institutional change (Desa 2012). Nevertheless, the relationship between bricolage and performance is not demarcated. Bricolage can occasionally lead to “brilliant and unforeseen” outcomes (Crupi et al., 2021; Onwuegbuzie and Mafimisebi, 2021; Levi-Strauss, 1967) and is effective when applied judiciously, but potentially detrimental when taken to extremes (Baker and Nelson, 2005). Other scholars posit bricolage to be traditionally regarded as a way to provisionally get by, possibly constraining growth if adopted over time (Steffens, Baker, Davidsson, and Senyard, 2023). As a result, such resources are considered to be undervalued, discarded, disused, or unwanted resources at hand, for free or cheap (Cheung, Kwong, Manzoor, Rashid, Bhattarai and Kim, 2019; Desa and Basu, 2013; Baker and Nelson 2005) and therefore affects growth and performance negatively (Steffens et al., 2023).

Entrepreneurial bricolage is acclaimed as an important process of mobilising resources in early-stage firm establishment. The role of entrepreneurial behaviour in enabling entrepreneurial ventures to scale operations on constrained budgets with few resources (Halme, Lindeman, and Linna, 2012) has largely been under-researched (Christofi, Zahoor, Hadjielias, and Adomako, 2024; Bhardwaj, Bindra, Singh, and Sahay, 2023; DeSantola and Gulati, 2017). Having to “muddle through” may allow bricoleurs to discover entirely new opportunities unimaginable in situations of high resource availability (Baker and Nelson, 2005; Baker, Miner, and Easley, 2003; Hmieleski and Corbett, 2006). In so doing, the study is to answer a call to examine a variety of models “through the exploration of processes/resources as promising areas” (Dacin, Dacin, and Matear, 2010, p. 48) in different settings. This is because entrepreneurship varies from region to region,

and according to Bruton, Zahra, and Cai (2018), researchers should not assume that findings in other economies like the USA, with its dominating models and cultural ideological foundations, would be equally applicable in an emerging economy like Ghana. Busch and Barkema's (2021) inductive study focused on a single case that innovatively scaled through bricolage in different circumstances, and therefore, further research is needed in entrepreneurial ventures to innovate to scale up at low cost across a variety of resource-constrained contexts. This is consistent with Bacq, Janssen, and Kickul's (2011) suggestion to encourage adaptations of research for social impact and financial viability in entrepreneurship to other geographic areas like Ghana; hence, this research on bricolage is important.

1.2 Statement of the Problem

Resource mobilisation is crucial to firms' successful survival and growth (Penrose and Penrose, 2009). However, there is considerably less agreement on what resource characteristics are most advantageous in scaling firms. The traditional means of mobilising resources to scale enterprises is claimed to be through considerable financial resources with a legacy of resource strength (Reypens, Bacq, and Milanov, 2021; Nason and Wiklund, 2018; Penrose and Penrose, 2009; Barney, 1991). However, entrepreneurial firms in low-resource contexts tend to operate under extreme scarcity (DeSantola and Gulati, 2017). In such subsistence marketplaces, there is limited access to roads, markets, and services (Tindiwensi, Abaho, Munene, Muhwezi, and Nkote, 2020; Azmat, Ferdous, and Couchman, 2015). However, their ability to achieve objectives often hinges on how effectively they repurpose existing resources for new applications (Busch and Barkema, 2021). To bridge the gap between high resource demands and limited local availability,

entrepreneurs devise “novel and clever ways to assemble and deploy resources” (Williams et al., 2019, p. 2).

Bricolage has been extensively researched in contexts of individual-level entrepreneurship and early-stage firm establishment in small and young knowledge-intensive firms in multiple settings in developed areas (Baker and Nelson, 2005; Senyard, Baker, and Davidsson, 2009; Senyard et al., 2014). It has also been linked to mobilising resources successfully in the contexts of resource scarcity (Janssen, Fayolle, and Wuillaume, 2018), but few have explored the effect of bricolage on entrepreneurial ventures (Guo, Zhang, and Gao, 2018). Among the few, there are mixed feelings on how firms can be scaled into new Bottom of the Pyramid (BOP) markets on constrained budgets (Halme et al., 2012; Senyard et al., 2014; Lanzara, 1999; Ciborra, 1996). Scaling bricolage by entrepreneurial ventures classified as “incumbent firms” (An, Zhao, Cao, Zhang and Liu, 2018, p. 49) have largely been under-researched (DeSantola and Gulati, 2017; Bacq et al., 2015; Desa and Koch, 2014) and therefore, further studies are needed to understand how firms innovatively scale up at low cost in a variety of penurious contexts (Busch and Barkema, 2021).

1.3 Research Gaps

Through a preliminary literature review, the justification for the research topic and the approach to the study of bricolage in scaling entrepreneurial ventures in Ghana could be found in the issue/population (context), theoretical, methodological, evidence and empirical gaps that are to be filled. Highlights of such gaps, based on Miles (2017), could be found below.

Issue/context gap: The issue gap cannot be overemphasised. From the literature, entrepreneurs have challenges in securing resources such as finance to scale up in penurious environments (Busch and Barkema, 2021; Bojica et al., 2018; Bacq et al., 2015). A situation where, due to constraints partly emanating from the historic global financial crises and the recent negative impact of COVID-19, governments and the market cannot support the growth of entrepreneurial ventures. This phenomenon causes entrepreneurs to innovatively search for alternative means of obtaining the needed resources. As previously noted, bricolage, commonly defined as making do with available local resources, is widely regarded as a suitable approach for mobilizing resources to fill the gaps present in resource constrained environments (RCE) (Baker and Nelson 2005; Tasavori, Kwong, and Pruthi, 2018; Murray, Kotha, and Fisher, 2020). An environment characterised by institutional constraints or weak regulatory or political support (Di Domenico, Haugh, and Tracey, 2010; Adom, Abdul-Rahaman, and Duah-Agyemang, 2018; Stirzaker, Galloway, Muhonen, and Christopoulos, 2021) with different dimensions, being: (1) too few employees or with obsolete capabilities (internal resources), (2) lack of financial resources to purchase a product or service (customers) and (3) lack of partners (business environment) (Witell, Gebauer, Jaakkola, Hammedi, Patricio, and Perks, 2018). Both phenomena, “resource-constrained environment” and bricolage, present a significant opportunity to address durable poverty or environmental degradation that is branded as “wicked problems” (Dorado and Ventresca, 2013). Given that, this research contributes to the advancement of the Sustainable Development Goals (SDGs), which are interconnected, particularly Goals 1 (No Poverty), 2 (Zero Hunger), and 3 (Good Health and Well-being), among others.

Also, the context gap is about the underserved populations that are under-studied (Miles, 2017). Bricolage is a theory that is not well researched worldwide (Gupta, Chauhan, Paul, and Jaiswal,

2020; Zollo, Rialti, Ciappei, and Boccardi, 2018). While previous research has contextually explored the link between bricolage and other areas of entrepreneurship, little is known about these linkages for a developing country like Ghana. Evidence of bricolage application in crises times or disaster-prone environments are obvious in (1) war and conflict zones in an undisclosed setting of the globe (Cheung et al. 2019), (2) agility in response to COVID-19 cases in China – Asia (Crupi, Liu, & Liu, 2021) and (3) solutions to emergent social needs during disasters in Italy – Europe (Zollo et al. 2018). In India for example, Agarwal et al. (2020) explores the link between bricolage resource mobilization and Jugaad, “the Indian method” of solving problems in Indian healthcare. Sarkar (2018) in the same research setting of India, and Azmat et al. (2015) in Bangladesh and Nepal also address resource mobilisation problems of grassroots entrepreneurs in the BOP (subsistence marketplace) through bricolage. In the African context where Ghana is located, apart from the post-conflict settings and technology ventures in Uganda (Langevang and Lamatovu 2019; Reypens, Bacq and Milanov, 2021), little is known about bricolage in general and nothing on entrepreneurial ventures that are scaling.

Theoretical gap: A type of gap that deals with the slits in theory with the previous research is known as a theoretical gap (Miles, 2017). Theoretically, the RBT is what firms use to understand why and how capabilities are developed to attain competitive advantages and also adapt and capitalize on the ever-changing environment. However, it is inadequate to solve resource mobilization problems in a penurious environment (Sarkar, 2018). It asserts that resources are competitive when it is in a bundle with the characteristics of being quality, rare, and inimitable. In the literature, researchers postulate that entrepreneurs in constrained environments of developing economies face an environment in which quality resources are extremely scarce and consequently expensive (Collier, 2007; Zahra et al., 2009) or where there are weak or no institutional financing

mechanisms (Mair and Marti, 2009; Kistruck, Webb, Sutter and Ireland, 2011). An environment like this compels entrepreneurs to seek out and utilise solutions that incorporate various elements linked to effective business innovation (Alvord, Brown, and Letts 2004). Specifically, the theoretical perspectives regarding the nature of resources and their environments provide limited insight into how entrepreneurship can generate value from resources that would otherwise be deemed insignificant and support the firm's growth even in the face of resource limitations. In other words, traditional entrepreneurship, which uses "causal" models and focuses on planned, rational, and linear processes (Sarasvathy, 2001), has given grounds to more adaptive theories like bricolage (Fisher, 2012). Most entrepreneurs find it difficult to generate quality resources, and on the one hand, they can use underutilized or rejected resources with embedded value for economic development (Kabongo and Boiral, 2011). These reveal the weaknesses of the RBT, but are inadequately researched. Theoretically, the frugality-based advantage extends the resource-based view by emphasising how companies build an advantage from their resources. However, it differs in focus: the frugality-based advantage centers on the "impact of lacking external resources on a firm's advantage, while the resource-based view focuses on the availability of resources" (Asakawa, Cuervo-Cazurra, and Un, 2019: 10).

Methodological gap: To justify the generalizability of their findings, most of the studies on scaling through bricolage process (Bacq et al., 2015; Bojica et al., 2018) are undertaken in developed area contexts with quantitative research methods, although there have been several studies on bricolage through the entire entrepreneurship process (Servantie and Rispal, 2018; Preece, 2014), collaborative efforts to address challenges (Intindola and Ofstein, 2021), and in the BOP (Sarkar, 2018; Azmat et al., 2015) that adopted qualitative research methods. There is no substitute for being in the field and collecting first-hand data in a developing country context (Khavul Chavez

and Bruton, 2011), like Ghana. This is because there is little published theoretical or empirical research in Africa, and getting information is difficult compared to the developed areas. Conducting a study on scaling entrepreneurial ventures with the use of bricolage – a behavioural theory, in a nascent and embryonic resource mobilisation domain, justifies the use of inductive cross-sector multiple-case qualitative research design (Eisenhardt, 1989; Reypens et al., 2021). Such an approach is to aid rigorous discovery of processes involved in “theory creation” through qualitative multiple cases rather than “theory testing” (Rashid, Rashid, Warraich, Sabir, and Waseem, 2019) to offer a new line of research (Miles, 2017) that is useful to the context.

Evidence/Empirical gap: Evidence gap, according to Miles (2017, p.3), “...involves contradictions in the findings of the prior research”. Despite the claim that bricolage is the appropriate process of mobilising resources in RCE (Baker and Nelson 2005; Janssen et al., 2018), some researchers posit that bricolage, as a long-term strategy, is not beneficial (Bacq et al., 2015). These speculative inconsistencies in the literature, where the effects of bricolage can be both beneficial and harmful (Senyard et al. 2014; Baker and Nelson, 2005), lead to inconclusive results. There is an account where bricolage assisted Olivetti to adapt, but the firm’s effectiveness was constrained simultaneously (Ciborra 1996). Bacq et al. (2015), for instance, suggest that bricolage as a long-term strategy is not beneficial. This is because at certain points in firm growth, entrepreneurs should engage in resource mobilization processes such as optimization, rather than sticking to bricolage. On the one hand, Bojica et al. (2018) are of the view that bricolage leads to organizational growth. However, they assert that bricolage should be explored with bootstrapping or strategic alliance to evaluate joint impact on organisational development, considering the resource and autonomy scenarios proposed by the authors. Further research is needed to uncover conflicting evidence or additional factors that may clarify why bricolage is adopted and how it

influences growth outcomes. This is paramount because the application of bricolage to solve societal problems related to social impact measurement, for instance, can be varied due to the stage of the enterprise in the entrepreneurial process (Molecke and Pinkse, 2017).

Thus, the purpose of this research is to build on the work of Levi-Strauss (1967) and Baker & Nelson (2005), to explore how entrepreneurial ventures use the bricolage process to mobilise resources (financial, human, and material) to scale in a constrained environment affordably. Such a novel phenomenon will be explored through an inductive multiple case-study approach in Ghana.

1.4 Research Objectives

To attain the aim, the research sets out the objectives to:

1. Examine how entrepreneurial firms mobilise financial, material, and human resources through a bricolage process in penurious environments.
2. Analyse how resource-constraints enable the scale of entrepreneurial firms through the lens of bricolage.
3. Evaluate ways by which bricolage could be used to scale entrepreneurial firms affordably.

1.5 Research Questions

To meet the objectives, the questions to be studied in this research are:

1. What is the resource mobilisation behaviour of entrepreneurial firms in penurious environments?
2. How do resource constraints drive the scale of entrepreneurial firms through the bricolage resource mobilisation process?

3 How should bricolage be used to scale firms affordably?

1.6 Significance of the Study

Despite the rising interest of scholars in researching bricolage (Mateus and Sarker, 2024; Steffens et al., 2023; Sarkar, 2018; Zollo et al., 2018), a major question that remains unanswered but significant in this study is the ability of bricolage to scale ventures. Given that, this research offers the prospects to theoretically and empirically contribute to the entrepreneurship practice, academic literature, and policy as discussed below.

Contribution to Practice

This research has provided valuable insights for practitioners. The state of unemployment and the idea that people are in a whirlwind looking for ways to start and scale their businesses underpins this study's significance. The findings of this research will serve as input for policy initiatives aimed at generating employment and fostering sustainable economic development in Ghana. It unleashes appropriate ways by which entrepreneurs, throughout the process of entrepreneurship, can mobilize resources in an era where resources in the form of finance, human, and materials are scarce to establish projects to scale firms. Scaling entrepreneurial ventures through bricolage in the sectors of agribusiness, manufacturing, and energy leads to the production of affordable products and services that support economic development. Understanding bricolage resource mobilization processes may enhance the expectation of what managers can achieve when faced with resource-constrained challenges without external support (Kwong, Tasavori, and Cheung, 2017). Entrepreneurs, through this study, will take advantage of a long-term process of improvisation, as bricolage is seen as an incremental process for the production of goods and

services. In addition, the relevance of stakeholder collaboration and participation (Ko & Liu, 2024; Di Domenico et al., 2010), in the form of coopetition, network, and training for resource acquisition, has been highlighted in scaling bricolage in this study. Entrepreneurial ventures can identify stakeholders, including competitors who have the needed resources to either start or scale a venture, to collaborate with.

Contribution to theory

The significance of this research lies in its contribution to the limited academic literature on the subject and its choice of theoretical perspective. Little is known about how and under what conditions establishing and scaling work in RCE (Agarwal et al., 2020; Kwong, Cheung, Manzoor, and Rashid, 2019; Zollo et al., 2018). The study is therefore significant as it enriches the limited academic literature on the topic by encouraging dialogue and promoting further research on scaling through bricolage. Invariably, there is limited knowledge about how entrepreneurs emerge, strive to survive, and scale in RCE (Bacq et al., 2015). Entrepreneurship research through the theory of bricolage can be of help to RCE and therefore the need to gain more knowledge in the forms and their dynamics in different contexts (Bruton et al., 2018), like Ghana. According to Busch and Barkema (2021), the use of bricolage theory aids entrepreneurial ventures to develop low-cost, simple rules on resource mobilization that unlock key insights in rolling them out to different settings with contextualization and adaptations. This enables entrepreneurial ventures to use whatever is at hand to scale their ventures, a diversion from the RBT as discussed above. In this vein, the theory suggests a change in perspective that poor people in a penurious environment are not only conceptualized as “aid beneficiaries”, but also by taking advantage of their high social network to outwit resource scarcity. Social bricolage could be utilized to garner resources for the production of affordable products and services for the BOP market.

Contribution to Policy

The enormous significance of entrepreneurial ventures to the socio-economic development of Ghana compels policymakers to initiate appropriate measures to scale such ventures through bricolage processes. This study aids policymakers in understanding the transformative bricolage activities so they can support entrepreneurs in terms of networking events with government agencies and external stakeholders for economic development. Exploring the adoption of the bricolage resource mobilization process and its implications for policy regarding the growth of the firm aims to unfold more understanding of entrepreneurial behavior. In this case, a better policy can be passed and implemented for indigenous resources at hand to be used to innovate, instead of waiting to do nothing in a context where governments and the market have failed to solve social problems (Namatovu and Larson, 2021).

1.7 Scope of the Study

This study was undertaken in urban and peri-urban areas of Greater Accra, Eastern, and Ashanti Regions of Ghana. Specifically, the study took place at Ashaiman (Adjen Kojo), Adentan (Adenta and Amrahia), La Nkwantanang (Oyarifa and Kweiman), and Ga Central (Anyaa – Sowutuom) municipalities of Greater Accra. It also includes Akuapem North (Asuoyaa) and Ejisu-Juaben (Ejisu) municipalities of the Eastern and Ashanti Regions of Ghana, respectively.

Greater Accra is a global city in West Africa, roughly similar in global network to Columbus, Ohio, in the United States and Lausanne in Switzerland (Grant, 2021). Conducting research in Greater Accra, the capital region of Ghana, offers several compelling advantages across various domains. It is one of the fastest-growing urban areas in Africa. As the economic center of Ghana,

it hosts numerous industries, including energy, agribusiness, and manufacturing, hence the generation of waste that can be turned into other goods and services through the bricolage resource mobilization process. It is also a region where informal entrepreneurship thrives and bricolage is integral to daily business operations.

The locations, Asuoyaa in the Eastern and Ejisu-Juaben in the Ashanti regions, for this study are agrarian communities, where most residents are engaged in subsistence farming (Ghana Statistical Service, 2019). Land in these areas is overseen by chiefs and family heads. They are responsible for making land-use decisions within these communities (Ghana Statistical Service, 2021). In Ejisu-Juaben, for instance, the Population and Housing Census of 2020 indicates that approximately 62.5 percent of the working population is employed in agriculture, while commerce and services account for about 31.7 percent. The remaining 6.8 percent of the population is engaged in industrial activities.

Asuoyaa at the Akwapem North Municipal area is located in the south-eastern part of the Eastern Region. The area shares its boundaries to the northeast with Okere and Yilo Krobo, to the north with New Juaben Municipal, to the southeast with Dangbe West, to the southwest with Akwapem South District, and the west with Suhum Municipal. Three major industries can be identified in the municipality. In order of importance, they are: agriculture, forestry, and fishing (37.4%); wholesale and retail trade, along with the repair of motor vehicles and motorcycles (17.7%); and manufacturing (12.0%). Cassava has the potential to be produced on a large scale, from which starch can be extracted, with other by-products serving as raw materials for the brewery industry in Ghana. Gari processing is the most prominent agro-processing activity in the municipality.

The study also focuses on scaling entrepreneurial ventures through bricolage behavior in those three locations of Ghana. It covers how entrepreneurial firms in such areas creatively adapt, modify, and repurpose available resources in response to scarcity in such penurious environments. In other words, it refers to the use of everyday materials, techniques, and knowledge to address pressing challenges in their ventures.

The sub-domain of entrepreneurship from which cases were selected was entrepreneurial firms (Carland, Hoy, Boulton, and Carland, 1984; Battilana and Lee, 2014). It is in an environment where entrepreneurial firms find it difficult to generate quality resources, and on the one hand, can make use of underutilized or rejected resources to address societal problems (Bacq et al. 2015; Busch and Barkema, 2021). The focus of the research on entrepreneurial firms is of importance because in the low-income context, SMEs, compared to large and mature ones, wish to grow, but few can cross the initial start-up stage. This is because there are unique challenges, including uncertainty of resources that are associated with scaling such ventures (DeSantola and Gulati, 2018). The context, therefore, compels the delineation of the scope of the research, as a result, the study was limited to scaling entrepreneurial ventures in RCE in Ghana through the theory of bricolage. Ghana is situated in West Africa. Africa as a context presents a mesh of uncertainty and poverty, and therefore, would benefit from new theoretical perspectives and contributions (Devine and Kiggundu, 2016) in garnering resources through this research. As bricolage is characterised by making do with “whatever is at hand” (Levi-Strauss, 1967, p. 17; Di Domenica et al., 2010), the primary choice of sample in this study is the indigenous entrepreneurial ventures in Ghana. This is appropriate because such ventures support economic development by providing affordable products and services through the reduction of transaction costs and information asymmetry with local resources. However, they have difficulties raising the right financial resources to afford the

innovative technologies needed to scale their ventures in such a context, hence the use of the bricolage theory.

A qualitative case-study approach was proper (Eisenhardt & Graebner, 2007; Yin, 2003) because it offered a means to contextualise the key issues both conceptually and empirically. Thus, the case could not be considered without the scope. The cases were selected from the agribusiness, manufacturing, and energy sectors. According to Zahra et al. (2009), such a typology of entrepreneurs – Indigenous entrepreneurs – are termed as Bricoleurs who act on locally discovered opportunities with locally available resources without requiring either external or specialized resources to produce affordable goods and services. As part of the case study protocols, this serves as an appropriate boundary that ensures the study remains reasonably in scope (Yin, 2003; Stake, 1995). With this qualitative study, the findings are specific to the areas where the research was conducted, and the results cannot be directly applied to all regions in Ghana.

1.8 Chapter Disposition

This part of the study presents an overview of the contents of the various chapters under the thesis. As said earlier, chapter one is classified as the introductory part of the entire thesis. The rest are structured as follows: Chapter two highlights the research context. This chapter is equally important in a study related to scaling entrepreneurial ventures through bricolage in a penurious context with a qualitative methodology in Ghana. The chapter explains why the country Ghana is an interesting setting for the study. It also discusses why qualitative research methodology is relevant and therefore consistent to the cultural ideological foundations of the study setting (Bruton et al., 2018), specifically, the geographic context of resource constraints (Sarker, 2018) in Ghana.

As earlier indicated, there is no alternative to fieldwork and the collection of first-hand data, particularly within a developing country context (Khavul et al., 2011) such as Ghana. This is because getting information is difficult, as there is little published research in the field of scaling entrepreneurial ventures through bricolage compared to the developed areas. Chapter three covers a review of the relevant literature for the study, including the underpinning theory. Subsequently, the research methodology adopted is discussed in chapter four. This covers the research paradigm, research design, sources of data, sampling, instrumentation, data gathering procedure, mode and instruments for data analyses, ethical considerations, and a summary of the chapter. In-case and cross-case data analyses and findings are found in chapters five and six, respectively. Chapter seven presents the discussions, and finally, chapter eight comprises of summary, conclusions, and recommendations.

1.9 Chapter Summary

Chapter one forms the overall introduction of the thesis. It, therefore, showcases the overview of the study by highlighting bricolage as a fitted underpinning theory in mobilizing resources to scale entrepreneurial ventures in RCE, although there are inconsistencies in the literature. Research gaps that warrant the study are identified in the background and the problem statement. It is argued that, in a resource-constrained environment, bricolage can be used to scale entrepreneurial ventures. The chapter also outlines the research objectives and questions, highlights the significance and scope of the study, and provides an overview of the subsequent chapters of the thesis.

CHAPTER TWO

CONTEXT OF THE STUDY

2.0 Chapter Overview

Chapter two is on the context of how entrepreneurial firms scale at an affordable cost through bricolage. The chapter encompasses the relevance of context to the study, the context under which bricolage is used, entrepreneurship in Africa, contextual diversities of entrepreneurship in sub-Saharan Africa, the resource-scarce context, the entrepreneurial context in diversities in Sub-Saharan Africa, the economy of Ghana and its challenges, SMEs and entrepreneurship in Ghana, the challenges facing entrepreneurship in Ghana, and plans for a better entrepreneurial ecosystem.

2.1 Relevance of Context in Entrepreneurship

Contexts are important for resource mobilization behaviours because there are opportunities and restrictions to the actions of entrepreneurs in the entrepreneurial process (Afreh, Rodgers, Vershinina, and Williams, 2019; Müller and Korsgaard, 2018; Zahra, Wright, and Abdelgawad, 2014; Welter and Xheneti, 2013). Applying an indigenously developed theory to understand entrepreneurship in a penurious context is paramount because research suggests that entrepreneurship activities are culturally and socially embedded (Bruton et al., 2018). Scholars omit vital issues of entrepreneurship as a result of their over-reliance on Western-based models, theoretical values, and foundations of entrepreneurship. For example, they hail phenomena whose genesis was from the Western philosophical and epistemological traditions like the US. Contextualization, however, places phenomena, research questions, theories, and findings in their natural setting to nurture ingenious and original analysis (Zahra, Wright, and Abdelgawad, 2014).

In the entrepreneurship literature, context can facilitate and constrain entrepreneurial actions and processes (Zahra et al., 2014; Xu and Meyer, 2013). Context is multi-faceted and according to entrepreneurship researchers (Welter and Gardner, 2016), it encompasses the socio-economic, institutional, spatial, and temporal-historical environments that influence the behavior of entrepreneurs. It therefore concerns the micro-foundations of entrepreneurial activities (Teece, 2007) that provide the raw material from which entrepreneurial actions erupt (Zahra et al, 2014). The decisions of individual entrepreneurs are also influenced by the context in which economic actions are operated (Granovetter, 1985). In other words, institutional setting (values, norms, and practices) shapes several activities in entrepreneurship (Bruton, Ahlstrom, and Li, 2010), and therefore, idiosyncratic qualities of research contexts cannot be over-emphasised. The research contexts, from the review, are environments where entrepreneurial firms find it difficult to generate quality resources, and on the one hand can make use of underutilized or rejected resources for social and financial value creation to address societal problems that are pressing (Bacq et al., 2015; Busch and Barkema, 2021).

2.2 The Context Under Which Bricolage is Used

Resources are needed for entrepreneurship to produce goods and services. However, entrepreneurs in emerging markets are mostly faced with resource scarcity, compared to their counterparts in developed regions. Bricolage, which according to Lévi-Strauss's (1966), is defined as “making the most of available resources” (p. 17) – remains foundational in this research. Building on Lévi-Strauss's concept, Baker and Nelson's (2005) seminal work applied bricolage to entrepreneurship, characterising it as “making do by applying combinations of the resources at hand to new problems and opportunities” (p. 333). Rather than focusing on resource acquisition, bricolage emphasises

resourcefulness. It is therefore used in resource-constrained contexts when entrepreneurs are faced with a penurious environment, lack of personal resources, or the inability to borrow (Lanivich, Adomako, Zahoor, Tarba, and Stockdall, 2025; Davidsson et al., 2017). Therefore, entrepreneurs who adopt the bricolage approach reframe problems based on available resources, shifting from a ‘what I need’ to a ‘what I have’ perspective (Mateus & Sarkar, 2024, p. 835). Lanivich et al. (2025) narrated how entrepreneurs find ways to rise above their constraints, despite the prevalence of resource limitations (Reypens et al., 2021). With resources acting as a primary catalyst for entrepreneurial venture startups, ongoing concerns, and firm performance (Zahra, 2021), it is important to understand how entrepreneurs in scarce resource environments utilize bricolage to mobilise resources to perform. Since the emergence of entrepreneurial bricolage theory (Baker & Nelson, 2005), scholars have examined and validated both the positive and negative impacts of its behavior in entrepreneurial settings (Steffens, Baker, and Davidsson, 2023). The contributions of bricolage could be found in Chapter 3 of this thesis.

2.3 Entrepreneurship in Africa

Africa, where the research took place, is characterised by difficulty in accessing healthcare, water, energy, and financial services for basic public and consumer goods (Lashitew et al., 2020; Jones et al., 2018). Such a situation is a result of resource constraints (Sottini et al., 2022; Ciambotti and Pedrini, 2021; Shepherd et al., 2020; Holt and Littlewood, 2017) facing entrepreneurial firms operating in such environments to develop ostensible products and services. Obtaining funding for entrepreneurship for instance is challenging. Amankwah-Amoah, Nyuur, Hinson, Kosiba, Al-Tabbaa, & Cunningham (2023, p. 389) assert that African entrepreneurs in the whole 54 countries attracted \$1.1bn as start-up funding in 2021 (Jackson, 2021) as compared with China and the

United States that received \$31bn and \$69.1bn Dollars respectively back in 2016. In Africa, entrepreneurial firms are affected by a lack of resources and therefore, the context offers the researcher the best setting to explore how entrepreneurial firms scale up in a penurious environment (Reypens et al., 2021). Network (Baker et al., 2003) and collective (Duymedjian and Rüling, 2010) bricolage, for instance, thrives best in contexts that usually draw resources at the community level, like Africa (Sottini, Ciambotti & Littlewood, 2022; Shepherd, Parida, & Wincent, 2021).

Some scholars have predicted further slow growth and poor economies in the African context. For example, the negative consequences of the COVID-19 pandemic, coupled with less resource availability in Africa, have compelled some African governments to extensively borrow from external sources, including the International Monetary Fund (IMF). Given that, Namatovu and Larson (2021) posit that the performance and competitiveness of economies, firms, and other economic actors in Africa are curtailed. Their paper narrated an estimation of a thirty to thirty-five (30-35) million reduction in job wages and between nine (9) and eighteen (18) million job losses or redundancies due to the COVID-19 pandemic (Jayaram et al., 2020). The context, therefore, suits the goal of the study.

2.4 Contextual Diversities of Entrepreneurship in Sub-Saharan Africa

Social, economic, spatial, and temporal-historical contexts, molds the content and outcomes of entrepreneurial activities (Afreh *et al.*, 2019; Müller and Korsgaard 2018) in Sub-Saharan Africa.

Details of such contexts could be found below:

Social context: Social context denotes the nature, depth, and extent of relationships that entrepreneurs depend on to undertake their ventures, which are shaped by a diversity of elements and social actors (Uzzi, 1997). It comprises relationships that provide opportunities and resources needed by entrepreneurs, which may not be easily accessible to other actors in the social networks (Dubini and Aldrich, 1991). Social context is beyond a single container for the activities of entrepreneurship. Actors interact in several social contexts over time, affecting situations, choices and experiences surrounding individuals and groups (Wang, 2018). Societies are structured by multiplicities of hierarchies such as race/ethnicity, gender, and social class that operate simultaneously in different degrees and periods, enabling and constraining behaviour via unequal distribution of power, influencing operand and operant resources and their mobilization (Jayawarna et al., 2014). Such hierarchies are geographically different and shape social contexts for entrepreneurial efforts (Martinez Dy et al., 2017).

Economic context: The economic context is the economic environment that influences the processes and actions of entrepreneurs (Schnell and Sofer, 2002). The economic context in Africa is poverty, hunger, income inequality, and unemployment that sabotage the activities of entrepreneurs (Yankson and Owusu, 2016). In such a context, necessity entrepreneurship is more (Dencker, Bacq, Gruber and Haas, 2021; Adu-Gyamfi, Kuada and Asongu, 2023). Given the challenges, informal entrepreneurship is numerous as it requires relatively less capital to run (Eijdenberg and Borner, 2017). As barriers to entry are low, and therefore about 80 percent of businesses are found under SMEs in Ghana, competition in informal entrepreneurship is great.

Institutional context: Institutions is defined as rules of the game, or ‘the humanely devised constraints that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules

(constitutions, laws, property rights)' (North, 1991, p. 97). Institutions are classified into formal and informal (Adom and Williams, 2012). The informal sector primarily consists of local SMEs that are formed without adhering to the regulations governing businesses, particularly those about business registration, job security, and minimum wage requirements (Amoah and Amoah, 2018). The formal sector is accountable for activities involving the trade of products for export, the provision of public services, the exploration of natural resources, and contributions to social development (Okeniyi, Samuel, Okecha, and Igirigi, 2020). In contrast, the informal sector encompasses businesses related to handicrafts, local boat crafting, and blacksmithing and serve as the engine for economic development through employment generation (Turkson, Amissah, and Gyeke-Dako, 2022). Formal institutions could also be regulations and policies that formally facilitate entrepreneurial activities, while informal institutions are the shared values and societal norms that regulate the collective understanding of individuals and groups on how social and economic activities should be undertaken (Williams, 2017). Institutional context mold's ability to form, grow, and sustain entrepreneurial activities (Williams, 2017). While formal and informal institutions interact to affect entrepreneurial actions (Ledeneva and Efendic, 2021), the former is weak and inefficient and affects entrepreneurship negatively (Zoogah et al., 2015) in Sub-Saharan Africa. In such a context, there are low 'market-supporting and contract enforcement institutions to efficiently facilitate exchange between firms' (Pinkham and Peng, 2017, p. 1). Entrepreneurs mostly depend on informal institutions to garner resources. Informal institutions are effective in delivering what formal institutions cannot (Webb et al., 2020). This is so because of the presence of "trusted people and connections" that engage in problem-solving, perform economic functions, and exert informal pressure on its members (Ledeneva and Efendic, 2021). Ghana, a society that operates under particularism based on Trompenaars and Hampden-Turner's (1998) cultural dimensions; the mode of resource allocation is through informal networks. This is because in the

Ghanaian society, relationships (and the pressure associated with them) mean more than rules. As a result, there is active bonding among people, exhibiting a strong, cohesive in-group relation as an indication of collectivism in Ghana (Asitik, 2015). They differ from societies of ethical universalism, where equal treatment applies to everyone regardless of the group to which one belongs (Ledeneva and Efendic 2021).

Advanced economies are predominantly distinguished by their robust institutions, which proficiently facilitate interactions between buyers and sellers of goods, services, and capital. This aids in the reduction of transaction costs and the mitigation of potential conflicts of interest arising from information disparities between transacting parties (Gao, Zuzul, Jones and Khanna, 2017). Peprah et al., (2022) cited an example where in the developed economies, the legal system and consumer advocacy groups play a vital role in ensuring the enforcement of contracts and penalizing defaulters. Producers of subpar products face severe consequences as consumers have the right to return products and recover their expenses. Credit card issuers facilitate transactions by offering credit verification, financing, and cash collection services, while insurance agencies bridge the gap between sellers and buyers, ensuring the safe, timely, and guaranteed movement of products. The distribution system in these economies relies on a dependable network of physical infrastructure. In contrast, developing countries such as Ghana, are often characterized by the absence or insufficiency of such institutional support (Doh et al., 2017; Mair et al., 2012). According to Khanna and Palepu (2010), when market-supporting institutions are lacking or underdeveloped, institutional voids are prevalent.

Spatial context: The spatial context is the changes in social, economic and institutional contexts across national, regional and local locations that impacts entrepreneurial decisions (Welter, 2011).

According to Müller and Korsgaard (2018), it includes different resources in terrestrial locations like emotions and shared meanings attached to places. It is true that some regions offer more entrepreneurial opportunities than others (Stuart and Sorenson, 2003). “Spatial context impact entrepreneurship through proximity” (Müller and Korsgaard, 2018, p. 225). For instance, “raw materials if ‘free’ or at a discounted price ... may offer the very poor opportunities for income generation” (Holt and Littlewood, 2016, p. 253).

Spatial context also involves tangible geographies of location and socio-cognitive aspects of the location in terms of meanings, communities, and attachments (Kibler, Fink, Lang, and Muñoz, 2015). For entrepreneurship, spatial context could be the naturally and/or socially defined (geographically) location with a specific socio-material makeup (Müller and Korsgaard, 2018).

2.5 The Economy of Ghana

Ghana is an interesting setting that supports a mixed economy (Robson, Haugh, and Obeng, 2009) categorised into the primary, secondary, and tertiary sectors.

Primary sector: According to Aduhene and Osei-Asibey (2021), the primary sector comprises the agricultural and related sectors like forestry, fishing, and mining. Until recent and consistent with the 70% of the world’s poor who live in rural areas (Poole, 2017, p. 4), smallholder agriculture was a principal economic occupation and a main source of income and employment with a small holder household accounting for 60% of agriculture (Poole, 2017, p. 4). It also employs about 60% of the population of Ghana (Ghana Statistical Service, 2020). The sector has been a main source of livelihood for most poor and vulnerable. Such people with a low level of education and skills find it relatively easy to be employed without formal and bureaucratic processes in the informal sector (Aduhene and Osei-Asibey, 2021). This population at the BOP has been identified by

researchers and business organisations as a promising market for selling a variety of goods and services (Bruton et al., 2013). However, there has been a dramatic shift in labour from agriculture to service. For example, the World Bank Poverty Assessment Report on Ghana shows how there has been a decline in the share of labour in the agricultural sector from 65 to 40% while that of the service sector increased from 24% points to 47% points between 1991 and 2016 (Dang, Shimmei, Stewart, Fatima, Pavelesku, Abanokova, and Opoku, (2020, p. 13). Nevertheless, in view of the discovery of 1.5 billion barrels of oil in 2007, the industry replaced services as the greatest contributor to growth. In recent past, the share of off-farm self-employment as a share of total employment increased to 36% from 26%, and in the same period, private wage employment almost tripled to 16% from 6%, with the share of public wage work falling from 9% to 6%.

Secondary sector: Industries that manufacture and produce goods are under the secondary sector. Since the latter part of 2019, the manufacturing sector of Ghana has been on the rise. As a result, in the first quarter of 2020, the sector grew from GHS458.69 million to GHS5112.15 million (Aduhene and Osei-Assibey, 2021).

Tertiary sector: The sector includes service businesses like those in hospitality (travel, tourism, hotels, and restaurants, etc.), IT, banking, real estate, etc. Comparing the healthcare system of Ghana to that of the developed countries, the fragility and vulnerability of the former are high. Ghana's healthcare industry has suffered due to a lack of funding and a significant burden on delivery systems brought on by the COVID-19 pandemic. The hospitality sector is a significant contributor to Ghana's GDP. Hospitality produces massive employment for several groups of people, such as cooks, musicians, tour guides, craftsmen, and artisans.

2.5.1 Economic Growth

In terms of economic growth, the informal sector is encouraging to the extent that there has been the creation of 1.5 million of new jobs have been created in the last decade in the off-farm self-employment sector and urban areas (Honorati and Johansson de Silva, 2016). Entrepreneurship has, therefore, been a key part of the structure of the economy (Robson et al., 2009) and a possible means of alleviating poverty (Sutter, Bruton, and Chen, 2019). Given that, the economy of Ghana has been growing in the last three decades. The socioeconomic environment, for instance, has been stable due to policies and reforms targeting the development of the private sector (Owusu et al., 2016; Yankson and Owusu, 2016). On the one hand, there are regional differences between the penurious northern and affluent southern parts (Ghana Statistical Service, 2014), causing migration of individuals from the Northern regions to the Southern parts of the nation for enterprise activities mainly in the informal economy (Cooke, Hague, and McKay, 2016).

Since 2005, Ghana has averagely attained continuous growth of over 7% per year (Cooke et al., 2016). The per capita growth of the nation has been relatively high, partially due to the discovery of offshore oil reserves and the attainment of middle-income country status in the year 2010. Given these positive issues, amongst others, Ghana was the first country to reduce poverty by half in Sub-Saharan Africa under the Millennium Development Goals. The share of the population living in poverty then fell from 52% in 1991 to 24% in 2012 (Oppong, Aykut, and Smith, 2014) and from 56.5% to 24.2% between 1992 and 2013 (Cooke et al., 2016). It is, therefore, proof that the economy has been growing in the last three decades. The socioeconomic environment, for instance, has been stable due to policies and reforms targeting the development of the private sector (Owusu et al., 2016; Yankson and Owusu, 2016). The economic boom was due to the sharp

increase in the export of gold and cocoa and the production of commercial oil and natural gas in 2011 (Dadzie, Fumey, & Namara, 2020). However, Ghana is facing critical challenges in achieving the Sustainable Development Goals (SDGs) target of tackling the root cause of poverty and achieving significant improvement in the lives of people living in deep poverty (Republic of Ghana Report, 2019).

2.5.2 Economic Challenges

Regardless of the recorded growth, inequality and poverty have been prevalent and increasing. Poverty declined in the four (4) wealthiest regions of Ghana (Greater Accra, Ashanti, Central and Eastern regions) between 2012 and 2016, however, there was an increase in the six (6) poor regions (Upper West, Upper East, North East, Savanna, Oti and Volta regions) (Dang et al., 2020). In general, there has not been a reduction of extreme poverty since the 1990s, and impressive progress in cutting extreme poverty was achieved even since 2006 (cut from 16.5% to 8.4%). This means that relatively more progress has been made for the extremely poor in recent years than for those living close to the poverty line (Cooke, 2016, p.1). Given that, the nation is characterized by serious social issues, which can become opportunities for business creation (Julian and Ofori Dankwa, 2013). This is because a lack of resources and poor governance are likely to present particular challenges for entrepreneurial ventures (Rivera-Santos et al., 2015) that want to scale up in Ghana. However, it is rarely studied in the entrepreneurship literature, leading to calls for more empirical research (Adom et al., 2018).

A number of studies have shown that entrepreneurs in low-income contexts like Ghana, have limited access to resources and therefore have lower survival and growth rates when compared

with their larger businesses in the developed areas (DeSantola and Gulati, 2018; Fisher, Kotha and Lahiri, 2016; Robson, Haugh and Obeng, 2009). This is partly because most entrepreneurial ventures including those in this research setting, have long relied on government donations and philanthropy for scaling their ventures. However, due to global financial crises, coupled with the negative impact of COVID-19, support from philanthropic and government sources are declining. There is also increased expectations by the government of Ghana, charitable foundations, and others, for entrepreneurial ventures to become more enterprising and financially sustainable (Di Domenico, Tracey, and Haugh, 2009). There are expectations that the economic and welfare impacts of COVID-19 could be substantial and negatively affect income/employment, prices of goods and services, long-term human capital, and remittances. The 7% per year rapid growth of Ghana from 2017 to 2019, for example, was curtailed by the pandemic (World Bank, 2021). In addition, non-oil growth was significantly low from 5.3 to 3.7%, depicting low growth in agriculture and service, being the significant contributors to GDP in the nation. The World Bank reported macroeconomic imbalances. At the end of June 2022, public debt rose to 78.3% of the GDP, with payments growing to 54.4% of revenues in the first half of the year. Inflation moved from 12.6% in December 2021 to 31.7% in July 2022 (an 18-year high). Many firms struggle to survive to the extent of some closing down and laying workers off (Cooke et al., 2016). A survey conducted by Ghana Statistical Services (GSS) with the United Nations Development Programme (UNDP) reports 31 out of 66 firms closing down in Greater Accra due to COVID-19. A report from the Trade Union Congress reveals that small traders, daily workers, and wage laborers (about 75% out of 42,000 people) lost jobs in 2020. In addition, a significant number of salaried workers and over 400,000 business men and women lost their jobs (Aduhene and Osei-Asibey, 2021). Some of the reasons were that 70% of the entrepreneurs could not attain raw materials for

production and about 25% of entrepreneurs realized a 40 to 60% decline in revenue (Dang et al., 2020).

The war between Ukraine and Russia and the depreciation of the Ghana Cedi, which lost 24% against the US Dollar in 2022, aggravated the economic challenges because 40% of fertilizer import to Ghana came from Russia by then. The disruption of food availability, in the form of reduced food imports, also exacerbate food insecurity. There has been increase in food prices by 14.4% and as food prices rise by 10%, the monthly consumption of a person falls by GHS186.00 per a year, thereby increasing poverty by 2.1% points, leading to additional 594 poor people. These brought a heavy stain on household budget, especially for the poor who assign more than half of their budget to food. On the one hand, LEAP, which has been an effective social protection instrument for the extreme poor, does not cover the whole nation so cannot address poverty out of high food prices adequately. Further depreciation of Ghana cedi, growing interest rate and low access to financing are threats to entrepreneurship in Ghana.

In addition, the Government of Ghana recently announced that “Ghana is beyond aid”, and this has turned into a mantra: ‘Ghana beyond Aid’ (GhBA). The GhBA has been a national and non-partisan call to harness the local resources in Ghana to deploy them effectively and efficiently for rapid economic and social transformation (Government of Ghana, 2019). This is to encourage and assist entrepreneurial ventures in Ghana to scale up with their local resources at hand without waiting and looking for help from the external. Given these, the study site is chosen for both phenomena: “resource-constrained environment” and bricolage, representing a significant

opportunity for scaling up entrepreneurial ventures to address durable poverty, or environmental degradation that is branded as “wicked problems” (Dorado and Ventresca, 2013).

2.5.3 SMEs and Entrepreneurship in Ghana

The importance of SMEs to the growth of the Ghanaian economy cannot be overemphasised as they are considered key contributors to economic development (Kwarteng, Yao, Aboagye, & Boatemaa, 2016; Abor and Quartey, 2010). Abor and Quartey (2010) narrated different definitions of SMEs, including that of the Bolton Committee, the European Union (EC), and the United Nations Industrial Development Organisation (UNIDO).

In 1971, the Bolton Committee first developed a statistical and economic definition of a small business. According to the economic framework, a company is deemed tiny if it meets the three requirements listed below:

- It holds a modest market share;
- It is overseen in a personalised manner by owners or part-owners, as opposed to a formalised management structure; and
- It operates independently, without being a component of a larger enterprise.

Within the statistical definition, the Committee set forth the subsequent criteria:

- The magnitude of the small business sector and its role in GDP, employment, exports, and related aspects;
- The extent to which the economic impact of the small business sector has changed over time; and

- Employing the statistical definition for cross-country assessments of the economic input of small businesses.

The Bolton Committee used different criteria for small businesses in different industries. For example, the classification standards in mining, building, and manufacturing were based on the number of employees; companies with 200 or fewer workers were classified as small. On the other hand, companies in the retail, services, wholesale, and related industries were classified as small firms based on their financial turnover, which had to be between 50,000 and 200,000 British pounds. For example, if a road transport company has five or fewer vehicles, it is considered a small business. The Bolton definitions have drawn criticism, with the main focus being on alleged discrepancies between defining qualities based on management techniques and those based on personnel count.

Also, the European Commission (EC) primarily established the definition of SMEs based on the number of employees, and it categorizes firms as follows:

- Micro enterprises: Firms with 0 to 9 employees.
- Small enterprises: 10 to 99 employees; and
- Medium enterprises: 100 to 499 employees.

By making a distinction between micro, small, and medium-sized businesses, the EC definition acknowledged the variability within the SME sector.^c Nonetheless, this definition is overly encompassing and may not be suitable for application in several countries.

Moreover, UNIDO provides definitions for SMEs based on the number of employees, with distinct classifications for industrialized and developing countries. In industrialized countries, the definitions are as follows:

- Small firms: Employing 99 or fewer workers;
- Medium firms: Employing 100 – 499 workers; and
- Large firms: Employing 500 or more workers.

For developing countries, the classifications are as follows:

- Micro firms: Offering employment to fewer than 5 workers.
- Small firms: Offering employment to 5 – 19 workers;
- Medium firms: Offering employment to 20 – 99 workers; and
- Large firms: Having 100 or more workers.

From the above definitions, it is evident that there is no universal consensus on what constitutes an SME.

Oppong, Owiredu and Churchill (2014) asserts that in the Ghanaian context, the National Board for Small Scale Industries (NBSSI) that is currently known as Gana Enterprises Agency (GEA) uses the fixed asset base and size of employees as a criterion to define SMEs as businesses having a turnover between US\$200,000 and US\$5 Million with 29 or fewer employees (NBSSI Report, 2011). It defines a small-scale enterprise as a business with a workforce of no more than 9 employees, and its plant and machinery (excluding land, buildings, and vehicles) not exceeding 10 million Ghanaian cedis. In contrast, the Ghana Enterprise Development Commission (GEDC)

employs a 10 million Ghanaian cedis upper limit for the definition of plant and machinery. It is worth noting that assessing the value of fixed assets presents a challenge. Additionally, the ongoing depreciation of the local currency compared to major trading currencies frequently renders these definitions obsolete (Kayanula and Quartey, 2000).

Entrepreneurship is the life blood of a nation and is divided into Micro, small, medium and large scales (Adu-Gyamfi, Kuada and Asongu, 2023). Small and medium-sized enterprises (SMEs) make up approximately 92% of businesses, providing employment for around 80% of the workforce and contributing about 70% to the GDP in Ghana (Abor and Quartey, 2010). About 70% of employment in Ghana is found under micro, small and medium-sized entrepreneurship (Adom and Williams, 2012). In view of hardship in the economy, there are more necessity-driven entrepreneurs than opportunity-driven driven. The majority of entrepreneurs have little formal education and training in entrepreneurship so they operate informally because of difficulties involved in business registration and tax system (Essel, Adams, & Amankwah, 2019)

2.5.4 Challenges Facing Entrepreneurship in Ghana

Ghana is an underdeveloped nation (Amankwah-Amoah, Nyuur, Hinson, Kosiba, Al-Tabbaa, and Cunningham (2023). According to Okeniyi *et al.* (2020), after the attainment of independence, Ghana failed to devise novel strategies to sustain economic supremacy. Instead, it concentrated its efforts on the traditional exportation of commodities like gold, timber, and cocoa. This approach ultimately resulted in the erosion of local institutions, particularly SMEs, within the economy. Okeniyi *et al.*, further contend that the contemporary challenges faced by Ghanaian SMEs can be attributed to factors such as insufficient funding, a shortage of skilled labor, significant risk factors,

limited technological resources, intense competition, inadequate infrastructure, and pervasive corruption. Technological development is low as there is low access to reliable power supply, internet connectivity, computers and mobile phones (World Development Report, 2016). Robson et al. (2009) discovered that the SMEs in Ghana encounter various hurdles that hinder their productivity, consequently impeding scaling. These challenges include limited access to financial resources for growth and development, as well as the inability to secure vital human resources. Danso, Ansah, and Ehiakpor (2014) contended that owing to the absence of support for SMEs, they have resorted to alternative means of survival, relying on natural resources such as rainfall and bush burning to sustain themselves.

2.5.5 Plans for a Better Entrepreneurial Ecosystem in Ghana

Ghana stands out as one of the leading nations in West Africa, having embraced democracy and fostered a more open economy that is conducive to entrepreneurial development and innovation (Appiah-Adu et al., 2018). Ghana's institutional stability and longstanding dedication to democracy on the African continent have earned it the title of "Africa's golden gateway to a safe and stable investment destination" (Appiah-Adu et al., 2018, p. 2). The country's departure from protectionist policies and political instability has catalyzed foreign direct investments and the establishment of new firms (Nyuur et al., 2016a, b). The economy has been growing in the last three decades, partly because the socioeconomic environment, for instance, has been stable due to policies and reforms targeting the development of the private sector (Owusu et al., 2016; Yankson and Owusu, 2016). The nation also exudes an entrepreneurial spirit, particularly in the realm of start-ups and technology ventures. Youth entrepreneurship is also encouraged (Okoro, Nassè, Ngmendoma, Carbonell Launois, and Nanema, 2022). There are plans to create jobs in areas like building mobile applications to detect fake drugs (Amankwah-Amoah et al., 2023). In the recent past, the government of Ghana has had activities to harness new technology to enhance economic

development (Amankwah-Amoah and Hinson, 2019). An example is the liberalisation of the mobile and telecommunication sectors. However, it grapples with institutional voids, posing strategic challenges for the positioning of these start-ups (Amankwah-Amoah and Hinson, 2019).



CHAPTER THREE

LITERATURE REVIEW

3.0 Chapter Overview

This chapter is a review of the literature on the key concepts related to the topic under study. It is generally divided into two. Thus, the exploration of the theories underpinning the study and the conceptual framework that guides the study.

3.1 Conceptualisation of Bricolage

Several different theoretical perspectives, including entrepreneurial bricolage (Baker and Nelson, 2005), which is a common correlate of improvisation (Gyasi, Adomako, and Amankwah-Amoah, Unknown; Cunha, Miner, and Antonacopoulou, 2017; Baker et al., 2003) and ‘do-it-yourself’ (Scribner, 2003; Levi-Strauss, 1967) – processes involving ‘fiddling’ (Simba, Ojong and Kuk, 2021), have emerged to explain the behaviour and reasoning behind the entrepreneurial process. Baker and Nelson’s 2005 study produced a seminar paper, introducing bricolage into entrepreneurship and defining bricolage as “making do by applying combinations of resources at hand to new problems and opportunities” (p. 33). However, the French structural anthropologist Claude Levi-Strauss (1967) was the first to present bricolage, a theory of resourcefulness, in his investigation of sense-making in some communities (Vuorio, Ivanova-Gongne, and Torkkeli, 2025). It means “to cobble things together” in his native tongue. To capture the processes of cultural hybridization, he modified the phrase as a metaphor. The bricoleur uses what Levi-Strauss refers to as his “stock,” or his collection of resource elements, sometimes strange and diverse, that have been gathered with the general idea that they might one day be useful. There is never a set way to categorize or identify the elements in the repertoire. “Waste can become tools, tools can

become raw materials, etc” (Holt and Littlewood, 2017; Vanevenhoven, Winkel, Malewicki, Dougan, and Bronson, 2011, p. 55). According to Cunha (2005, p.6), bricolage is a “local, contextual and sudden process...which cannot be thought of outside the specific situation where it appears”.

From the original inception of bricolage, its application could be found in different domains and phenomena, including entrepreneurship (Baker and Nelson, 2005). In the entrepreneurship literature, it contributes to social entrepreneurship (Luseno and Kolade 2023; Langevang and Namatovu, 2019; Janssen, Fayolle and Wuillaume 2018; Di Domenico et al., 2010), environmental entrepreneurship (Musona, Sjögrén, Puumalainen, and Syrjä 2020) creativity (An, Zhang, You, and Guo, 2018; Rao et al.,), innovation (Huang and Tu, 2024; Scuotto, Cicellin and Consiglio, 2023; Reypens et al., 2021; Cai et al., 2019; Kickul, Griffiths, Bacq and Garud, 2018), an early-stage venture resource mobilization and growth (Steffens, Baker, Davidsson, and Senyard, 2023; Reypens et al., 2021), firm resilience (Baier-Fuentes, Andrade-Valbuena, Gonzalez-Serrano, and Gaviria-Marin, 2023; Weick, 1993). In management, bricolage enhances the capacity to mobilize practical knowledge in a way that challenges general theoretical approaches that specify, *a priori*, how resources should be utilized. However, the underlying factor in using bricolage lies in transforming scarce inputs into useful output, but not starting with little (Desa, 2012).

3.1.1 Definition of Bricolage

Levi-Strauss (1966) defined bricolage as a process of “creating something new with whatever is available through reusing and recombination” (Bhardway et al. 2023, p. 2). Although several authors have defined bricolage in various ways, the common attribute of mobilizing local resources is paramount in Table 3.1.

Table 3.1: Definitions of bricolage

N°	Source	Definition
	Levi-Strauss (1966, p. 17)	‘Making the most of available resources’.
1	Levi-Strauss (1967)	Making due with the means or resources at hand.
2	Weick (1993b: 352); Miner, Bassoff, & Moorman (2001)	To use whatever resources and repertoire one has to perform whatever task one faces.
3	Ciborra (1996)	Existing organizational mechanisms, forms and “junk routines” used as resources to construct the plat-hand form organization and its constituent structures.
4	Lanzara (1999)	Institutions built “not on the ruins but with the ruins” of the old regime. Information system fragments, components, results of small experiments used as elements of complex and multilayered systems; systems built “on the ruins and with the ruins of old systems”.
5	Ciborra (2002)	Tinkering through the combination of resources at hand.
6	Baker, Miner, and Eesley (2003)	Existing social network contacts as resources for building technology businesses.
7	Garud and Karnoe (2003)	Available materials “such as wood and lorry gears,” other “modest resources” and miscellaneous “embedded” individuals providing inputs for development of Danish wind turbines.
8	Baker and Nelson (2005)	Making do by applying combinations of the resources at hand to new problems and opportunities (p. 333).
9	Cunha (2005)	The invention of resources from the available materials to solve unanticipated problems.
10	Sirmon, Hitt and Ireland (2007)	Bricolage is in line with structuring, bundling and leveraging resource bundles and deploying them with two exceptions: bricolage focuses on structuring, and bundling accumulated existing resources (making do) rather than acquiring resources (resource seeking behaviours).
11	Steffens, Senyard and Baker (2009)	Bricolage is a process of resource use and development characterised by using resources at hand, recombining resources and making do.
12	Zahra et al. (2009)	Entrepreneurs who act on locally discovered opportunities with locally available resources.
13	Duymedjian and Ruling (2010)	Bricolage entails an ideal-type configuration of practice, knowledge, and a fundamental worldview and therefore is a continuous process of creating and utilizing various types of resources, and practical knowledge.
14	Di Domenico et al., (2010).	Making do with available resources to provide solutions to social problems that commercial organizations fail to address efficiently.
15	Gundry et al. (2011)	Bricolage specifically involves the creative adaptation and manipulation of resources such as human capital, materials, financial resources, and social capital to solve a problem or embrace a new opportunity.
16	Vanevenhoven et al. (2011)	Bricolage is a behavioral pattern – that allows for and facilitates impromptu solutions to unexpected scenarios and conditions and, is crucial in situations marked by fluidity and ambiguity.
17	Stritar (2012)	Process of utilizing resources owned by other individuals who are not directly involved in the business organization.
18	Kariv and Coleman (2015)	Process of using easily accessible and small-scale financial resources instead of acquiring them from formal financial institutions.
19	Kang, 2017	Recombining available resources that seem to be scarce or useless to address the opportunities and generate new values out of resource constraints.
20	De Bernardi and Pedrini (2020)	Employing available resources or creating a new one and recommending them for an environmental purpose and to generate environmental value and social impact in natural resource-constrained environments.
21	Korsgaard et al. (2021)	Making do by reconfiguring resources at hand creatively in the immediate spatial context to respond to new challenges and opportunities.

Source: Bhardwaj et al. 2023, and as found in the table.

3.1.2 Characteristics of Bricolage

In the literature, there are different themes across the definitions of bricolage (Bhardwaj, Bindra, Singh, and Sahay 2023). Duymedjian and Rüling (2010) came up with three components. They are outcome (the goal the bricoleur pursues), dialogue (the continuous relationship the bricoleur maintains with the stock or repertoire), and stock or repertoire (the compilation or collection of the materials on which the bricoleur acts). Yu, Li, Chen, Meng, and Tao (2019) also assert that there are three characteristics of entrepreneurial bricolage. The first is vigorously engaging what is at hand with the problem to see if it will produce a feasible outcome (An, Zhao, Cao, Zhang, and Liu, 2018). Secondly, bricolage is how resources are combined and reused to solve new problems other than what it was originally intended for (Busch and Barkema, 2021; Witell, Gebauer, Jaakkola, Hammedi, Patricio, and Perks, 2017). Lastly, it is the ability to use resources at hand instead of seeking new ones (e Cunha and da Cunha, 2018).

In general, the definition of bricolage has four elements: (a) making do, (b) resources on hand, (c) recombination of resources for new purposes, and (d) refusal to enact limitations (Davidsson, Baker, and Senyard, 2017). However, Baker and Nelson (2005) suggest that the focus should be on two key factors: ‘making do’ with current resources and recombining resources for new purposes. They also reported that bricolage helped businesses to identify and exploit inputs for unique services that are ignored by others. Details of such elements can be found below.

A. “Making Do”

Baker and Nelson (2005) illustrated Levi-Strauss's (1967) “making do with whatever is at hand” as the rule of the bricoleurs’ game (da Silva, Zejnilovic, Oliveira, 2023). Making do relies on the resources on hand to accomplish tasks. It ... “implies a bias toward action and active engagement with problems or opportunities rather than lingering over questions of whether a workable outcome can be created from what is at hand” (Baker and Nelson, 2005, p. 334). In times of constraints,

entrepreneurs make do with local resources they obtain from their resource trove or scavenged from the already existing network, instead of waiting to employ alternate actions like employing resource-seeking behaviours (Busch and Barkema, 2021; Reypens et al., 2021), ignoring the opportunity (Gaglio, and Winter (2017) or giving up (Baker and Nelson, 2005, p. 353). Making do goes with “breaking the rules” sometimes, by not following the ascribed institutional ways of doing things. The outcome is only “good enough” for further “resource combination to stop as soon as the arrangement works” (Duymedjian and Rüling, 2010, p. 140).

B. Resources on Hand

In the literature (Ben-Asher, 2022; Nomatovu, 2018; Duymedjian and Rüling, 2010; Ronkko et al., 2013), resources on hand in the trove of the bricoleur are objects, tools, ideas, and broad skills owned or scavenged. To others, such resources are judged to be substandard or useless. As a result, it could be cheaply owned or obtained for free by the bricoleur – someone engaged in bricolage (Baker and Nelson, 2005). In the study on the development of the Danish wind turbine for example, available materials “such as wood and lorry gears”, other “modest resources” and miscellaneous “embedded” individuals were used (Garud and Karnoe, 2003). Resources on hand are therefore the building blocks from which the combination of resources is created (Cheung et al., 2019).

C. Combination of Resources for New Purposes

Through tinkering and experimentation with resources, bricoleurs recombine resources on hand and use them in ways they were not originally intended for (Kleine-Stegemann, Hensellek, Senyard, Jung, and Kollmann, 2022; Sarkar, 2020). Such “...bricolage activity is not directed to any specific solution or configuration in particular ... because neither of them knows in advance what the final configuration is going to be” (Lanzara 1999, p. 337). The combination of existing programs and failed components could result in unexpected uses serendipitously (da Silva, Zejnilovic, and Oliveira, 2023; Cunha and Berti, 2023; Ciborra, 2002; Lanzara 1999) instead of

constructing them from scratch. Improvisation and more planned “just a sketch” bricolage mechanisms (Baker, 2007) are the two main approaches examining how existing resources are combined and recombined by bricoleurs. Improvisation takes place when there is limited time because planning and execution cannot be separated (Cunha et al., 2014). Under normal circumstances, improvisation is not preferred because it entails risk and is therefore used when there is a threat associated with time pressure and the issues are also urgent. Planning, therefore, is not an option under improvisation because there is no time to garner the right resources or time to follow a systematic routine.

D. Refusal to Enact Limitations

Refusal to enact limitations brings a more constructivist perspective of ‘making do’ (Papazu, 2021). As Penrose posits, firms vary tremendously in their ability to extract services from their physical inputs. In practice, this is in line with how bricoleurs produce services using tangible inputs that others reject (Baker and Nelson, 2005). Bricoleurs see unexpected opportunities in scarcity (Levi-Strauss, 1967). Such entrepreneurs can enact the potential hidden in dormant resources. According to Baker and Nelson (2005), bricoleurs have an eye for inventiveness for the development of competitors’ perspectives on using standard resources. Everyone does not objectively see the potential. They are enacted by the observer-bricoleur to discover prevailing resources innovatively (Cunha et al., 2014). The application of the bricoleur is made evident in the building of wind turbines with scraps and with limited financial resources by Danish Managers (Johansen, 2021; Papazu, 2021). In comparison, the wind turbines built with new and standard components by American firms could not match the quality of the former. Thus, “...inferior resources may render superior new products” (Cuhna et al., 2014, p. 204).

3.1.3 Contributions of Bricolage

The theory of bricolage has won the heart of entrepreneurship scholars because of its ability to bring more insight into how ventures innovatively overcome resource scarcity, exploit opportunities (Donbesuur, Owusu-Yirenkyi, Ampong, and Hultman, 2023), and scale ventures, despite limitations (Huang and Tu, 2024; Bojica et al., 2018; Senyard et al., 2014; Di Domenico et al., 2010; Baker and Nelson, 2005). Bricolage as a practice is well-known in music, visual arts, philosophy, linguistics, education, industrial design, and architecture (Kini-Singh, 2023; Ben-Asher, 2022). Its contributions to the entrepreneurship literature relate bricolage to creativity, innovation, improvisation, firm resilience, and use of knowledge domain (Mateus and Sarkar, 2024; Bhardwaj et al., 2023; Scuotto et al., 2023; Tsilika, Kakouris, Apostolopoulos, and Dermatis, 2020). In the literature, bricolage is used “as a mechanism for coping under difficult circumstances, rather than directly as a source of innovation” (Senyard et al., 2011, p.6). Empirical studies in the UK (Kwong et al., 2017), North America - Mexico (Bojica et al., 2018), India (Sarkar, 2018) and multiple places of war and conflict zones, excluding Africa (Cheung et al., 2019) have attested to the fact that, bricolage is the best fit to mobilizing resources to solve resource constraint problems of new ventures. In the African context, the account of Onwuegbuzie and Mafimisebi (2021, pp 13-14) “argues that African indigenous entrepreneurs can scale their indigenous solutions by leveraging on bricolage to provide globally relevant solutions”. The application of selective and ideational bricolage with mainstream education resulted in more meaningful solutions than the use of parallel bricolage by indigenous entrepreneurs without mainstream education.

Bricolage can meaningfully function outside the new venture context or in incumbent firms (An, Zhao, Cao, Zhang and Liu, 2018, p. 50), as it is about creating something new using existing

resources, regardless of the availability of resources (Levi-Strauss, 1966). In the literature, bricolage is claimed to be associated with early-stage firm establishment and growth (Busch and Barkema, 2021). It has been proposed as “a method of alleviating resource constraints of entrepreneurial firms” (Rönkkö, Peltonen, and Arenius 2014, p. 43). Among the twenty (20) firms Baker and Nelson studied, nine (9) of them displayed related organizational features and behavioural patterns without growth. However, eleven (11) of them exhibited growth in their firms.

In the literature (Steffens, Baker, and Davidsson, 2023; Bojica et al., 2018; Senyard et al., 2014; Sonenshein, 2014), several factors cause bricolage to limit growth. The first factor, according to Busch and Barkema (2021), is how key actors spread efforts too thin, which creates a bias for action that leads to unproductive tinkering, coaxing, and a lack of focus in scaling ventures. This results in bricolage being unbeneficial in the long term, as it promotes tinkering and wastes efforts through trial and error, contributing to a lack of focus in expanding organizations. Secondly, an inability to develop learning competencies arises from a lack of growing solutions. Engaging in bricolage may lead to less construction of heterogeneous knowledge, reducing product quality (Huang and Tu 2024). Although entrepreneurs exhibit creativity in resource-constrained situations, these constraints can sometimes create a tunnel effect, causing them to overlook factors critical to innovation (Xu, He, Morrison, Su, and Zhu, 2024; Mullainathan and Shafir, 2013). This indicates that extensive use of bricolage diminishes resource novelty. In such cases, the positive effects of bricolage may become negative due to insufficient heterogeneous resources and knowledge (Senyard et al. 2014). As bricolage seeks temporary solutions, it produces second-best results through improvisational competencies and limits the development of organizational capabilities

needed to achieve permanent solutions (Steffens et al., 2023; Senyard et al., 2014; Baker et al., 2003). According to Baker et al. (2003), improvisation leads to inferior solutions that discourage the adoption of more permanent fixes. Second-best solutions (Steffens et al., 2023; Busch and Barkema, 2021; Linna, 2013; Senyard et al. 2010) may also lead to “mal-adaptation, imperfection, inefficiency, incompleteness” (Lanzara, 1999, p. 347), where “the outcomes of it are sometimes hybrid, imperfect, transient artifacts” (Lanzara, 1999, p. 347). These result in “ad hocery” and “satisficing” (Senyard et al., 2014). Thirdly, the priority placed on satisficing – the easiest possible solution – neglects optimization. This prevents bricolage from adopting ventures to meet quality standards and thereby reduces the range of products for customers susceptible to sub-standard quality. Given this, complications arise when scaling organizations through bricolage (Kickul et al., 2018; Davidsson et al., 2017; Senyard et al., 2014).

3.1.4 Theories and Concepts Used in Combination with Bricolage in Entrepreneurship

Research

Throughout the literature, “bricolage” metamorphosed into other terms/names such as the concept of resource bricolage (Tasavori et al., 2018); social bricolage theory (Langevang and Lamatovu, 2019; Cheung et al., 2019); social bricolage (Zollo et al., 2018; Azmat et al., 2015); entrepreneurial bricolage (Kickul, Griffiths, Bacq and Garud, 2018; Bacq et al., 2015) and bricolage (Hota et al. 2019; Busch and Barkema, 2021; Preece, 2014; Molecke and Pinkse, 2017; Di Domenico, Haugh, and Tracey, 2010; Baker and Nelson, 2005) with the same meaning and ideology. In addition, theories/concepts from various fields of inquiry, like organizational and management studies, are borrowed and used in combination with bricolage to get a wider variety of theoretical notions to enhance the cross-fertilization of theories in the study of diverse phenomena in entrepreneurship.

Examples of such theories and concepts are resource-based theory (Sarkar, 2018; and Desa and Basu, 2013), effectuation (Servantie and Rispal, 2018; Bojica et al., 2018), social entrepreneurship (Crupi, Liu, & Liu, 2021; Argawal et al., 2020), causation (Servantie and Rispal, 2018), resource dependence theory (Kwong, Tasavori and Cheung (2017), transaction cost theory (Kwong, Tasavori and Cheung, 2017), improvisation (Tasavori et al., 2018), social innovation (Crupi, Liu, & Liu, 2021), *jugaad*, “the Indian frugal and innovative method” of solving problems (Agarwal et al., 2020), resource advantage theory (Azmat et al., 2015) and social capital theory (Liu et al., 2023).

Empirically, resource-based theory (Sarkar, 2018; Desa and Basu, 2013), resource dependence theory with transaction cost theory (Kwong, Tasavori and Cheung, 2017), social innovation with social entrepreneurship (Crupi, Liu, & Liu, 2021), and social capital (Liu et al., 2020) were used to study how grassroots entrepreneurs/enterprises select/obtain/mobilise/react to resources to effect economic and social change in a constrained environment. With the use of the resource dependence theory, Kwong et al. (2017) studied social enterprises using collaborations to solve resource-constrained problems. In that same study, they based on transaction cost theory to increase the resource and reduce the transaction cost, which ultimately benefited the organisations involved in partnership/collaboration. Sarkar (2018), on the other hand, applied the resource-based theory to explore how grassroots entrepreneurs (GEs) mobilise resources at the BOP to effect economic and social change. In line with bricolage behavior, the GEs acquire, combine, and create value at the BOP.

It is also evident in the literature that entrepreneurs acquire resources and take actions through their entrepreneurial networks. Liu et al. (2020) use the theory of social capital to investigate how

entrepreneurs obtain resources from their networks to facilitate the founding of new ventures. In their study, empirical results suggest that an entrepreneur's network, thus, the "owned" social capital, shall be transformed by the role of resource bricolage into relation strength, thus "used" social capital.

Servantie and Rispal (2018), examine how the combination of causation, effectuation and bricolage changes over a particular entrepreneurial process: emergence, growth and replication of a foundation in Colombia. Their goal was to know whether bricolage, effectuation and causation are mixed by entrepreneurs and if so, to ascertain why and how they alternate between them along the entrepreneurial process. Bricolage was seen to be applied at the inception of the business. The founder, as a non-expert entrepreneur, was improvising solutions as a visionary. Effectuation was seen to be employed throughout the three stages of the entrepreneurial process and was crucial dealing with constraints and opportunities. Causation on the other hand was the basis for replication.

Finally, dwelling on Sarkar (2018), Kwong, Tasavori and Cheung (2017), Crupi, Liu, & Liu (2021), Liu et al. (2020) and Desa and Basu (2013), bricolage could therefore be defined as a means, process or a method by which social or ground root entrepreneurs/enterprises select/obtain/mobilise/react to resources to effect economic and social change in a constrained environment.

3.1.5 Types and Domain Categories of Bricolage

There has been the emergence of different categories of bricolage due to the proliferation of research (Mateur and Sarkar, 2024; Baker and Nelson, 2005). These have added to the conceptualization of bricolage since its inception by Levi-Strauss in 1966. Examples of such

subtypes of bricolage from table 3:2 are parallel bricolage, selective bricolage, ideational bricolage, market bricolage, spatial bricolage, internal bricolage (individual bricolage), network (external) bricolage, intrapreneurial bricolage, social bricolage, institutional bricolage, organizational bricolage, financial bricolage, and environmental bricolage. Baker and Nelson categorized them based on the domain of the environment in which they manifest. On the one hand, the conceptualization of Mateur and Sarkar (2024) is based on “the characteristics of actors and their interactions” (p. 5) as one type, how bricolage is used as a strategy by entrepreneurs or ventures, thus “a pattern of use” (p. 7) as the second and the third category is based on the types of resources applied by the entrepreneur and their results. The seven subtypes found by Mateur and Sarkar (2024) under the last group are social bricolage – which is the commonest in creating social value (Di Domenico et al., 2010), network/external bricolage, institutional bricolage, organizational bricolage, ideational bricolage, market bricolage, and spatial bricolage. In view of the grouping, bricolage can be utilized by an individual actor, a venture or as a collective action (Zorina, 2021).

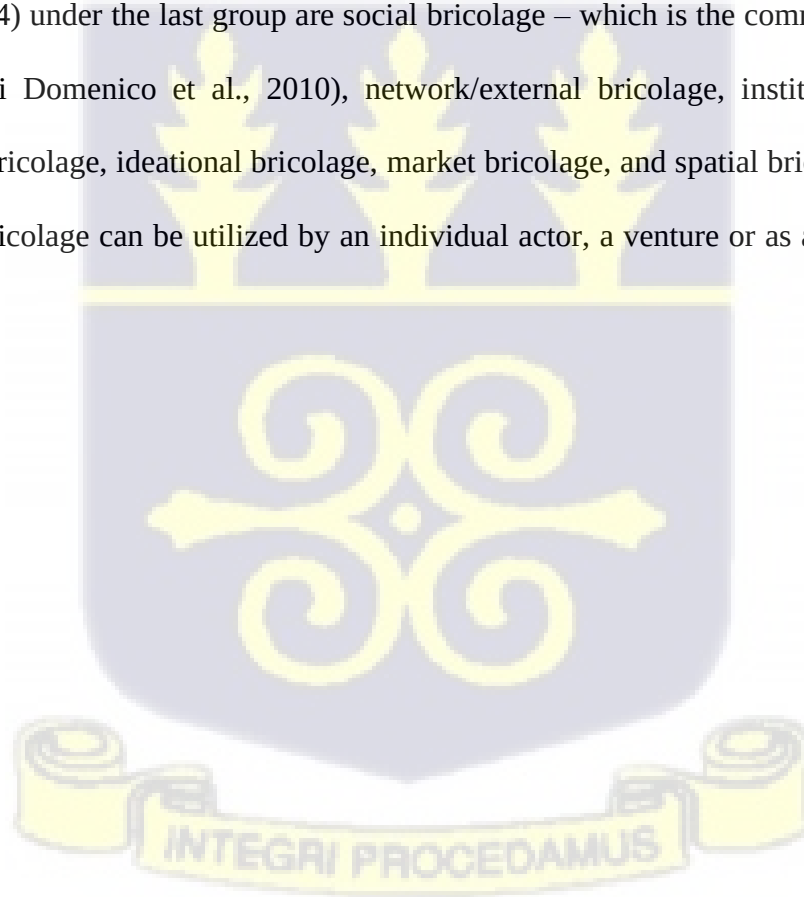


Table 3.2: Types of bricolage

Nº	Bricolage subtype	Definition	Key Authors
1	Parallel bricolage	Marked by multiple ongoing projects relying on bricolage.	Baker and Nelson (2005)
2	Selective bricolage	Application of bricolage in limited areas.	Ronkko et al. (2014)
3	Ideational bricolage	Blending ancient myths and concepts to create new ones.	Molecke and Pinkse (2017); Mair and Marti (2009)
4	Market bricolage	Concerns repurposing existing networks to cultivate new customer bases.	Yu et al. (2019)
5	Spatial bricolage	Utilizes resources readily available within the spatial context of the bricoleur.	Korsgaard et al. (2021)
6	Internal bricolage	Denotes the actions that use the characteristics of the entrepreneur (bricoleur); thus, the combination of education and experiences ... giving rise to prior knowledge of markets and problems of the customer.	Zorina (2021); Tasavori et al. (2018); Vanevenhoven et al. (2011)
7	Network/external bricolage	Leveraging personal and professional networks as a channel to draw available resources.	Mateus and Sarkar (2024; Vanevenhoven et al. (2011); Baker et al. (2003)
8	Institutional bricolage	Working around principles, rules, and practices to create institutional change.	Nunes and Fielmua (2023); Mzembe et al. (2019); Huang et al. (2019)
9	Organizational bricolage	Recombination of organizational forms at hand to shape a new organization.	Perkmann and Spicer (2014)
10	Intrapreneurial bricolage	Bricolage activities that take place in an organization where employees resist superior orders, resulting to inclusive innovation.	Halme et al. (2012)
11	Social bricolage	a discrete form that stresses social value creation, stakeholder participation, and persuasion.	Di Domenico et al. (2010)
12	Financial bricolage	Process of using easily accessible and small-scale financial resources instead of acquiring them from formal financial institutions.	Kariv and Coleman (2015)
13	Environmental bricolage	Environmental bricolage is how entrepreneurs acquire and combine resources at hand or create a new one for economic and environmental purposes in natural resource-constrained environments.	De Bernardi and Pedrini (2020, p. 3 & 4); Musona et al. (2020)

Source: As found in the table.

Parallel bricolage: The pattern Baker and Nelson (2005) studied categorized bricolage into two forms: “parallel bricolage” and “selective bricolage”. The previous is also known as the “permissive community of practice” (Ronkko et al. 2017), where in extreme resource constraints, some firms practice bricolage in all operations (Senyard et al., 2014), thereby limiting the growth of firms as realized in the study of Baker and Nelson (2005). Parallel bricolage was called so “because it is marked by multiple ongoing projects relying on bricolage” (Baker and Nelson, 2005, p. 344) and was complex. However, bricolage manifests in five domains of the environment (Baker

and Nelson 2005, p. 344). Interpreting Baker and Nelson (2005), Ronkko et al. (2017, p. 46) placed bricolage under three categories. They are (1) inputs (physical, labour, and skills), (2) customers/markets, and (3) institutional and regulatory environments.

The first characteristic of parallel bricolage is the collection and storage of physical inputs. Under this, the entrepreneurs use diverse resource troves through scavenging. They use tools and materials that are odd and discarded when compared with the equipment used by organisations using less bricolage. In all cases in their study, “knowledge of the content of the troves was a primary factor in how the entrepreneurs and their employees approached new projects” (p. 345).

The second feature of parallel bricolage is the breadth of skills used by the employees. In Baker and Nelson’s account, none of the owners of the businesses and their employees were formally educated in their professions. They rather acquired diverse skills informally and used their extensive amateur skills to execute several projects. Thirdly, they also deviated from traditional and professional norms and standards. To such parallel bricolage users, external rules and standards are constraints and therefore develop knowledge of the constraints they could ignore and disdain. By refusing to enact limitations... bricolage created space for firms to “get away with” solutions that would otherwise seem impermissible (p.346).

Fifthly, several elements of parallel bricolage are characterized by mutually reinforcing patterns. To undertake broad sets of challenges, the firms created multiplex network ties as they scavenged. Knowledge and skills of firms are increased in parallel bricolage as firms tackle new challenges and opportunities through bricolage. This results in the accumulation of several tools and materials that are scavenged. Priorities assigned to projects are then based on parts at hand, strength of network ties, and earnestness shown by specific customers and clients. In view of the great dependence on restricted local networks, the exploitation of chances in broader markets for scaling

ventures is curtailed. Tackling multiple projects consumed more time and attention through experimentation and more time for “coaxing” – frequent attempts to obtain more service from obsolete resources associated with bricolage (Baker and Nelson, 2005, p. 347). The environment in which such firms do business is socially constructed without active, effortful achievement. Using bricolage to escape resource constraints leads to an acceptable socio-psychological process of enactment (Weick, 1979) by firms.

Selective bricolage: Selective bricolage, which is the application of bricolage in limited areas (Ronkko et al., 2014), differs from parallel bricolage because there is no single pattern of organising. Invariably, bricolage is rejected in some or all domains of operations. Thus, in selective bricolage, firms make do with resources at hand in a few aspects of their operations. In this case, bricolage manifests in fewer domains, and in such a focused manner, selective bricolage supports and drives firm growth (Baker and Nelson, 2005, p. 349); however, it is not clear in the literature. According to Senyard et al. (2014), innovation may be a permissible means of attaining growth through selective bricolage. However, continuous use of bricolage is rejected for the adoption of standardized innovative practices.

Desa (2012) interpreted Baker and Nelson (2005) and posits that the fundamentals of the bricolage framework are resource combination. He then placed the description of bricolage into three-dimensional constructs, being: material bricolage, labour bricolage and skill bricolage. He asserts that the unavailability of resources does not stifle firm development but the institutional contexts that are normally unfamiliar. According to him, the amazing part of bricolage is the transformation of scarce inputs into useful outputs but not the usually acclaimed notion of starting with little. The three-dimensional constructs of bricolage by Desa (2012) above are wholly the same as the practice

dimension or narrowly viewed resource-centric classification presented by Duymmdjian and Ruling (2010).

Table 3.3: Similarities and differences in parallel and selective bricolage

Focus	Parallel bricolage	Selective bricolage
Frequency of adoption	Refers to the adoption of bricolage homogeneously and repeatedly used across multiple domains	Bricolage is adopted selectively.
System of operation	Embedded and socially constructed ties	No single pattern of organizing or operation
Growth orientation	Do not support and drive growth due to social construction.	Supports and drives growth through innovation
Domain of development	Creates something from nothing across multiple domains such as labour, skills, customers, and institutional environment.	Creates something from nothing by developing organisational focus and routines that support growth.
Organizational form	Robust	-
Time of adoption	Adopted bricolage throughout	The business started with bricolage but rejected it after establishment for standardized inputs.

Source: adapted from Baker and Nelson (2005) and Senyard et al. (2014)

Ideational bricolage: Blending ancient myths and concepts to create new ones is called ‘ideational bricolage’ (Molecke and Pinkse, 2017; Mair and Marti, 2009). ‘Ideational bricolage’ is used as a framework to demonstrate how a rural non-governmental organization in Bangladesh successfully addresses institutional deficiencies and uplifts the most impoverished communities (Mair and Marti, 2009). The researchers highlighted that the fusion of resources like longstanding customary practices of aiding the needy, religious beliefs, traditional conflict resolution methods, and popular entertainment activities plays a crucial role in this process. Ideational bricolage takes place when there are available resources and autonomy to use them. In this case, bricolage is used by choice to efficiently and innovatively renew the organization (Desa and Basu, 2013). They assert that ideational bricolage is driven by the identification of perceived gains instead of necessity. Ideational bricolage results in innovative ways of solving problems by intervening in a less costly manner to improve products and services (Bojica et al. 2019).

Market bricolage: Market bricolage concerns repurposing existing networks to cultivate new customer bases, such as transforming non-commercial connections into business relationships (Yu et al., 2019). According to Yu et al. (2019), market bricolage positively impacts the sales performance of online stores.

Spatial bricolage: Spatial bricolage utilizes resources readily available within the spatial context of the bricoleur (Korsgaard, Müller, and Welter 2021). Korsgaard et al. (2021) identify spatial bricolage as stemming from a rural ethos characterized by a shared commitment to community survival, mutual reliance, and the aspiration to foster local development. The authors highlight key activities of spatial bricolage, including local sourcing, community engagement, and enhancing resource exchange value through storytelling, thereby embedding them within narratives (Korsgaard et al., 2021, p. 157).

Internal bricolage: Vanevenhoven, Winkel, Malewicki, Dougan, & Bronson (2011) presented a theoretical account of two distinct types of bricolage that are known as internal and external and explained how they influence the process of entrepreneurship under different conditions and times (p.54). Internal bricolage denotes the actions that use the characteristics of the entrepreneur; thus, the combination of education and experiences – personal and work – give rise to prior knowledge of markets and problems of the customer. Vanevenhoven et al.'s (2011) internal bricolage refers to the opportunity recognition process of Hisrich, Peters, and Shepherd (2008, p.152). These are the sources of entrepreneurs' legitimacy that renders them more or less valuable and salient to be evaluated by others.

Network/External bricolage: In the study, network or external bricolage (Mateus and Sarkar, 2024; Vanevenhoven et al., 2011; Baker et al., 2003) is a process where organisations attain resources by mobilizing others in their network. Network bricolage which is also known as external bricolage takes a form of leveraging personal and professional networks as a channel to draw available resources (Baker et al. 2003). External bricolage is the activities used to exploit the array of key resources from the external environment of the entrepreneur. It is used to tap resources from external stakeholders' knowledge stock. Entrepreneurs innovatively recombine such resources for new use. Bricolage is a means of applying previous knowledge and experiences to make resources in the external environment available to develop and exploit opportunities.

Existing networks are a good source of obtaining staff, customers, financial support, suppliers, consultation, and others during the entrepreneurial process. Network bricolage shares some similarities with collective bricolage in obtaining external resources. However, it differs in the degree of collaboration in bricolage process. In *collective bricolage*, Duymedjian and Rüling (2010), categorize bricoleurs as part of communal groupings. Unlike collective bricolage, network bricolage typically does not entail the same level of collaborative effort. According to Mateur and Sarkar (2024), internal bricolage is mostly associated with incremental innovation, but radical innovation requires external bricolage (Tasavori, Kwong, and Pruthi, 2018).

Institutional bricolage: Institutional bricolage according to Mzembe, Novakovic, Melissen, and Kamanga (2019), pertains to entrepreneurial endeavors aiming at overcoming obstacles presented by formal and informal institutions in the pursuit of institutional transformation and value generation. Institutional bricolage is used along three scopes thus material, organizational, and discursive (Huang et al., 2019). Nunes and Fielmua (2023) used institutional bricolage to empower indigenes to be democratically accountable for governing community water in the Upper West

Region of Ghana. It was observed that the use of Community-Based Water Management (CBWM) in Ghana entailed the creation of new institutional frameworks to empower communities to set water tariffs and dictate the scope of their local water supply. The state viewed CBWM as a viable institutional approach toward achieving a more transparent and democratically accountable method of water resource management.

Organisational bricolage: Organizational bricolage refers to how organisations are molded by the influence of other organizational structures within their environment (Perkmann and Spicer 2014). At the organisational level, bricolage is a series of cooperative activities that involve “give and take” through ongoing team member engagement and communication. (Baker and Nelson, 2005). This is a means of interaction that provides opportunities that result in subjective knowledge of resources (Garud and Karnoe, 2003).

Intrapreneurial bricolage: Intrapreneurial bricolage is an activity that is undertaken by individuals in the context of inclusive innovation in the constrained environment of large organisations where employees resist superior orders (Halme, Lindeman, and Linna, 2012). However, it is less explored.

Social bricolage: Social bricolage as a discrete form stresses social value creation, stakeholder participation, and persuasion (Di Domenico et al., 2010). The informal economy is a valid and strong, socially ingrained institution that supports market growth in a developing continent like Africa (Nason and Bothello, 2023; Webb, Khoury & Hitt, 2020; Mair and Marti, 2009a&b). Researching through the lens of bricolage provides interesting conceptual and practical insights.

Financial bricolage: Kariv and Coleman's (2015) assertion on financial bricolage proves it to be a process of using easily accessible and small-scale financial resources instead of acquiring them from formal financial institutions (Bhardwaj et al., 2023). Due to the credibility that entrepreneurs develop through informal channels (Sutter et al., 2017; Turkson, Amissah, and Gyeke-Darko, 2022; Afutu-Kotey and Gough, 2022), they can obtain low-cost financial resources (Kariv and Coleman, 2015). It is sometimes not reliable because it is small in size and paves the way for lenders to control the borrowers (Kwong et al., 2017).

Environmental bricolage: Environmental bricolage is to employ available resources or create a new one and recombine them for an environmental purpose to generate environmental value and social impact in natural resource-constrained environments (De Bernardi and Pedrini, 2020). De Bernardi and Pedrini (2020) used bricolage to understand the characteristics of resource acquisition and, at the same time, minimise the consumption of natural resources to foster environmental value. They used six characteristics of bricolage - making do, refusal to enact limitations, improvisation, sensibilization, network establishment, and environmental value creation to establish how environmental entrepreneurs obtain and reconfigure resources while inserting the goal of having an optimistic result on the natural environment. In other studies (Musona et al., 2020; Holt and Littlewood, 2017; Senyard et al., 2015; Linna, 2013), network, marketing, waste material, and skill and knowledge bricolage are used as a process of innovation for socio-environmental entrepreneurs to create low-cost and high-quality solutions for the BOP market.

3.1.6 Bricolage, a Source of Opportunity Identification and Exploitation

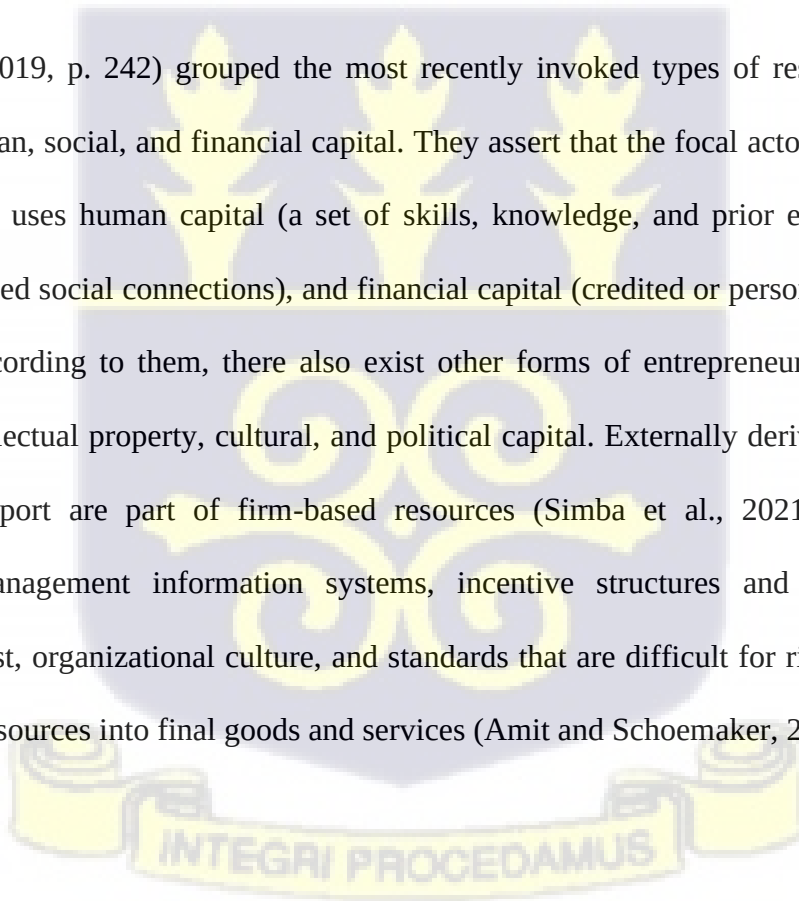
According to Shane and Venkataraman (2000), opportunity identification and exploitation are the core of entrepreneurship (Donbesuur, Owusu-Yirenkyi, Ampong, and Hultman, 2023; Alvarez and Barney, 2020; Shane and Venkataraman, 2000). Although bricolage has traditionally been regarded as constraining growth if applied over time (Busch and Barkema, 2021; Senyard et al., 2014), it enables firms to generate new knowledge to identify more opportunities as growth avenues (Sun and Jia, 2024; Onwuegbuzie and Mafimisebi, 2021; DeSantola and Gulati, 2017) or enables enterprises to discover novel ways of solving new problems at low cost (Huang and Tu, 2024; Abukari, Wenyan, Pomegbe, Alhassan Alolo, and Epezagne Assamala, 2024; Onwuegbuzie and Mafimisebi, 2021; Bacq et al., 2015).

According to Reypens et al. (2021) whose study was on seven early-stage medical technology ventures in disruptive environmental contexts in Kampala - Uganda, there were opportunities in distortions associated with resource uncertainty in the health sector. The resourceful behavior repertoire as a means for resourcefully exploiting opportunities and contributing to the performance of firms in resource-constrained environments includes improvisation and bricolage (da Silva, Zejnilovic, and Oliveira, 2023; Bacq et al., 2015; Baker, Miner and Easley, 2003). From the literature, they highlight the importance of identifying and exploiting both sequence and combinations of bricolage and resource-seeking as catalytic events in scaling entrepreneurial firms (Kickul, Griffiths, Bacq and Garud, 2018).

3.2 Entrepreneurial Resources

Resources are available factors or inputs, both tangible and intangible, that are owned and/or controlled by the firm (Amit and Schoemaker, 2016). Resources can be financial, physical (property, plant, and equipment), know-how (patents and licenses), technical, knowledge, and human capital (invisible assets like talent, experience, expertise, and tacit organizational knowledge) (Cunha et al., 2014; Amit and Schoemaker, 2016). It also encompasses physical artifacts, skills, knowledge, and ideas (Sunduramurthy, Zheng, Musteen, Francis, and Rhyne, 2016, p. 857).

Clough et al. (2019, p. 242) grouped the most recently invoked types of resources under the concepts of human, social, and financial capital. They assert that the focal actor in the context of entrepreneurship uses human capital (a set of skills, knowledge, and prior experience), social capital (established social connections), and financial capital (credited or personal cash) to invest in business. According to them, there also exist other forms of entrepreneurial resources like legitimacy, intellectual property, cultural, and political capital. Externally derived resources like institutional support are part of firm-based resources (Simba et al., 2021; Penrose, 1959. Technology, management information systems, incentive structures and practices, labor-management trust, organizational culture, and standards that are difficult for rivals to copy link, and transform resources into final goods and services (Amit and Schoemaker, 2016).



3.3 Resource Constrained Environment

From a firm perspective, a constrained environment is when a firm is faced with new challenges, in the form of opportunities and risks, without the provision of new resources (Baker and Nelson, 2005). It is said to occur in instances where entrepreneurs lack access to essential financial capital, human resources, markets for their goods and services, and the necessary supportive infrastructure within a specific setting (Linna, 2013). It can also occur in situations where entrepreneurial ecosystems face challenges related to resource constraints, institutional shortcomings, and structural deficits (Cao and Shi, 2021). Resource constraint, therefore, is not a uniform concept (Witell et al. 2018, p. 291). It is synonymous with scarcity and occurs in various forms at the organizational level. Firstly, there are constraints related to internal resources where the organization has too few employees, employees are situated in the wrong organizational unit, or has outdated capabilities (Gupta, Smith and Shalley, 2006). Secondly, resource constraints may be external when customers lack the financial resources to purchase products and services (Cunha et al., 2014). Thirdly, it may occur at the inter-organisational level, where organisations lack resources to be in partnership in the business environment (Witell, Gebauer, Jaakkola, Hammedi, Patricio, and Perks, 2018; Barrett et al., 2015). In general, resource constraint is the lack of a resource needed for innovation (Cunha et al., 2014). However, research on resource constraints has been discussed with a focus on a general level (Staw, 1980), or on a specific resource like financial, human, technical, and time (Cunha et al., 2014), or institutions and infrastructure (Barrett et al., 2015). According to Cunha et al. (2014), it is in the form of lack of time, lack of material resources, and lack of affluent customers.

Ghana, where the study was conducted, grapples with pronounced and diverse forms of resource scarcity and therefore remains underdeveloped (Amankwah-Amoah et al., 2022). Furthermore,

Sub-Saharan Africa is encumbered by subpar transportation resulting from poorly maintained road networks and heavy traffic congestion, a lack of robust telecommunications infrastructure, irregular and unreliable power distribution, and inconsistent internet connectivity (Peprah, Giachetti, Larsen, and Rajwani, 2022).

3.4 Resource Mobilisation in a Constrained Environment

Resource mobilization is the act of arranging resources that help entrepreneurs deal with resource-related constraints. In other words, it is “the ability to cope with stressful situations or unusual problems by putting available resources to efficient use or ingenious use” (Armstrong, 2015, p. 268). The very nature of organizing is found in the actions of entrepreneurs, through employees and informal advisors, as they deploy resources for the establishment of such ventures (Clough, Fang, Vissa and Wu, 2019; Bird and Schjoedt, 2009). There is an assertion in the entrepreneurship literature that the development of new products and services requires resource sufficiency for processes to be conducted systematically. The question is what if sufficient resources for the systematic processes of mobilizing resources are lacking? “...necessity is the mother of invention and resource scarcity may be a trigger of innovation in adverse contexts (Cunha et al., 2014, p. 202). Firms can address resource constraints actively or avoid them (Witell et al. 2018). They have at least three behavior to exhibit when faced with a constrained environment (Baker and Nelson, 2005): (1) They may get resources from the external, (2) change their direction to avoid the newly faced challenges if they have ever tried and failed in their resource-seeking efforts before, or (3) may engage in bricolage, by applying combinations of the resources at hand to new problems and opportunities (p. 353). In this vein, bricolage is used to circumnavigate constraints (Witell, et al. 2018) that other entrepreneurs see as obstacles (Cunha et al., 2014). Instead of using resources that

would have been considered adequate under ideal economic circumstances, many firms operate with tighter economic resources (Cunha, Rego, Oliveira, Rosado, and Habib, 2014). Billions of customers with low purchasing power in resource-constrained environments have been an opportunity for entrepreneurial firms to use bricolage to produce innovative products and services for such customers (Linna, 2013).

3.5 Entrepreneurial Resourcefulness

Entrepreneurial ventures are compelled to find innovative ways of assembling needed resources in constrained environments – a situation that embraces scholarly interest under the concept of resourcefulness or resourceful behavior (Hertel et al. 2021). Ventures require resources to survive and, therefore, need to establish relationships with actors possessing those resources (Pfeffer and Salancik 1978). Given that, they draw resources out of the known and unknown array of broader networks in the entrepreneurial process (Kuratko et al., 2023; Fisher et al., 2020; Brown, Mawson, and Rowe, 2019). Out of such resourcefulness, entrepreneurs living and working at the BoP overcome acute resource constraints by using their ingenuity and bricolage to circumvent societal norms and resource scarcity (Sakar 2018). Departing from most studies considering the BOP as potential consumers or recipients of aid, Sarkar sees them as a good source of resources from which the grassroots entrepreneur can draw benefits.

3.6 Entrepreneurial Ventures

Conceptually, entrepreneurial ventures are mostly small, young, privately owned, growth-oriented firms engaging in innovative behaviours (Carland, Hoy, Boulton, and Carland, 1984). They pursue the growth and maintenance of their firm's distinctive competence for the best strategic practice

(Glueck, 1980). According to Carland et al. (1984, p. 358), “an entrepreneurial venture engages in at least one of Schumpeter’s four categories of behaviour: that is, the principal goals of an entrepreneurial venture are profitability and growth and the business is characterised by innovative strategic practices”.

3.6.1 Criteria for the Bases for Classifying Entrepreneurial Ventures

According to Carland, Hoy, Boulton, and Carland (1984), five (5) criteria serve as the basis for classifying entrepreneurial ventures, but the fourth is ambiguous (Schumpeter, 1934). If any of the four (4) are observed in the strategic actions of a business, then that business is known as an entrepreneurial venture.

The criteria are:

1. Introduction of new goods;
2. Introduction of new methods of production;
3. Opening of new markets;
4. Opening of new sources of supply; and
5. Industrial reorganization.

The main determining factor is whether business activity in the four (4) criteria result in a new combination, showing an innovative behavior/strategies or strategic postures that is consistent with the businesses’ best interest/mission. Undertaking distinctive competence that is prescribed by Vesper (1980), is therefore a requirement for an entrepreneurial venture.

In the continuum of venture types by Vesper (1980), most owners of businesses globally do not intend to grow their firms beyond the size they can control. In the low-income context, although smallest businesses, compared to large and mature organisations wish to grow, few can cross the initial startup stage because there are unique challenges including uncertainty of resources that are

associated to scaling such ventures (DeSantola and Gulati, 2018; Hannah and Eisenhardt, 2017; Baker and Nelson, 2005; Bhidé, 2000). Given the challenges, most of the startups collapse within five years of establishment without scaling (Fisher, Kotha, and Lahiri, 2016). In such a low-income environment, Morris, Santos and Neumeyer (2020) posits that there is “limited integration of technology and capital equipment, a more labor-intensive operation, no economies in procurement, little outsourcing capability, low entry barriers, and intensive competition” (p.381) and therefore leveraging resources like social networks may be paramount to scaling such ventures (Sutter, Bruton and Chen, 2019). However, from the 2024/2025 Global Entrepreneurship Monitor, since most startups do not transit into maturity before collapsing, “...entrepreneurs owning businesses that pay wages or salaries for 42 months or more are classified as established business owners” (GEM, 2025, p.35), therefore entrepreneurial.

Although bricolage has traditionally been regarded as constraining growth if applied over time (Busch and Barkema, 2021), it enables firms to generate new knowledge to identify more opportunities as growth avenues (DeSantola and Gulati, 2018) or enables enterprises to discover novel ways of solving new problems at low cost (Bacq et al., 2015).

3.6.2 Scaling Entrepreneurial Ventures

The difference between entrepreneurial ventures and small businesses is scaling or growth (DeSantola and Gulati, 2018). Scaling, according to Shepherd and Petzelt (2021; 2020), is the spreading of excellence within a venture as it organically or through acquisition grows from a new and mostly small organization to an established, large organization. Scaling entrepreneurial ventures can be in the form of the number of users, customers, funds raised, physical capacity, geographic footprint, revenue, and organizational headcount (Josefy, Kuban, Ireland, and Hitt,

2015). By following DeSantola and Gulati (2017), scaling is how entrepreneurial ventures deal with the challenge of synchronising internal organisation and growth.

Scholarly understanding of the conceptualisation of growth remains narrow and inconclusive and therefore takes a nonlinear developmental pathway sometimes (DeSantola and Gulati, 2017; Ambos & Birkinshaw, 2010). According to Penrose (1959) and Lunenburg et al. (2020, p. 1014), scaling is not only related to an increase in size or the impact a social or sustainable purpose organization produces but also an internal process.

Table 3.4: Definitions of Scaling

Nº	Author	Definition/descriptions
1	Uvin et al. (2000, p. 1410)	Scaling up is about “expanding impact” and not about “becoming large”.
	Busch and Barkema, 2021, p. 2	- Scaling up is about expanding to reach more beneficiaries. - Scaling deep is to offer more benefits to existing group.
2	Dees et al. (2004, p. 30)	[Scaling social] impact should not just be about serving more people – it should be about serving them well.
3	Desa and Koch (2014, p. 148)	Scaling social impact is the process of expanding or adapting an organization’s output to better match the magnitude of the social need problem being tackled.
4	Andre and Pache (2016, p. 664-665)	- Scaling deep refers to an approach that focuses on improving and enriching current processes in order to enhance the impact on beneficiaries. - Scaling up refers to the approach that focuses on designing operations to reach out to new beneficiaries in geographical locations not yet served by the venture. - Scaling across refers to an approach that focuses on disseminating and sharing the social innovation developed by the social entrepreneur with other actors.
5	Bocken et al. (2016, p. 298)	Scaling up is defined as increasing the number of customers or members of a business as well as expanding its offer and maximizing its revenues until it reaches millions of people.
6	Smith et al. (2016, p. 681)	Scaling is defined as increasing the magnitude of the social impact of the organization and focuses on the efficient growth or expansion of social impact.
7	Kickul et al. (2018, p. 410)	Scaling social impact can be defined in two categories: “Depth impact” and “breadth impact”. The former refers to a qualitative improvement in terms of development of product/services scope in serving the needs of the target community, while the latter refers to the quantitative growth of impact, designed to reflect geographic expansion or increases in the number of people benefiting from the solution.
8	Islam (2020, p. 2)	Social impact is an ongoing process of increasing the magnitude of both quantitative and qualitative positive changes in society by addressing pressing social problems at individual and/or systemic levels through one or more scaling paths.
9	Lunenburg et al., (2020, p. 1013)	scaling out’ (extending geographical space or volume) and ‘scaling up’ (influence on public discourses, political agendas and legislation) (Lunenburg et al., 2020, p. 1013)

Source: Ciambotti (2021, p. 4) and Lunenburg et al. (2020, p. 1013)

From Table 3.4 above, there are diverse definitions and means of scaling. These definitions consider how ventures replicate their businesses to scale, and how they expand the scope of their activities as they grow (Weiss, Perkmann, and Phillips 2022, p. 2). Invariably, entrepreneurial ventures mostly increase the value they create for their targets through scaling (Bauwens, Huybrechts, and Dufays, 2019). Scaling approaches can be depth scaling – offering more benefits to existing beneficiaries, or breadth scaling – expanding the scope of scaling by increasing the number of beneficiaries (Davies, Haugh and Chambers, 2019).



CHAPTER FOUR

METHODOLOGY

4.1 Chapter Overview

This chapter is the presentation of how the researcher, as a craftsman, used a qualitative multiple case study to collect empirical material (Yin, 2014) and studied the bricolage phenomenon in scaling entrepreneurial ventures in Ghana. From the previous chapters, it is established that the etymological foundation of bricolage is from an indigenous French expression that denotes how craftsmen creatively use leftover materials to build new artifacts. Thus, bricoleurs use materials “at hand” (Levi-Strauss, 1966) to mobilise resources like financial, human, and material in a constrained environment. As a result, the bricoleur’s process of construction differs from that of the engineer, who follows prescriptive procedures to undertake projects. This chapter continues to highlight the research paradigm, philosophical underpinning of the study, research approach, and research design postulates by Creswell and Creswell (2018). The chapter proceeds to elaborate on sources of data used, sampling, and data collection tools utilized. Data gathering procedures, mode, and instruments for data analysis, and ethical considerations follow and end with a summary.

4.2 Research Paradigm

The term *paradigm* originates from the Greek word *paradeigma*, meaning “pattern”. It is defined by Kuhn (1970, p. viii) as a “universally recognized scientific achievement that for a time provides model problems and solutions to a community of practitioners”. A *research paradigm*, as described by Hirschheim and Klein (1989, p. 1201), refers to “the most fundamental set of assumptions adopted by a professional community that allows its members to share similar

perceptions and engage in commonly shared practices”. Drawing from Burrell and Morgan (1979), this study adopts the view that paradigms serve as a framework for situating research, clarifying its origins, current position, and future direction.

Scholars such as Burrell and Morgan (1979) and Thomas Kuhn emphasize that paradigms are rooted in distinct worldviews of reality. These paradigms are structured around four fundamental elements that guide scientific inquiry. Kelly, Dowling, and Miller (2018) note that these elements are central to the discourse on paradigms. According to Lincoln and Guba (1985), the key elements include:

1. **Ontology:** The study of being or reality, referring to the nature of the phenomena being investigated. It addresses assumptions about what constitutes reality and how it can be understood (Creswell, 2014).
2. **Epistemology:** Derived from the Greek word *episteme* (knowledge), this branch of philosophy explores the nature and scope of knowledge. It sets the criteria for validating knowledge claims and determines how knowledge is generated, shaping the research methodology (Kelly, Dowling, and Miller, 2018).
3. **Methodology:** Encompasses the overall research design, including methods, strategies, and procedures for investigating a research problem.
4. **Axiology:** Concerns the role of values in research, particularly ethical considerations during the planning and execution of studies.

Harrits (2011) acknowledges the existence of multiple paradigms in social science research. Tang (2011) identifies eleven foundational paradigms, while Wahyuni (2012) highlights common ones such as positivism, post-positivism, interpretivism, and pragmatism. The diversity of paradigms reflects the evolving nature of the philosophy of science (Sefotho, 2015). Notably, many paradigms—particularly those prevalent in entrepreneurship research—draw from the foundational work of Kuhn and Burrell, and Morgan in organizational studies.

Burrell and Morgan (1979) propose four sociological paradigms that represent distinct perspectives on the social world, based on divergent meta-theoretical assumptions regarding science and society. There are two main dimensions upon which these paradigms are arranged. They are: *objective versus subjective*, and *sociology of regulation versus sociology of radical change*. From Table 4.1, they are labelled: (1) Radical humanist, (2) Radical structuralist, (3) Interpretive, and (4) Functionalist, “which can be used for the analysis of a wide range of social theories – social phenomena” (Burrell and Morgan, 1979, p.23), including entrepreneurial bricolage.

Table 4.5: The Four Paradigms for the Analysis of Social Theory

THE SOCIOLOGY OF RADICAL CHANGE

Subjectivism	Radical humanist	Radical structuralist	Objectivism
	Interpretive	Functionalist	

THE SOCIOLOGY OF REGULATION

Source: Burrell & Morgan (1979, p. 22)

The paradigms are considered both interconnected and distinct, *interconnected* due to shared underlying characteristics, yet *distinct* because their differences are essential for treating them as four separate and independent frameworks. Details of them are discussed below.

4.2.1 The Radical Humanist Paradigm

The radical humanist paradigm, which has its roots in the interpretive paradigm and a subjectivist viewpoint, is distinguished by its emphasis on creating a sociology of radical change. Sharing key assumptions with the interpretive paradigm, such as nominalism, anti-positivism, voluntarism, and ideographic approaches, it aims to challenge conventional understandings of the social world. Influenced by the idealist tradition, Karl Marx, as an example, is cited as a foundational figure. The radical humanist perspective resists established social structures and seeks to expose their limitations. It represents a body of social theory that deliberately critiques the status quo (Burrell & Morgan, 1979), emphasising themes of radical transformation, domination, emancipation, deprivation, and human potential.

4.2.2 Interpretive Paradigm

Adopting a subjectivist lens to explore the social world, the interpretive paradigm, chosen for this study, aligns with the principles of the “sociology of regulation” (Burrell and Morgan, 1979, p. 28). Customarily, interpretivism is the opposite pole of positivism. Interpretivism departs from the use of “strict hypotheses” (Ballsun & Stanton, 2010, p. 123). Instead, it is driven by research questions. Interpretivist scholars prefer terms such as “premise” or “proposition” over the positivist “hypothesis” to describe central theoretical assertions (DeLuca, Gallivan & Kock, 2008, p. 58).

The interpretive approach aims to achieve understanding through Max Weber’s concept of *Verstehen*. Accordingly, it relies on qualitative methodologies, including case studies,

ethnography, grounded theory, narrative analysis, and phenomenology. It adheres to nominalist, anti-positivist, voluntarist, and ideographic assumptions (Burrell and Morgan, 1979) and draws philosophical roots from Kant and the idealist tradition of social thought. Interpretive researchers immerse themselves in human consciousness and subjectivity to uncover the fundamental meanings shaping social life. Their focus is on understanding the continuously evolving, subjectively constructed nature of the social world.

4.2.3 The Radical Structuralist Paradigm

From an objectivist standpoint, the radical structuralist paradigm supports a sociology of radical transformation, despite having a comparable approach to science to functionalist theory. Therefore, in an examination that stresses structural conflict, methods of domination, contradiction, and deprivation, radical structuralism stands for radical transformation, liberation, and potentiality. Their behaviors are similar to those of nomothetists, determinists, positivists, and realists. One of the main distinctions between radical structuralists and radical humanists is that the latter emphasize structural relationships within a realist reality, whereas the former concentrate on “consciousness” as the foundation for a radical criticism of society.

The idea that inherent problems in modern society lead to radical transformation through political and economic crises is an example of a radical structuralist worldview. People become free from the social systems they live in as a result of these conflicts and transformations. The critical theory paradigm, which studies marginalized and underprivileged groups to raise their social standing, is consistent with the structuralist paradigm. Marx is a prime example of a radical structuralist because of the so-called "epistemological break" in his studies that led him to become interested in Darwinian ideas of political economy and evolution.

4.2.4 Functionalist Paradigm

According to functionalists, the social world is an objective reality composed of relationships and structures that can be seen and measured. The functionalist paradigm is on the premise that social phenomena can be adequately explained and addressed by empirical techniques derived from the natural sciences, and society operates in a stable, ordered fashion (Burrell and Morgan, 1979). Social thinkers such as August Comte, Emile Durkheim, Herbert Spencer, and Vilfredo Pareto helped popularise the functionalist paradigm in France during the nineteenth century.

4.3 Philosophical Underpinning of the Study

Bricolage is a theory of entrepreneurial behaviour (Baker and Nelson, 2005). It is a good opportunity to position such a study with no other research paradigm than interpretive, proposed by Burrell and Morgan (1979). Below are the justifications for the preference.

Scaling ventures through the theory of bricolage is in its embryonic state (Busch and Barkema, 2021), and there is little research in emerging contexts like Ghana compared to North America and Europe (Bruton, Ahlstrom, and Obloj, 2008). As a result, applying the interpretive paradigm to research in this highly unexplored area is appropriate for gathering more first-hand information from respondents to understand in-depth phenomena. The use of the interpretive (constructivism) paradigm dictates that the researcher become the “insider,” a social actor (Fard, 2012) in this study.

Researching through the lens of the behavioural theory of bricolage presupposes the use of Kant’s idealist norm of social thought that aligns with the interpretive paradigm. This paradigm is suitable for examining contemporary issues embedded in contexts where boundaries are uncertain, as

entrepreneurial ventures span multiple sectors. The various stakeholders and the dichotomous nature between the economy and society act as multiple sources of data (Yin, 1994), providing socially constructed meanings for the interpretive paradigm to address specific research questions in this study. By utilizing such a paradigm, the researcher could grasp the fundamentals and sources of reality through a deep engagement with human consciousness and subjectivity to understand the primary meanings underlying inquiries to fulfill the research objective.

Given the different actors in environments characterized by impoverishment, some interactions were enacted, negotiated, and constructed for legitimacy among communities to acquire resources in the field (Nicholls, 2010). This results in the development of a new construct, known as reflexive isomorphism, which, according to Nicholls, reflects a structuration (Giddens, 1984) view on legitimation in entrepreneurial ventures in Ghana.

The multimodal nature of entrepreneurs helps to draw resources from the stakeholders (Desa and Basu, 2013). This proves that the phenomenon of scaling entrepreneurial ventures through bricolage is always constructed through others. Congruent with other perspectives, Diochon, Durepos, and Anderson (2011) suggest that entrepreneurship research is not only centered on “who an entrepreneur is as depicted by the trait theory, but to “how entrepreneurship occurs”. Humanistic management hangs over the entrepreneurship processes in humans. Such approaches stand in direct opposition to neoclassical economic treatment of business and organizational processes. The complexity generated by the context and the processual nature of this phenomenon necessitates a move away from the functionalist paradigm towards interpretivism. Hence, the researcher’s preference for the interpretive paradigm of research.

4.4 Research Approach

Research approaches are plans and actions from broad assumptions to meticulous methods of collecting, analysing, and interpreting data. They involve many decisions, including the approach to study the topic. The decisions depend on the world view of the researcher in the study, the sort of research design, and method of data collection, analysis, and interpretation (Creswell and Clark, 2023; Creswell and Creswell, 2018; Creswell, 2014). The sort of research approach to be used also depends on the nature of the research problem, the personal experience of the researcher, and the study audience.

In the literature (Creswell and Clark, 2023; Creswell and Creswell, 2018; Hair et al., 2008), the three research approaches are: (1) qualitative, (2) quantitative, and (3) mixed methods. They assert that qualitative and quantitative approaches are not to be seen as rigid, discrete categories, polar inverses, contrasts, or separate but denote different ends on a continuum (Creswell, 2015). Mixed-methods research exists in the middle of the continuum as it involves characteristics of the two approaches and therefore benefits from the robustness of both quantitative and qualitative research (Creswell and Clark, 2023).

The choice of research approach for this study was a qualitative research methodology. Based on the researcher's worldview, the research objective, and the nature of the study, the qualitative method was appropriate and more applicable than a quantitative method (Pratt, 2009). It helped to understand resource construction in novel forms better (Foo et al., 2020). Qualitative research method (Lincoln et al., 2011), "is used to describe a set of approaches that analyse data in the form of natural language (words) and expressions of experiences (social interactions and artistic

presentations)” (Levitt, Bamberg, Creswell, Frost, Josselson and Suárez-Orozco 2018, p. 27). According to Simons (2019, p. 21), “a case study is an in-depth exploration from multiple perspectives of the complexity and uniqueness of a specific project, policy, institution, programme or system in a ‘real life’ context. Questions emerged and data were collected in the participants’ setting and inductively analysed by building from particulars to general themes for a better understanding of data interpretations as suggested by Creswell and Creswell (2018).

4.5 Research Design

A qualitative research approach and a type of study within such a choice were selected. Creswell and Creswell (2018) posit that the form of inquiry within the research approaches that gives direction for procedures in a study is known as research design. Others (Creswell, 2014; Denzin and Lincoln, 2018) term it a strategy of inquiry. Referring to Table 3.1, case study, narrative research, phenomenology, grounded theory, and ethnography are some qualitative research designs that one can undertake.

Table 4.6: Alternative Research Designs

Quantitative	Qualitative	Mixed Methods
• Experimental designs	• Narrative research	• Convergent
• Non-experimental designs, like a survey	• Phenomenology	• Explanatory sequential
• Longitudinal designs	• Grounded theory • Ethnographies • Case study	• Exploratory sequential • Complex designs with embedded core designs

Source: Creswell and Creswell (2018)

Other qualitative research designs are participatory action research (Kemmis and McTaggart, 2000), and discourse analysis (Cheek, 2004), are other viable ways to undertake qualitative studies.

Given the objective and the context of this research, multiple case studies were undertaken because little is known about the process underlying bricolage in entrepreneurial ventures in emerging economies like Ghana. Moreover, a multiple case-study design was used because it yielded a better grounded more robust, and testable theory than a single case study (Eisenhardt & Graebner, 2007). In addition, such a design allowed a replication logic, which enriches the validity of findings by confirming them in more than a single case (Eisenhardt, 1989). Such a phenomenon – replication logic, results in reality and objectivity (Yin, 2012). Furthermore, multiple case studies permitted triangulation, a strong foundation for theory building, that permitted the study to corroborate, qualify, or extend the findings between cases (Eisenhardt & Graebner, 2007; Yin, 2003). Such an inductive approach helped to understand the bricolage process (Eisenhardt, 1989) and also extended theory in the research context (Graebner et al., 2012) for new theoretical and managerial insights (Yin, 2014).

4.6 Sampling

The study sample represents a select group of objects taken from the total population through a specific procedure to be studied (Saunders, Lewis, and Thornhill, 2009). There are two types of sampling techniques, and they are probabilistic and non-probabilistic. The probabilistic technique includes random sampling, systematic sampling, stratified sampling, cluster sampling, and multi-stage sampling (Creswell, 2014). Under probabilistic sampling, all the elements have the chance to be selected and included in the study. On the one hand, non-probabilistic sampling includes

snowballing, quota sampling, convenience sampling, and purposive sampling, where the elements are chosen as a representative sample for the research (Creswell and Creswell, 2014). Sampling causes the study to be less costly, relatively undertaken speedily, helps to produce reports timely manner, and provides better quality data than when the whole population (Census) is studied (Kalton 1983). The six-step sample design process of “designing the population, identifying the sampling frame, selecting a sampling procedure, determining the sample size, selecting the sample elements, and collecting the data from the designated elements” was followed (Brammah 2014, p. 155). In the literature (Yin, 2014), two (2) or more cases qualify for a multiple case study. However, Eisenhardt and Graebner (2007) posit that the number of cases in qualitative research should be between four (4) and ten (10) to unravel similarities and differences in cross-case comparison, as more cases complicate analysis (Eisenhardt, 2021). On the one hand, Crouch and McKenzie (2006) propose that fewer than 20 participants in a qualitative study help a researcher to build and maintain a close relationship and thus improve the “open” and “frank” exchange of information. Moreover, conducting five (5) to fifty (50) in-depth interviews in qualitative research was also suitable (Creswell, 2003; Dworkin, 2012). For that matter, after interviewing the eighth key informant, theoretical saturation was reached. This number was appropriate as more cases complicate the analysis, and also the founders and leaders interviewed had rich experience in the field and were willing to freely share their knowledge. The entrepreneurial firms selected were registered with the Ghana Enterprise Agency (GEA). From the Global Entrepreneurship Monitor 2024/2025 criteria for established businesses, the selected cases are firms that have paid wages or salaries for forty-eight (48) months or more (GEM, 2025, p.35). Such firms had the chance to be identified as cases because they met the inclusion criteria.

The sample was selected through a purposive sampling technique. Some reasons for such a sampling technique are that participants normally cooperate during the interview process.

Purposive sampling also allows limited resources and permits information-rich examples to study (Patton, 2002; 2015). Although some of the cases fall within more than one sector, they were mainly selected from the agribusiness, energy, and manufacturing sectors. The heterogeneity of the sample enabled the researcher to capture theoretical diversity and achieve both extrapolation and saturation within and across multiple cases. This approach facilitated a deeper exploration and understanding of the phenomenon, while also allowing for stronger theoretical generalizations than would be possible with a more homogeneous sample (Patton, 2002). Additionally, it enhanced the construct validity of the emerging patterns. Irrespective of gender, the study was open to all gender groups who were willing and met the inclusion criteria. This is an unbiased process to ensure that gender equity is well addressed in the participant selection.

4.7 Unit of Analysis

Bricolage takes place at the individual/micro level of the entrepreneur or organisational level. As the focus of this study is on the entrepreneurial firms, the discourse on bricolage is at the organisational or firm level. According to Witell et al., (2018, p. 292), entrepreneurial firms relying on bricolage can be seen as ‘muddling through’ (Lindblom, 1959), a panacea that directs an organization’s decision-making in resource-constrained environments (Simba et al., 2021).

4.8 Data Collection

There were several sources and multiple rounds of qualitative data collection, including participants and non-participant observations and secondary data sources (venture websites, brochures, newspaper articles, reports etc.), to support and triangulate primary findings (Yin 2012).

4.8.1 Primary Data Collection

The interview guide was in six (6) sections. The first was to establish rapport with participants through the protocol. The second was to get the demographic data of respondents and the general identity of the entrepreneurial firm. Thirdly, there was a general question on the inception of the business. This covered issues like historical context, motivating factors, and processes surrounding the emergence of the business. The fourth sets of questions were centered on the exploration of the resource mobilization processes of the entrepreneurial firm. The fifth set of questions was to ascertain how resource resource-constrained environment enabled the scale of entrepreneurial firms through bricolage, and lastly, the questions were on the identification of ways bricolage could be used to scale entrepreneurial firms.

Primary data was collected from eight (8) entrepreneurial ventures through open-ended questions to have access to information on respondents' experiences and opinions (Saunders, Lewis, and Thornhill 2015). A case study protocol, based on the procedures for collecting empirical material outlined by Yin (2014; 2009), was employed to investigate how entrepreneurial ventures scale through bricolage. The protocol served as a guide for gathering shreds of evidence, empirical material analysis, and reporting in this research (Yin, 2009). It helped to follow a step-by-step guide for executing the study.

Data collection took place between 7th July and 20th August 2024. The method used to collect data was through face-to-face interview sessions for six (6) participants (WAF, BPS, ZLC, SFS, EFS, and TNS) and Zoom session for two (2) participants (FMH and ACF) due to a tight schedule and familiarity as suggested by Archibald, Ambagtsheer, Casey, and Lawless (2019). The research protocol outlined the study's rationale and included assurances of the participants' complete confidentiality regarding the data collected. It continued with the general questions about the

background of the business. After that, participants answered questions on how resource constrained environment enables the scale of entrepreneurial firms through bricolage, and lastly, ways by which bricolage could be used to scale the venture. This approach encompasses a sequence of events in the development of entrepreneurial ventures, along with the engagement of external individuals or organisations in the entrepreneurial process, as outlined by Chandler et al. (2011). When further detail or clarification was needed, interviewees were probed about their involvement in scaling entrepreneurial ventures through the two primary modes of scaling - breadth and depth - as defined by Desa and Koch (2014).

With the permission of the participants, the interviews, which averagely lasted for 71 minutes, were recorded and transcribed by the researcher according to the data transcription process suggested by Forman and Damschroder (2007). After returning from the field, interviewees were allowed to re-read the transcripts for confirmation. Interruptions and inaudible conversations were noted by inserting [INTERRUPTION], [INAUDIBLE]. [INAUDIBLE] was specified when the researcher could not distinguish words due to any form of noise in the recording. Given that, significant deviations from normal conversational tone were indicated as [LAUGHTER], [ANGRY], [LOUD]. When the researcher was unsure of a specific word(s), there was an insertion of a [?] after the word(s). At the end, transcribed notes were compared to recordings to ensure accuracy.

4.8.2 Secondary Data Collection

Secondary data was also collected to interpret the primary data more insightfully (Saunders and Lewis, 2017) in this study. The cost of getting the secondary data saves money and time than in primary data. The transcribed data was compared to the secondary data for valid and reliable data

and results. The sources of secondary data were reports, memoranda, strategic plans, websites, videos, brochures, newspaper articles, publications on the programme, newsletters, and magazines. The different data sources used permitted a better triangulation in the study.

4.9 Mode of Data Analysis

Data analysis is a process where raw data is organized to extract useful information (Silverman, 2013; Welman et al., 2014). It is a creative means of sorting and organizing data to grasp a deeper understanding of the phenomenon. The process involves inspecting, cleaning, transforming, and modeling data to unearth useful information that informs conclusions about the issue being studied (Creswell, 2013). The primary goal of data analysis is to extract meaningful insights from data to enable informed decision-making (Monette et al., 2014). Given that, there is no single way of analyzing qualitative data. Analysis is therefore a continuous and iterative process that starts in the initial phases of data collection and persists throughout the entire study (Bradley, Curry, and Devers, 2007).

The two primary approaches to data analysis are qualitative and quantitative. According to Mezmir (2020, p.15), qualitative data analysis involves organising and interpreting linguistic or visual material to uncover both implicit and explicit dimensions of meaning and the structures represented within it. On the other hand, quantitative data analysis involves collecting numerical data and using various statistical, mathematical, or computational techniques to evaluate and interpret that data. A qualitative technique in data analysis was used in this study. The process involved several iterations between primary data from eight (8) case studies and literature on bricolage and scaling entrepreneurial firms thematically. Thus, data was placed under

“examination of meanings within an iterative process of evolving findings” (Levitt et al. 2018, p. 27). In other words, data under the study was analysed by identifying patterns tied to scaling ‘behaviours underlying entrepreneurial bricolage’ (Reypens et al., 2021: 4; Baker and Nelson, 2005, pp. 333-336; Levi-Strauss, 1967) phenomenon. Data analysis in this study followed the recommendations of Braun and Clark (2012), Yin (1994), and Eisenhardt (1989). As Yin (1994) suggested, a case study database was created to compile the data collected for each case using MAXQDA24 software. This enabled a case history for each entrepreneurial firm to be developed. Primarily, data analysis was driven by the research questions and the literature on bricolage resource mobilisation behaviour. Nevertheless, the analytical method was also informed by the context, participants, and the data collection type suggested by Creswell & Poth (2018).

The six steps in thematic analysis by Parker (2004) and Braun and Clark (2012) were followed. The first step was to transcribe the audio into written text. To become more acquainted with the data for proper coding, the transcript was read several times (Elliott, 2018). Thus, there was a back-and-forth process where data was cleaned and verified to highlight issues of interest and relevance to the research questions. These are crucial to ensure consistency, reliability, and accuracy. Cleaning and verifying the data ensures the dependability and credibility of the thematic analysis. For example, anything that was to deflect the focus of the study was cleaned and the actual response that helped the researcher answer the research question was verified. Secondly, free associations to different meanings to access bricolage resource mobilisation process and scaling entrepreneurial firms were noted down. Objects were itemized and distance was kept from the transcripts by treating the transcripts as objects of the study instead of what it seems to “refer” to (Mezmir, 2020, p. 25). The third step was coding. Coding was important in the study because “text

data are dense data, and it takes a long time to go through them and make sense of them” (Creswell, 2015, p. 152). In-vivo codes were created by labeling the data “...to assign symbolic meaning to the descriptive or inferential information compiled during a study” (Miles, Huberman, & Saldaña, 2014, p. 71). That was the fourth step. In the fifth step, there was the reassembling and arraying of data to reorganising codes or place codes in levels, as also suggested by Yin (2011). Lastly, a new narrative was created to interpret data by posing questions, thinking of alternative explanations, and comparing data. These permitted characters, persona (subject), and behaviour in resource mobilisation to be specified in the transcribed text, and relationships mapped into comparable patterns for thematic analysis across the eight cases. These helped to understand the phenomenon under study in context (Bruton et al., 2018).

There was within-case analysis for each case, involving detailed case study write-ups for each site (Eisenhardt, 1989). Cross-case analysis was followed to identify patterns across the cases that highlight recurring themes or divergences. The within-case analysis undertaken earlier enabled the realisation of components of cross-case analysis. Lastly, cross-case themes were compared with the literature until theoretical saturation was reached. The process of thematic analysis adopted in this study was founded by the Philosopher of Science, Gerald Holton, in 1975. Braun and Clarke (2006) assert that most analysis in qualitative studies is essentially thematic; however, it is mostly classified under one of the qualitative analyses in the social science literature. In view of the publication that became a ‘landmark paper’ (Terry, Hayfield, Clarke and Braun, 2017, p. 2), the perception of researchers on ‘a poorly demarcated, and rarely acknowledged, yet widely used qualitative analytic method’ under discourse, gained popularity (Braun and Clark, 2006, p. 77; 2022).

The researcher, therefore, preferred thematic analysis with reasons. Firstly, Wiltshire and Ronkainen (2021) assert that comparing thematic analysis to other analytic methods with a more complete methodology like phenomenological analysis, Foucauldian discourse analysis, or narrative analysis, it can be identified as an intuitive method without cavernous theoretical commitments (Braun and Clarke, 2006). Secondly, according to Braun and Clarke (2006), it is "... easily grasped and can be relatively quick to learn, as there are few prescriptions and procedures" (Nowell, Norris, White and Moules 2017, p.2). Thirdly, although it can result in inconsistencies and less coherence in developing themes (Holloway and Todres, 2003), it is characterised by flexibility, organic processes of coding, and can provide insights and organise meanings to theme development. To promote consistency and cohesion, the researcher applied and made explicit an epistemological position that underpinned the empirical claim of the study as suggested by Holloway and Todres (2003). Fourthly, it is useful for making knowing and reflexive choices about analytic approaches (Braun and Clark, 2021). These can be done systematically across a dataset in qualitative data that is notoriously 'voluminous, unstructured, context specific and does not yield up its meaning easily' (Fielding and Lee, 1998). Thematic analysis is generally robust among other qualitative data analytic methods, such as grounded theory, discourse, content, and conversation analysis.

According to Braun and Clark (2012), it is difficult to exclusively use a deductive or inductive approach in thematic analysis because "codes will almost always be a mix of descriptive and interpretive" (p. 61). However, the most important aspect is that the codes were appropriate in meeting the research objectives of this study. As a result, an abductive approach was used for the analysis (Saunders et al. 2019). This permitted, deductive means of coding, followed by an inductive approach to get the main themes and sub-themes in the study. The coding at the end was inclusive, thorough, and systematic.

4.10 Ethical Considerations

To avoid any unethical issues in this study (Saunders, 2019), the research followed the ethical regulations of the University of Ghana Ethics Committee for the Humanities (ECH). The guidelines helped in knowing and addressing ethical concerns acceptably (Saunders, Lewis and Thornhill, 2016) before and during the study. Before data collection, an ethical clearance was issued by ECH to the researcher (appendix B). Ethical issues, in the form of informed consent, confidentiality and anonymity, reflexivity, and trustworthiness according to the ethical instructions laid down by ECH, were followed strictly. A consent form was sent to participants before the day of the interview. The participants read and signed the letter of consent as an agreement to take part in the study voluntarily. This made participants give out the necessary information for the study. They then handed over the signed informed consent form and gatekeeper's permission to the researcher. The aim of the study and how the findings are to be used were explained to the anonymous and confidential participants. The motive was to protect the researcher and participants from harm in the conduct of the study and to validate the reliability of the final findings.

4.11 Chapter Summary

Chapter four (4) explores the choices made in research methodology by the researcher with justifications. This qualitative research method was designed to collect data from eight (8) entrepreneurial firms in Ghana. This chapter explores the research paradigm by outlining the four (4) essential elements that define the nature and purpose of scientific inquiry. It also examines the four (4) paradigms used to analyze social theory, along with the study's underlying philosophical foundations. It discussed the research approach, research design used, sampling, data collection process, mode of data analysis, and ethical considerations. The next chapter presents the empirical data collected and its analysis.

CHAPTER FIVE

IN-CASE DATA ANALYSIS AND FINDINGS

5.0 Chapter Overview

The research findings are divided into two. Thus, in case and cross-case data analysis and findings through the MAXQDA24 thematic data analytic process described in chapter four (4). This chapter presents the data analysis and findings according to the protocols in a qualitative study (Creswell, 2014, pp. 247-249; Braun and Clark, 2012; Yin, 1994; and Eisenhardt, 1989). To arrive at the findings, raw data was gathered first from eight (8) cases, then the data was organised and prepared for analysis. It was thoroughly read through for coding, followed by interrelating themes and, finally, interpreting the meanings of the themes. There was an individual-case and cross-case analysis based on the study's objectives.

In conclusion, this study expands on the research of Baker & Nelson (2005) and Levi-Strauss (1967) by investigating how entrepreneurial enterprises use the bricolage process to mobilise material, human, and financial resources for cost-effective scaling in resource-constrained situations. To direct the presentation of the case findings, the following study aims and questions are restated based on the earlier chapters as follows:

1. Examine how entrepreneurial firms mobilise financial, material, and human resources through a bricolage process in penurious environments;
2. Analyse how resource-constraints were overcome to enable the scale of entrepreneurial firms through the lens of bricolage; and

3. Ascertain ways by which bricolage could be used to scale entrepreneurial firms affordably.

Accordingly, the research questions are presented below:

1. What is the resource mobilisation behaviour of entrepreneurial firms in a resource-scarce environment?
2. How does a resource-constraints drive the scale of entrepreneurial ventures through bricolage?
3. How should bricolage be used to scale firms affordably?

For ethical reasons, the cases were anonymously coded as WAF, FMH, BPS, ZLC, ACF, SFS, EFS, and TNS. The profiles of the cases and interview details are found below.

5.1 Characteristics of the Cases

From table 5.1, four (4) of the enterprises (FMH, BPS, SFS and TNS) representing fifty percent (50%) of the cases were more than ten (10) years in business whiles the other four (4) (WAF, ZLC, ACF and EFS), representing fifty percent (50%) as well, were less than ten (10) years old. Three (3) of the cases each were in agribusiness (WAF, FMH and ACF) and manufacturing (BPS, SFS and EFS) sectors whiles two (2) of them (ZLC and TNS) were in the energy sector. Two of the firms (WAF and ACF) were established and managed by couples, whiles the six (6) were mainly established and managed by males. Out of the six (6), one of the participants (TSN), a female and a PhD holder (tables 5.2 and 5.3) was not a founder, but a Research and Innovation Manager who was delegated by the owner to be interviewed.

Table 5.7: Case Profile

No.	Firm	Year established	N° of employees	Activity	Sector of operation
1	WAF	2018	10	Recycling food waste into quality insect-based protein as animal feed and quality compost.	Agribusiness
2	FMH	2010	24	Environmentally friendly fertilizer and pesticide for farming.	Agribusiness
3	BPS	1993	5	Converting waste to energy for cooking.	Manufacturing
4	ZLC	2016	8	Clean burning, efficient and long-lasting charcoal briquettes from coconut waste.	Energy
5	ACF	2018	13	Processing turkey berries to teas, juices and herbal capsules as healthy and organic foods.	Agribusiness
6	SFS	2010	39	Treatment of wastewater, organic waste, and faecal sludge to produce biogas to provide electric energy and bio fertilizer to improve soil fertility.	Manufacturing
7	EFS	2015	7	Provision of natural skin and hair care products – Shear butter and liquid black (alata) soap.	Manufacturing
8	TNS	2005	41	Solar engineering and procurement - sale, distribution and installations of renewable solar power components.	Renewable energy

Source: Research data, 2024

There were eight (8) in-depth interviews with founders and two (2) (SFS and TNS) senior officers of entrepreneurial firms that averagely lasted 71 minutes in Ghana. Having operated between six (6) and nineteen (19) years with an average of over fifteen (15.88) years, all the firms showed capabilities of scaling in various forms in resource scarcity. The age range of the respondents was between thirty (30) and fifty-eight (58) years, with an average age of forty-four and a half (44.5) years. The employee size was also between five (5) and forty-one (41). The interviewees were seven (7) males and a female, representing eighty-seven and a half percent (87.5%) and twelve and half percent (12.5%) respectively. Postgraduates were six (6) with the female (TNS) among them having a PhD degree while graduates were two (2) (SFS and BPS), representing seventy-five percent (75%) and twenty-five percent (25%) respectively.

Table 5.8: Interview Details

Case code	Yrs.	Function	Gender	Age	Educational background	Interview duration	Date of interview	Means of interview
WAF	6	Founder	Male	30	Postgraduate	81 min	7 th July 2024	Face-to-face
FMH	24	Founder	Male	50	Postgraduate	78 min	8 th July 2024	Zoom
BPS	31	Founder	Male	58	Graduate	66 min	25 th July 2024	Face-to-face
ZLC	8	Founder	Male	37	Postgraduate	69 min	8 th August 2024	Face-to-face
ACF	6	Founder	Male	56	Postgraduate	58 min	2 nd August 2024	Zoom
SFS	24	Production Manager	Male	38	Postgraduate	79 min	9 th August 2024	Face-to-face
EFS	9	Founder	Male	57	Graduate	74 min	11 th August	Face-to-face
TNS	19	R&D Manager	Female	30	Postgraduate (PhD)	63 min	20 th August 2024	Face-to-face
Average	15.88		Male	44.5	Postgraduate	71 min		
			87.5%		75%			
			Female		Graduate			
			12.5%		25%			

Source: Research data, 2024

5.2 Deployment of MAXQDA Software for the Case Analysis

This section outlines the application process and deployment of the MAXQDA software in analysing the case studies. Thematic analysis was used to identify, analyse, and interpret patterns of meaning in qualitative data. Data analysis process was facilitated through the structured tools and iterative interface of MAXQDA, a qualitative data analysis software. The analysis began by importing the eight (8) interview transcripts, coded as WAF, FMH, BPS, ZLC, ACF, SFS, EFS,

and TNS, into the MAXQDA workspace. After uploading the transcripts, the contents were familiarised to better understand the data. Codes were inductively and deductively generated and assigned to meaningful segments of the text. The coding features of MAXQDA permitted the creation of hierarchies and categories, resulting in the systematic organisation of data. After the coding process, the visualisation and retrieval tools of MAXQDA helped to identify recurring themes across various sources. The Code Matrix Browser, Code Relations Browser, and Profile Comparison Charts, for instance, helped to explore code co-occurrences, supporting deeper thematic development in bricolage resource mobilisation. Themes are then refined, defined, and named to reflect the core patterns in the data. The final output includes a detailed thematic map and supporting evidence, ensuring a rigorous and transparent analytical process.

5.3 Within-Case Analysis and Findings

Referring to Table 5.1, eight (8) cases from the agribusiness (WAF, FMH and ACF), manufacturing (SFS, EFS, and BPS), and energy (ZLC and TNS) sectors were used for the study. The within-case analysis comprises key issues investigated in each case and quotes from participants during the in-depth interviews. They are discussed under the following headings: 1) the contextual background driving business establishment through bricolage behaviour; 2) source of financial, human and material resources; 3) key resource constraints; 4) overcoming resource constraints; and 5) how resource-constrained environment drives bricolage behaviour to scale entrepreneurial firms.

5.3.1 Case 1: WAF

5.3.1.1 The Contextual Background Driving Business Establishment Through Bricolage Behaviour

WAF began in Adenta, a suburb of Accra in the Greater Accra Region of Ghana, before COVID-19 in 2018 by couples. In 2020, the business relocated to its current site in Asuoyaa in the Akwapim North Municipal Assembly of the Eastern Region of Ghana for more space. Its current location is approximately 8.7 km from Koforidua, the capital city of the Eastern Region, and 52 km from Accra, the capital of Ghana. The interest in starting the business arose when the owner met like-minded individuals involved in waste recovery during an African Innovation Summit in Rwanda. The owner of WAF was invited to attend the summit by the organization he was working with at the time. The goal of the conference was to gather fifteen (15) innovators selected from across Africa to present innovative ideas on waste recovery. WAF's owner met a man from South Africa who was seeking people to tackle Africa's waste challenge. There was a strong passion for the business stemming from the innovative approach to solving the waste problem by using black soldier fly larvae to naturally produce animal protein through the recycling of organic waste. The owner improved his business knowledge through online self-study on the subject and with guidance from an entomologist at the University of Ghana, who taught both him and his wife how to culture the black soldier fly larvae.

5.3.1.2 Source of Financial, Human and Material Resources

The ability of every firm to deploy tangible and intangible resources to enhance operations is central to the growth and scale of the business. Responding to the question on the sources of resources (Financial, Human, and Material) WAF used for the venture's initial establishment, it

was realised that time, space, materials, knowledge, finance and partners to enhance performance were some of the key resources. In all, they quickly mobilised what was readily available in their resource compendium as shown in Fig. 5.1.

Figure 5.1: Code Cloud on WAF's Resource Compendium



Source: Research data 2024

The first resource to think of was time. Participant asserted that:

My wife was working full time at a travel and tour agency. You need to be on the ground in entrepreneurship so she took that bold step, sacrificed her job because we needed to sustain the business, stopped everything and worked fully. (WAF, Pos. 22)

In terms of space, the owner of WAF said:

I approached my father and asked him for a small place or yard under his mango tree in the house at Adenta in Accra - Ghana. We had some containers from my father and used them to teach ourselves under a mango tree. So, we had to do things in smaller settings. We built a wooden structure to attract the black solder flies from the wilds. (WAF, Pos. 23)

The interviewee continued by saying that:

“We had our first larvae and learnt how it decomposed. We used that to learn. So the resources I guess were time from myself, my own intellectual knowledge and people who have done it before. That’s the South African friend we met at Rwanda, and finally, space. In terms of finance, we were not thinking about funding in a form of grant, loans and others”. (WAF, Pos. 23)

The main source of funding and basic infrastructure came from family and friends. It was late in the development process that they had a grant from an incubation hub. A South African friend, who introduced the business idea to the owner, was a great asset. There were also entomologists from University of Ghana who trained WAF on how to culture the black soldier larvae.

5.3.1.3 Key Resource Constraints

Entrepreneurial firms are faced with complex contexts where drawing resources for businesses that are not known is difficult. As couples, the co-founders of WAF were sharing all the activities such as corporate management, HR, operations, marketing, sales, and collection of waste in the business. Time for gathering resources and running the business was a major issue. Getting the resources to operate was also a challenge. In addition, the concept of affordably feeding black soldier fly larvae to animals was proven but it had to be replicated and that depends on finance. Moreover, the couples had the idea of the product but because it was new, few farmers were aware of it. Getting farmers to understand, accept the product and adopt it was a challenge. Thus; the owners of WAF had to overcome how to make the concept a real business. Due to unavailability of funds and how the concept was new, WAF could not consistently produce. The market was low from the beginning and they could not afford high interest on loans as the business was not in a position to pay back with interest rate of thirty percent (30%).

In reality, we were having some customers but not making profit. We were making losses and thus the reality, although they were showcasing us on TV and other outlets. (WAF, Pos. 38)

5.3.1.4 Overcoming Resource Constraints

As mentioned earlier, the first challenge was time. The wife was working full-time as a travel agent but had to stop and work fully at WAF to sustain the business. When approached, the husband's father gave him a space under a mango tree to operate the business.

So we had to do things in smaller settings. As a pilot project, we built something like a box or wooden structure to attract the black soldier flies from the wilds. (WAF, Pos. 23)

WAF began looking for grant funding and sent out applications. They were first of all asked to perform a marketing study that proved that the idea had much potential. They had to pitch among 10 start-ups and after winning, they got the grant for expanding the business.

That's what we used to build the facility. That enabled us to increase our capacity at the pilot level. (WAF, Pos. 38)

WAF used their promotion to build the brand as well as raising interest in product usage.

People were embracing the idea. We stressed on how the product is a natural organic protein feed that is more quality and affordable than the traditional protein sources for alternative animal feeding. So we were pushing the black soldier flies as an affordable animal feed and it worked. (WAF, Pos. 38)

5.3.1.4 How Resource Constrained Environment Drives Bricolage Behaviour to Scale Entrepreneurial Firms

The business was not sustainable because the cost of production and processing was higher than the returns. The couples also realised that they were undertaking all activities in the BSF value chain.

Thus; waste resource, waste transportation, processing, rearing/breeding the larvae to produce eggs continually, making products out of the larvae, we were doing all in addition to marketing. We were spreading ourselves too thin. It took us some time to come to that realization. (WAF, Pos.

49)

To reduce work load, the WAF had social agreement to train out growers to produce substrate such as sorghum, millet, maize porridge mash or pito mash (locally brewed cereal drink). This made the co-owners to focus on the value addition to scale.

People think if you train others you create competitors but when you are in a new industry, I will say that it's always good to train people for the expansion of the industry. They go out there to create awareness. You, let them set up. It's good, they set up, talk to people about the product; they take certain risks because as it is, we were the only people doing much. (WAF, Pos. 49)

When the participant was asked about the sort of agreement in the outgrowing partnership, the participant responded that there was a buyback after meeting standards.

At first, we wanted to say hundred percent (100%) buyback but we realised that other pig farmers were sometimes giving the out-growers higher prices, so there was side selling without our knowledge and we could not control them. (WAF, Pos. 49)

WAF then stopped the training and bought the larvae from the outgrowers so they could focus on what they could do better and explore other value additions that could attract more income. That has made it possible for WAF to focus on oil extraction from the larvae, shredding, and pelleting the final products for animal consumption.

WAF was able to scale into the production of chocolate with other local protein sources. The idea was to promote indigenous products.

We tell people we have “dawadawa” (parkia biglobosa) chocolate they doubt mmmmmh!!! But let them taste it and they call for more. It’s like meeting a different market. (WAF, Pos. 42)

The first business helped to get into the second, as the owners took their lessons and corrected themselves. Establishing the production of animal feed from BSF larvae was not easy, according to the participant.

There was a time we lost entire colony. Times when we could not pay staffs. Adding a second business is like supporting the first or serving a different market. (WAF, Pos. 43)

5.3.2 Case 2: FMH

5.3.2.1 The Contextual Background Driving Business Establishment Through Bricolage Behaviour

Located in Kumasi, FMH was established in 2010 to provide an organic fertiliser (asaase nofosuo) and a broad-spectrum pesticide. A World Bank project called “Waste Not a Waste” was introduced under Ghana Innovation Marketplace, while the owner of FMH was a national service personnel of the National Board for Small Scale Industries (NBSSI), which is now the Ghana Enterprise Agency (GEA). This was a challenging project, inviting people to write proposals on how waste can be economically useful. FMH had an idea upon visiting a dumping site and experimented with severally to create Asaase Nufusuo granular organic fertiliser. Since 2008, the company has researched and developed two additional products and also improved the maiden product.

5.3.2.2 Source of Financial, Human, and Material Resources

The interview conducted in FMH reveals that resource mobilisation is a key challenge to many entrepreneurs in Ghana. From Figure 5.2 on the Code Cloud Resource Compendium, FMH craftily mobilised resources like cocoa waste, loans, skills, and know-how for the organic fertiliser business.

Figure 5.2: Code Cloud on FMH's Resource Compendium



Source: Research data 2024

The owner obtained finance from his meager national service allowance and proceeds from other small businesses he engaged in to purchase a crushing machine. As the business progressed, the owner applied for funds himself, however, depending on the technicalities involved in accessing a particular capital, he used consultants. He then asked the companies conveying waste to transport some materials to his site. He added by saying:

I started mobilising resources in a crude way but turned out to success upon my first 30kg bag came out and trial was carried on the maize field. After 5 years in operation, I had reasonable amount of equity invested into the company. (FMH, Pos. 20)

NGOs in the agricultural space also create opportunities for me to sell and expand.

5.3.2.3 Key Resource Constraints

Normally, the government buys and subsidizes the fertilizer to farmers, but it is very difficult to get such support from the government. Engineering constraints constitute a major concern for FMH. Local engineers do not have enough capacity or skill to fabricate and maintain the equipment used for the production of fertilizer. Again, liquidity is a concern. Difficulty in obtaining finance does not aid the business in attracting bigger contracts, especially from the Ghana Cocoa Board and other government agencies. It takes a long time for regulatory processes to take place. It is difficult to get contracts from government agencies.

5.3.2.4 Overcoming Resource Constraints

The fertilizer industry is dominated by the government and is highly regulated. The government buys and subsidises for farmers. If a company does not get the subsidy, it becomes difficult to remain in business, as all the costs cannot be paid by the farmers. In solving such issues, FMH uses a network of GIZ and USAID grants to subsidize the farmers to purchase the fertilizer. This has been very successful and has developed a different business model for me to compete well in the market. For major maintenance of equipment, FMH brings expatriates from Iran or China. In terms of liquidity, FMH uses NGOs like USAID to facilitate grant funding.

5.3.3 Case 3: BPS

5.3.3.1 The Contextual Background Driving Business Establishment Through Bricolage Behaviour

The owner of BPS is an engineer who established the business in 1993 at a hilly house at Anyaa, near Sowutuom in Accra, Ghana. The owner is popularly known as an engineer in the vicinity, and

one cannot miss him as his machines were scattered in an open-walled-storey building. Tools and machines are scattered in rooms and corridors.

From the interview, the owner was motivated to convert waste to energy when the country faced the challenge of managing waste. The business manufactures affordable waste oil cooking stoves, bioreactors, and anaerobic digesters that convert human excrement to energy. The energy can be used for heating or co-generating electricity for sanitation purposes. BPS was manufacturing a cooking stove that uses waste oil to burn due to the high cost of liquefied petroleum gas (LPG) at the time of the research.

The business works hand in hand with welders and fabricators who are not permanent because BPS cannot afford to keep them fulltime. He added that:

As and when I need them, I call them. We invite them upon their terms and availability. They come and work, pay them and they go. If we test and it didn't work, that money is gone. They will do it again and take money again without saying they did it previously.... if you test and you didn't get the results you want, that money is gone. You have to pay him to do it again till you get a good result. (BPS, Pos. 33)

5.3.3.2 Source of Financial, Human, and Material Resources

Locally, BPS mobilised finance from his pocket, family, and friends. He also obtained material resources like waste oil, charcoal granules from his resource troves as found in Figure 5.3 below.



Figure 5.3: Code Cloud on BPS' Resource Compendium



Source: Research data 2024

Going round the yard, he showed the researcher some projects that were started and halfway through, it was abandoned due to financial problems. He added that:

“in view of financial challenges, one abandons a project then moves to another that can give you money all the time. So all the time, I do my research, I look at the market, if it can penetrate into it, I push it there, make small money”. (BPS, Pos. 24)

He showed a charcoal gasifier that is powered by smaller aggregates of charcoal that was sourced from charcoal sellers. These are the rejected charcoal in pieces that are sometimes used for landfill purposes. The gasifier consumes that type of coal to produce a lot of heat with high calories to help cook cheaply. That waste resource can be used to power generators as well.

Apart from using waste charcoal as a resource, BPS at the time of research was converting used vehicle oils from fuel stations to energy. As the interview was going on, he affirmed that:

You've seen this stove sitting here; it uses the used oils from vehicles. Those oils end up in drains, causing problems to aqua-life but we are making good use of it. We are finding proper ways of oxidizing it to produce energy. (BPS, Pos. 25)

BPS works with casual professional welders and fabricators. They are the main human resource needed. They are sourced mostly from Accra. One of the fabricators was present to design a prototype during the interview and the owner said:

"...you can ask him how I cannot afford to employ them full time. As and when I need them, I call. They are invited upon their terms and time availability. They come and work, and I pay them and they go. If we test and it didn't work, that money is gone. They will do it again and take money again without saying they did it yesterday. Because you asked him to do it and he does it just that, if you test and you didn't get the result you want, that money is gone. You have to pay him to do it again till you get a good result." (BPS, Pos. 33)

The response of the owner denotes that human resources are available, and he has worked with them for a long based on the availability of funds and ability to negotiate with them.

5.3.3.3 Key Resource Constraints in Scaling Business

Of all the resources, finance is the main constrain facing BPS. Apart from the inability to employ welders and fabricators fully due to the difficulty in getting funds to pay them, the high Dollar rates cause parts from abroad to be very costly. The business uses both local and foreign components to operate. The owner added:

"Like that reactor siting there. The blower attached to it is from China. The PvC of the machine you are sitting by contains battery and that's the solar charger and its controller

that is used in a remote area where there is no electric power. For that matter, you use solar to charge the battery. Some of the components attached to it comes from abroad and costly.” (BPS, Pos. 36)

The cost of foreign parts is high because the Dollar is always appreciating against the Ghana Cedi. Shipping and clearing cost at the ports are high and BPS complained of how no one is prepared to offer him funding and he cannot also afford to go for a loan for a project that he is still researching and correcting things every day.

On several occasions, BPS tried to import spare parts from China and clearing was a problem because the duty was high in cost.

They will tell you this is how much you have to pay, and if you get to the port you pay more.
(BPS, Pos. 43)

The owner narrated an instant where his item remained in the ports and harbour's warehouse for almost three (3) months because he was finding it difficult to get funds for clearing. By the time he had money to clear the items, those who have already placed orders have lost interest because they think:

“ade no nnye adwuma...” (BPS, Pos. 43) (in Akan, a popular Ghanaian language).

In English language, it means, the product cannot perform and therefore, not meeting customer satisfaction. He showed the researcher some of such products at the shop. Those customers who were so agitated because of the delay in receiving the order were to be paid back. However, one ended in police station because the inspector was a relative to the client. The policeman asked the participant how he could retain his fellow businessman's capital for long without an interest and the owner of BPS did that.

BPS narrated how the incident occurred when he had not cleared the parts from the ports to build the product. When BPS got the product, the customer said “*dabidabi*”, meaning he was no more interested. The parts were at the shop and have not been used. The participant was painfully narrating how if he had provided the products to the client at that time, he would have had the returns and more people would have been interested. This was because on a WhatsApp platform, there were about thirty (30) clients who were interested in the product. BPS added that:

There were people producing pomade and herbal medicine that were also facing high cost of purchasing LPG, so they thought that my gasifier was going to give them an intervention. All those 30 people would have formed a line if those who have committed money earlier had their products from me. Although I have refunded their money to them on time, I've lost that opportunity to be able to scale out this beautiful project. (BPS, Pos.

43)

5.3.3.4 Overcoming Resource Constraints in Scaling Business

It is known in the case of BPS that accessing funds to scale is a major constraint. However, there are ways entrepreneurial firms engage in overcoming such constraints. Asking of how the business overcomes resource constraints in scaling its business, the owner of BPS exclaimed:

Ahhh! My own pocket. If you had come yesterday, you would have seen my pickup packed with for sale on it. Somebody bought it and I just used the money to pay for materials from China.

That's a lot of money. (BPS, Pos. 38)

From the interviewee, that was not the first time he had sold his belonging to invest in the business.

5.3.4 Case 4: ZLC

5.3.4.1 The Contextual Background Driving Business Establishment Through Bricolage Behaviour

ZLC, is a pioneering Ghanaian company that has created clean-burning - smokeless, efficient charcoal briquettes from coconut and other organic waste since 2016. It is stationed at Ayimensah and Ayikuma in the Greater Accra Region of Ghana. The business is devoted to sustainable energy solutions through the transformation of environmental waste. ZLC had no business with charcoal but started the business out of curiosity. There are heaped coconut husks around coconut sellers in the city of Accra always. At Osu in Accra, he once bought kenkey – a main dish known as *komi* by the Gas (a tribe located in Accra). *Komi* is made of fermented corn dough that is rapped with husk and steamed for about two (2) hours. Whiles he was eating the kenkey, he realized the seller was using coconut husk as firewood for cooking. He then asked himself:

Firewood is what is used for charcoal, is it possible to make charcoal with this coconut? Out of curiosity, I tried and tried and tried and it worked. I got so excited when people were asking to pay for it. We went to the supermarket and realized they were all importing charcoal to sell. Oh, okay, we too we can take ours there. So honestly, that's how it started. That's the motivation.

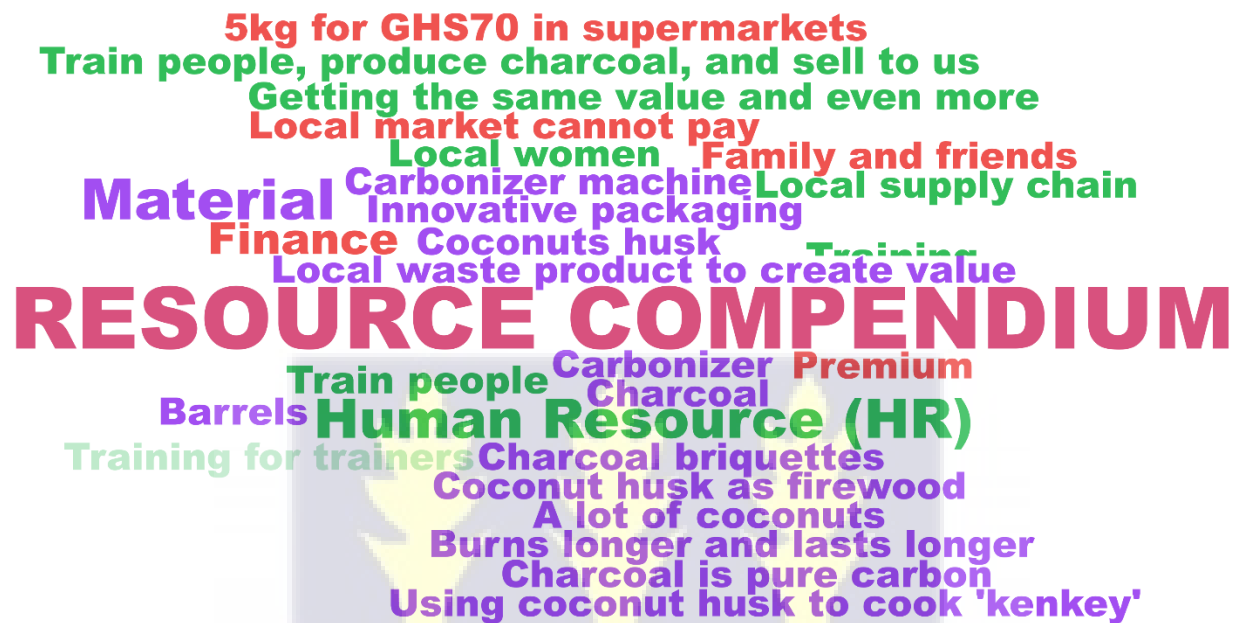
(ZLC, Pos. 20)

ZLC is paving the way for a cleaner, more sustainable future for its community. With eight employees, the business is committed to tackling deforestation, pollution, global warming, and health issues across Ghana and other African nations.

5.3.4.2 Source of Financial, Human, and Material Resources

The main source of finance was family and friends. The eight (8) employees and other resources like coconut husk, which is the main material for the business, were sourced from the vicinity.

Figure 5.4: Code Cloud on ZLC's Resource Compendium



Source: Research data 2024

5.3.4.3 Key Resource Constraints

With ZLC, the key resource constraint was human. It was realized after establishing the business. On the day of the interview, for instance, three (3) employees out of eight (8) came to work.

A lot of time I used to hear the old men say, oh, our youth are lazy, they don't like work and we get angry. Yeah, I won't, ever mention finance. (ZLC, Pos. 32)

In the case of ZLC, human resource constraints come before finance. The next constraint is related to regulation.

Regulation is treating us like any other charcoal maker, whereas we are not. We are rather the good ones, because ours is not the same as theirs. (ZLC, Pos. 32)

He screamed that people burn charcoal all over the country but regulators have nothing to do with them. ZCL have legitimized their business by doing things right but regulators ‘keep an eagle eye on them’. However, other unapproved charcoal producers are cutting more trees and nobody even cares. The interviewer was shown some charcoal that have been in the warehouse several months because regulators were not releasing permit to ship across the national boundary.

Eventually, after going back and forth, and getting some high ranked officers involved, the charcoal was to be loaded the following Friday. When asked, what the actual challenge was? The participant responded that regulators were not only scrutinizing but deterring ZLC.

5.3.4.4 Overcoming Resource Constraints

The response to how ZLC has ever overcome specific resource constraints in business was:

“by being stubborn. Yeah, by being very stubborn! Sometimes pretending that a regulator doesn’t even exist. You keep doing your business and calling till they appear. ... we are going through the right channels; and they are putting every roadblock in our way”. (ZLC, Pos. 35)

With employee absenteeism, the response was just to have patience and manage them. It was also known that partnership arrangement with coconut sellers and transporters is the best in continuously garnering and getting coconut husk.

5.3.4.5 How Resource Constrained Environment Drives Bricolage Behavior to Scale

Entrepreneurial Firms

Resource constraints forces ZLC to be innovative. The business didn't have enough money so gathering coconut husk from the streets to the manufacturing center was a challenge.

The challenge in transporting the husk has forced us to think. Currently, what I have done is to train people who are close to the coconut husk to burn it into charcoal for us to go for the final product. Even though we are now close to a fuel station, it is possible to produce charcoal because we don't burn here. (ZLC, Pos. 38)

ZLC trains people to make charcoal for the business. He arrived from one of such people just before the interview.

In fact, I'm even coming from one of them. We train them, then they'll also employ other people for the production. So the lack of resources has forced us to be very innovative. That's just one example and there are a lot more than that. (ZLC, Pos. 38)

The owner of ZCL added that they have been forced to stand out from any other person by packaging the charcoal, which is not popular in Ghana.

When we started, nobody was packaging charcoal. How many people package charcoal? We packaged it and added some premium because of the value we have added. Not because we wanted to make it fancy or we were forced to think and make value. All this was because we noticed that the imported brands were selling at very high prices and if we were also going to sell ours in a local sacks or plastic bags like everybody, we wouldn't get those premium price. (ZLC, Pos. 38)

ZLC used a very local waste product to create value and used a very local supply chain to sell the product.

When we started, we were not even targeting supermarkets. We started by selling through the existing charcoal market – the women selling charcoal on the streets. They have been in the trade for so long so if anybody will buy charcoal they'll listen to them than us. (ZLC, Pos. 45)

Patronage was very poor in the beginning so the charcoal was freely given to local market women and cooks for free and they loved it. The women were asked to sell the product later and they made a lot of sales than any other segment such as the supermarket without paying a dime for publicity and marketing.

Being asked whether ZLC was still using those local women, the response was no, because they are forced to price it at a price that the targets of the women cannot pay.

5.3.5 Case 5: ACF

5.3.5.1 The Contextual Background Driving Business Establishment Through Bricolage Behaviour

ACF, with a mission to offer nutritious, healthy diets that enhance food security and promote environmental conservation was established in 2018 by couples - a chemist (husband) and a food scientist (wife). The business idea emerged from the wife's personal experience with iron deficiency anemia, a condition caused by malnutrition. A climate-adaptive crop called Turkey Berry which is known locally in Ghana as 'abedru' or 'Kwahu Nsusua' was introduced to her by a doctor. After incorporating processed fruits into meals, there was a remarkable improvement in the co-founder's nutrition and overall health. Inspired by the couple's background, an agribusiness was launched. ACF's goal is to promote healthy living, enhance food security, and support rural farmers. The business caters to both local and international markets, with organic products processed by a team of HACCP-certified professionals and skilled smallholder women farmers.

5.3.5.2 Source of Financial, Human and Material Resources

Source of finance, according to the co-owner was from self, friends and families. The hundred (100) local women farmers, producing the turkey berry fruit were the backrock of the business.

Figure 5.5: Code Cloud on ACF's Resource Compendium



Source: Research data 2024

He added that the inability of other sister companies to give ACF what they want or the raw materials compels them to buy from other companies.

5.3.5.3 Key Resource Constraints

Finance is the primary resource constraint facing ACF. The dollar rate continues to rise. Logistics is another constraint confronting the business.

5.3.5.4 Overcoming Resource Constraints

There are many things ACF does to overcome resource constraints. They do not have the capacity in terms of resources to do everything. The business mainly depends on the local women farmers for turkey berry production. The interviewer said:

Some can do it better than us, so why not giving them the chance to do that for us to concentrate on what we can do better. (ACF, Pos. 30)

They also adopt bulk buying to save costs. The owner asserts that:

... at the time that the inflation is rising, and the forex is also changing, it doesn't affect us immediately. (ACF, Pos. 35)

They also look for multiple sources.

You don't just take one quote from a company and decide. So, we keep searching for better deals with the same or better qualities. (ACF, Pos. 35)

ACF also uses bargaining to minimize cost, so they do not shift all the cost increment to customers.

5.3.5.5 How Resource-Constrained Environment Drives Bricolage Behavior to Scale Entrepreneurial Firms

Resource constraints are blessings in disguise.

We were having a challenge in disposing off waste in the beginning of the business because we used to have a lot of it after processing. The location of the business was a bit far and remote.

We needed the waste guys to be coming frequently and it was costly. What we did was to brainstorm and God gave us an idea to convert what we used to call waste into another product. That gave us more revenue, it saved cost on waste management, and was very great. (ACF, Pos.

From the participant, if one meets a challenge, there is no need to cry, stop or turn back. One must face the task and in attempt to solve difficulty, new strategies, measures, methods and partners could be identified for a better deal. It is encouraging when one gets to the level where everything looks like it's going to stop. One can then brainstorm for a better solution.

5.3.6 Case 6: SFS

5.3.6.1 The Contextual Background Driving Business Establishment Through Bricolage Behaviour

SFS was established through a public-private partnership (PPP) with the Ashaiman Municipal Assembly in 2016 at Ashaiman in the Greater Accra region of Ghana. The founder got the idea of helping low-middle-income countries like Ghana to harness faecal waste into a useful resource in the form of affordable energy and organic manure. As the first waste-to-energy facility in West Africa, the business improves the health and well-being of the people residing in low-sewered urban areas. It has emerged as a pioneering leader in the circular economy and global sanitation and waste management sectors. With the use of locally embedded recycling plants, SFS foster lasting benefits for public and personal health, reduce carbon emissions, support climate mitigation, and enhance the availability of sustainable energy and food.

5.3.6.2 Source of Financial, Human, and Material Resources

Donor funding from the international bodies was a key source of finance to SFS. From Figure 5.6, the main donors were the African Development Bank and the Dutch government. The raw materials are sourced through a PPP arrangement between the Ashaiman Municipal Assembly and SFS, as the Assemblies are mandated to actually keep the environment clean. In this partnership,

the assembly has to provide land and access to the market for raw materials. There are varieties of waste fills that SFS deals with, provided it is not a challenge to the job after running the analysis.

Figure 5.6: Code Cloud on SFS's Resource Compendium



Source: Research data 2024

We depend much on the market queens that indigenously manage the women selling fruits and vegetables. They damp the waste at a central point for our team to pick. (SFS, Pos. 22)

SFS also gets raw materials from the food and beverage industries such as Nestle Ghana, Olam Ghana, Promasidol, GB Foods. The abattoir is another good source of material. However, sourcing strategies differ depending on where it is coming from.

We just don't accept waste, we run analysis, make sure its compatible with the process. Over time, we have become, more or less the system, we understand what we need, and so we have our own structures, protocols that are strictly followed. (SFS, Pos. 22)

There are other organisations that support SFS in other ways. In compost production for instance, the organization gets certification from Cocoa Research Institute of Ghana (CRIG) and Center for Scientific and Industrial Research (CSIR). Such organisations conducts laboratory analysis to verify the authenticity of SFS's internal laboratory test.

5.3.6.3 Key Resource Constraints

Finance is a major constrain to SFS. Waste management requires a lot of equipment and processes and therefore funds for investment and operation are critical. From the participant of SFS:

If we are going to rely on profits that we make here, we will not be in business because the core goal for setting up was to protect the environment. We are not moving away from that core objective because we have to make life better for our people. (SFS, Pos. 30)

The business relies on electricity to generate electric power as well. However, a challenge is the unstable nature of the national electricity grid.

The system is supposed to synchronise with the grid in other to be able to export whatever we are generating and so if we had the materials and the grid's voltage is not all that stable, we would not be able to generate power, though we have raw material. (SFS, Pos. 30)

Transportation is another key challenge. SFS does direct sourcing but do not own enough trucks. Sometimes the waste collected within short distances do not meet the standards.

We cannot just feed any waste into the digester. You would get the waste alright but you cannot use it and so that sometimes means we have to go some distance to be able to get the right waste material and that means we spend a lot on transportation. (SFS, Pos. 30)

There is a phobia attached to the use of compost by crop farmers as well. There are instances where people were not really accepting compost because they are used to the inorganic fertilizers that readily releases nutrients to soils for crop use. The compost takes time but in this era of sustainability, it leaves a long-lasting positive effect into the soil by improving the fertility of the soil and increases yield better than the inorganic. However,

“... these farmers are always looking at what do I get immediately. It takes a lot of effort to be able to convince them to patronize the compost and that is a challenge”. (SFS, Pos. 31)

The next constraint is related to the limited funds that do not permits SFS to meet the requirement to partner with the Government of Ghana in the Planting for Food Project. The Government can buy and subsidise the inorganic fertilizer to farmers as an affordable farm input. However, if one is unable to produce thousands of bags, then one cannot be part of the project.

That does not support small ventures like us. (SFS, Pos. 32)

5.3.6.4 Overcoming Resource Constraints

Engagement with key stakeholders is mostly used to overcome resource constraints. SFS has diverse sales strategies for its target groups as well. Internally, SFS has a sales strategy for its target group. It is driven by the commercial and sales department which has yielded a great improvement in the production and sale of compost than previous. The staff are brand ambassadors. It was

reported that production was less than five thousand (5000) bags/year the previous year. However, SFS was able to produce not less than twenty-seven thousand (27000) bags in the year of the study.

5.3.6.5 How Resource-Constrained Environment Drives Bricolage Behavior to Scale Entrepreneurial Firms

Constraints such as low feed production led SFS to mechanize and improve processes to be able to increase production and marketing.

We already don't have a certain capacity and so it meant that we have to invest in some mechanized systems in order to meet production which we have done. (SFS, Pos. 37)

In the past four (4) years, SFS was averagely producing about 350 bags of compost a month. Currently, the business produces 3067 bags a month. In terms of electricity, the business can actually meet the PPP's mandate of 685 megawatts per a year and so some of the challenges meant that the SFS mechanises.

Constraints have caused us to make good use of whatever we have and that calls for continuous improvement in operations. (SFS, Pos. 37)

5.3.7 Case 7: EFS

5.3.7.1 The Contextual Background Driving Business Establishment Through Bricolage Behaviour

EFS is located at Adenta in the greater Accra Region of Ghana. The business produces natural skin and health care products such as shea butter and liquid black soap (alata soap). The raw materials are available in Ghana but looks less than appealing. For the product to be well appreciated, EFS

adds value to bring the raw materials to its natural state... that is a way of preserving the products. The founder, repatriated from Atlanta, US to Ghana and had the mind of supporting brothers and sisters to take care of their skins and hairs on their return. It is the aim of the business to add value to ‘the best in the world’s’ local skin oils and soaps before selling them domestically or across geographic borders.

5.3.7.2 Source of Financial, Human, and Material Resources

From figure 5.7: Code Cloud on Resource Compendium, EFS uses essential oils and packaging to add value to the ninety-eight percent (98%) ingredients of local black (alata) soap and shea butter for sale.

Figure 5.7: Code Cloud on EFS’ Resource Compendium



Source: Research data 2024

The source of finance to establish EFS was the sale of land. The owner once sold a piece of land to a man, which turned out to be a very lucrative deal because the land was registered at the right time.

He was so impressed and wanted to help me. He asked what do I do? I showed him the product we were developing and he directed me to where I could obtain a grant. He gave me some guidance to apply for it I had it. (EFS, Pos. 23)

The human resource person was the owner's wife, and the two of them were managing everything. The business was called Sally Foods by then. It needed a lot of branding so the name was changed in 2015 to Earth Seed. The owner made it known that:

The more we build on the brand, the greater asset we need and the more we sell to our firm foundation customers that we can boast of. (EFS, Pos. 24)

5.3.7.3 Key Resource Constraints

From the participant, although material resources are available, their prices keep rising, especially the imported materials.

The cost of imports is very high in Ghana. (EFS, Pos. 35)

Money is borrowed to pay for imports, and it takes about three (3) to four (4) months for imported goods to arrive in Ghana, and one has to keep paying interest on loans. When the goods arrive at the ports, there is an excessive duty to pay. It's a challenge. The main constraint is taxation. The participant was thinking that businesses are excessively taxed. He simply said that the taxes are

shameless extortions. If one cannot pay, then he/she is considered unworthy to be in business. You have to then make sure to exist by paying them.

If you expect to get great profit, it's perfectly impossible. (EFS, Pos. 35)

The experiences with employees are not bad. However, some people really did not fit. In general, the HR challenge in Ghana is a mentality issue we face in terms of people willing to give their best. Sometimes the attitude just shows up.

5.3.7.4 Overcoming Resource Constraints

Most people in the developing areas like Ghana think they always have to get funds from the West. However, one can be creative and source money from places around them that they would not think of.

I am talking about small investors. When I say small, I mean regular size investors or people. Not big shuts or anything. The grant and other source of finance I had, they were all sourced from people around. (EFS, Pos. 35)

The owner's source of borrowing is from those who would understand his flow of income and the number of months it would take to pay back. He narrated how he was once talking to a stakeholder of the business and was showing her the plans to source about USD 1000 to pay back comfortably. After looking at it well, she said:

"don't go anywhere, I would lend you the funds". I was quiet surprised. That was a close person financing me. She knows my business. She knows what I'm capable. She knows I won't fail her. (EFS, Pos. 36)

Concerning how to handle employees, the participant said:

Don't think you can be anywhere without filtering your team. (EFS, Pos. 34)

To be able to produce continuously, one is to get buffer of goods in stock. As it takes about four (4) months to get imported goods, the business purchases in advance. On the part of high taxes, the owner said one cannot do anything but have to pay to keep products on shelves.

5.3.7.5 How Resource Constrained Environment Drives Bricolage Behavior to Scale

Entrepreneurial Firms

Resource constrained environment drives entrepreneurial firms to be creative and search for solutions to add value. Customers were disappointed to find the business sited at home. Although the business was not having enough funds, the dissatisfaction of customers seeing it cited at home motivated the owner to arrange to rent a shop. That made it possible for the simple factory and showroom to be separated.

Just to keep the brand and its appearance, the separation of the job floor from the showroom was key to meet what customers expect to see. (EFS, Pos. 43)

Visibility has made the business do better than they were doing two (2) years ago. EFS had about twenty-five (25) outlets at the time of the research. We have seen some growth out of the challenges.



5.3.8 Case 8: TNS

5.3.8.1 The Contextual Background Driving Business Establishment Through Bricolage Behaviour

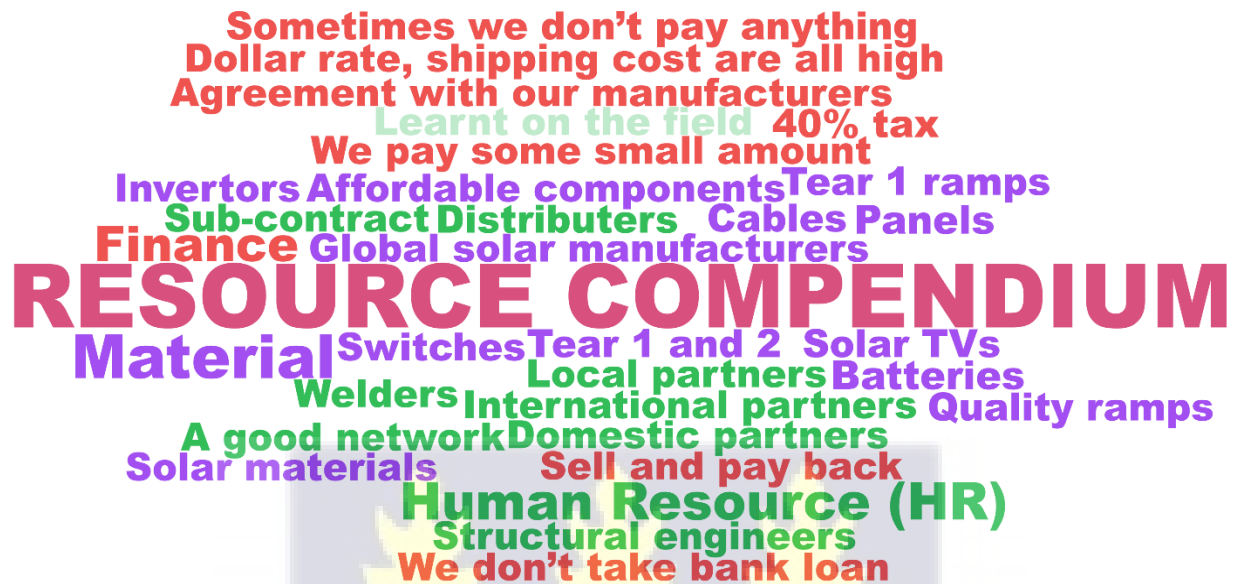
TNS is a provider of reliable and sustainable energy solutions in West Africa. A renewable energy and project management company that started in 2005. The owner started the business as a telecom company that was installing landline telephones from the boot of his car. The electricity problem in Ghana prompted customers to demand constant power. The owner then migrated into the solar energy sector to initially provide battery systems for power generation. Instead of using electric power to charge the batteries to increase the electricity bill, the business decided to get into a reliable and sustainable energy solution. It is located at Amrahia, Katamanso Road, in the Adenta Municipal Assembly in the Greater Accra Region of Ghana.

5.3.8.2 Source of Financial, Human, and Material Resources

TNS does not obtain a bank loan to run the business but depends on trade credit from its foreign manufacturers. From Figure 5.8: Code Cloud on TNS' Resource Compendium, the business deal in solar components and do not pay any money sometimes before getting the products.



Figure 5.8: Code Cloud on TNS' Resource Compendium



Source: Research data 2024

Per the agreement with manufacturers, goods are given a grace period of some months to pay back the international partners in Europe and China. TNS employs welders and engineers for structural designing and the installation of panels, inventors, and other office employees. The business also buys some materials in Ghana, like cables and switches. Energy Commission, a group of solar companies, and Ghana Standard Authority (GSA) also enhance the business's performance.

5.3.8.3 Key Resource Constraints

The economy is not stable as the dollar rate is high. Most costs, especially shipping are high. Excise duties at the port and others are going up. It becomes challenging sometimes. The participant said:

We pay more than forty percent (40%) tax on imported batteries and definitely, we have to shift the cost to clients and customers. These are the major issues. (TNS, Pos. 34)

5.3.8.4 Overcoming Resource Constraints

With the rise of the exchange rate that is controlling almost all costs,

Although the clients are not happy, we just shift the cost to them in order to create revenue to stay in business. (TNS, Pos. 37)

A good situation is that, due the growth of technology, global prices of solar components are relatively low. This is beneficial to the balancing of the whole business cost. The business also opts for affordable and quality components from tier 2 partners to meet demands of several segments like rural communities. TNS are the main distributors for major global solar manufacturers. As main wholesalers and distributors, the domestic partners that should be competitors rather buy from them. That is why the partners bring business to TNS. That gives TNS advantage over them.

Some solar companies do not offer installation services.

They get the contracts and hand over to us because we have the materials and technical men as well. (TNS, Pos. 56)

Concerning HR, as there is always not a perfect state dealing with humans, we manage them for a friendly environment that enhances performance.



5.3.8.5 How Resource-Constrained Environment Drives Bricolage Behavior to Scale

Entrepreneurial Firms

Due to the high cost of products and demands from clients, TNS has diversified its offerings to meet the needs of many customer segments. In view of that, they have solar fans, solar TVs, and other products for rural communities that meet different customer needs. The business is having agreements with several partners with various abilities to perform in the renewable energy sector. When it comes to prices, TNS opts for affordable components, but quality ramps from companies like Huawei and a few other brands that are in the tier 1 category, but good. They try to balance everybody's needs.



CHAPTER SIX

CROSS-CASE DATA ANALYSIS AND FINDINGS

6.0 Chapter Overview

Chapter six (6) is a cross-case analysis and findings, highlighting the similarities and differences identified in the eight (8) cases: WAF, FMH, BPS, ZLC, ACF, SFS, EFS, and TNS. It is based on the theme drawn from the data and the relationship of the findings to the literature related to the topic under study. It is also based on the objectives that drive the study, and they are to:

1. Examine how entrepreneurial firms mobilise financial, material, and human resources through the bricolage process in a penurious environment;
2. Analyse how resource constraints enable the scale of entrepreneurial firms through the lens of bricolage; and
3. Ascertain ways by which bricolage could be used to scale entrepreneurial firms affordably.

6.1 Bricolage Resource Mobilisation in a Penurious Environment

The study's first objective is to examine how entrepreneurial firms mobilise financial, material and human resources (represented by HR in Fig. 6.1: Code Cloud on Resources) through the bricolage process in penurious environments. The set of questions on bricolage resource mobilisation was based on the entrepreneur's resource-garnering behaviour from the venture's initial establishment through the growth stages. Secondly, a question was asked on the key resource constraints facing the entrepreneurial ventures, and lastly, the narration of how specific resource constraints have been overcome in their ventures. The analysis revealed similar patterns across the eight (8) cases with slight differences in their resource mobilisation.

Figure 6.9: Code Cloud on Resources

Source: Research data 2024

From the Code Cloud on resources in Fig. 6.1 and the Code Matrix Browser in Table 6.1, the resources considered in this study were finance, material, and human.

Table 6.9: Code Matrix Browser on Resources

RESOURCES	WAF	FMH	BPS	ZLC	ACF	SFS	EFS	TNS	TOTAL
Finance	3	4	2	1	2	2	2	1	17
Material	10	3	9	4	5	11	6	4	52
HR	4	3	2	4	8	4	4	4	33
TOTAL	17	10	13	9	15	17	12	9	102

Source: Research data 2024

There were one hundred and two (102) codes on the resources under study (finance, material, and HR). In the transcript, materials had the most frequent codes (52), followed by HR (33), and lastly finance (17). Given that, the visualisation of materials in Figure 6.1 is bigger than HR, and lastly, finance is the smallest in the code cloud. However, financial resources control the other two (2). This indicates that those ventures with financial challenges have difficulty getting materials and HR to work with them.

Repertoire is the stock of resources in the form of skills or types of behaviour that a person continuously uses. The repertoire of the bricoleur, according to Visscher, Heusinkveld, and Mahoney (2018, p. 358), is limited and heterogeneous. Citing Levi-Strauss (1966, p. 17), Visscher et al. (2018) explained that the repertoire is limited because there is nothing else to be used. It is also heterogeneous because the content of the repertoire has no connection to current and future projects, but is simply the accumulated result of various past opportunities to update or expand the collection. A single resource can therefore be put to several uses.



Figure 6.2: Code Matrix Browser on Resource Repertoire

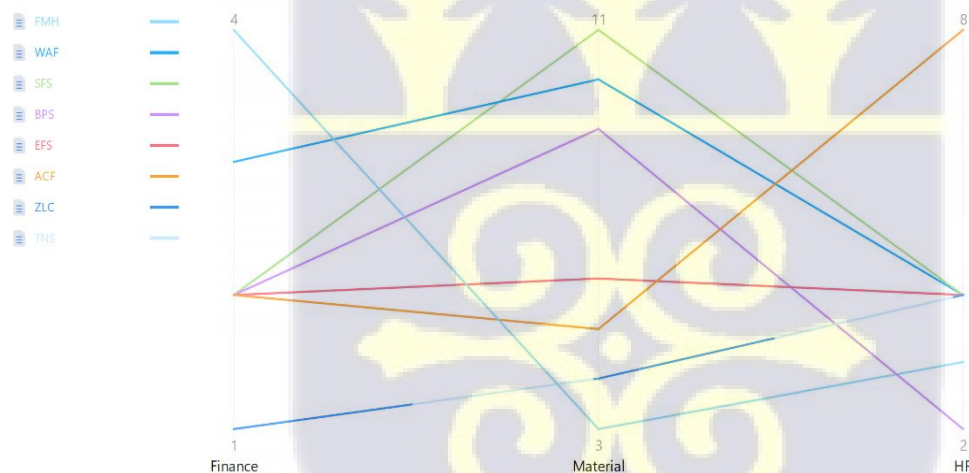
Code System	WAF	FMH	BPS	ZLC	ACF	SFS	EFS	TNS
▼ RESOURCE REPERTOIRE								
▼ HR								
Engineers								
Fruits and Vegetable Sellers								
Market Queens								
Agents and Distributors								
Agronomist								
Women farmers								
Food Scientist								
Chemist								
Women charcoal sellers								
Fabricators and Welders								
Training								
Employees								
Skills & knowhow								
Time								
Idea								
▼ Material								
Ramps (Tear 18&2)								
Cables and Switches								
Labeler								
Shop/factory/show room								
Coconut oil								
Black soap (alata soap)								
Shear butter								
Packages								
Essential/fragrance oils								
Abattoir								
Dewatering pump								
Transport								
Energy (Electric Power)								
Beverage Industry								
Food Market								
Land								
Bio Digester								
Plant (Machine)								
Faecal waste								
Turkey berry plant (Abedru)								
Kitchen and its tools								
Barrels								
Factory								
Coconut husk								
Cylinder								
Batteries, Invertors and Solar ch								
Blowers								
Reactors								
Waste oil								
Charcoal/aggregates								
Maize farm								
Crushing machine								
Hauza koko waste								
Dawadawa								
Cocoa beans/waste								
Larvae								
Black Soldier Flies								
Containers								
Space								
▼ Finance								
Trade Credit								
Microfinance								
Tipping fees								
Donation								
Bank loan								
Grants								
Equity								
Self, Family & Friends								

Source: Research data 2024

From Code Matrix Browser on Resource Repertoire in Fig. 6:2, ACF that operates in the food and beverage sector draws its HR from several entities and bodies like distributors, agronomists, women farmers, food scientists, and chemists. On the other hand, BPS deals mainly with engineers and artisans like fabricators and welders. Referring to Fig. 6.2, the resource repertoires are locally or internationally achieved. Some local repertoires are achieved for free or cheaply, but the foreign ones are costly because of the high cost of forex. Given that, some entrepreneurs can attain them through bank loans (FMH, ACF), grants (FMH, ACF, EFS), and donations (SFS), as tipping fees (SFS) alone are not enough.

6.1.1 Material Resources

Figure 6.3: A Profile Comparison Chart of Bricolage



Source: Research data 2024

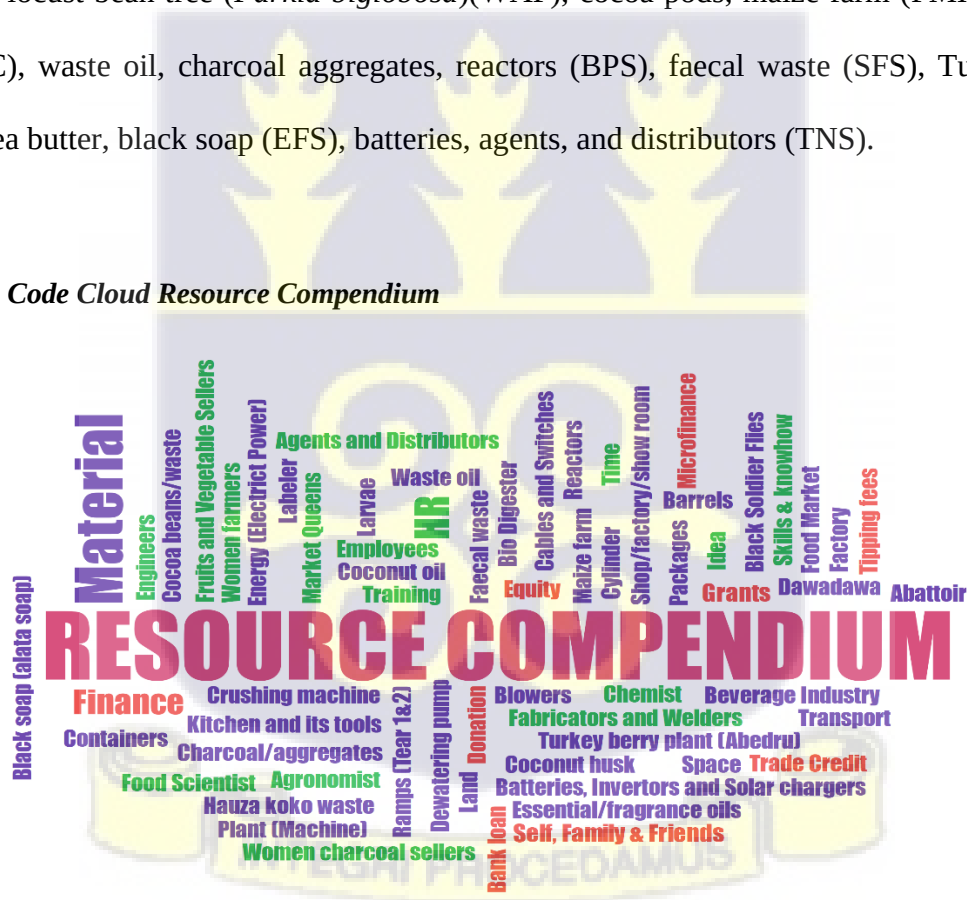
From Fig. 6.3 (profile comparison chart above), SFS had the highest codes (11), followed by WAF (10) and BPS (9) in terms of material resource mobilisation. It was followed by EFS, ACF and FMH with six (6), five (5) and three (3) codes respectively but ZLC and TNS recorded four (4)

codes each. SFS had the frequent codes because it obtains different material resources such as faecal and food wastes from several sources. The respondent buttresses this point by saying:

We deal with the municipal assembly, quite a lot of market queens and industries... mostly, the food and beverage industries such as Nestle Ghana, Olam Ghana, Promasidol, GB foods to obtain waste materials. (SFS, Pos. 22)

From the code cloud resource compendium in Fig. 6.4, the entrepreneurial ventures used local resources out of their resource troves. Examples of such resources are Black Soldier Flies, hauza koko waste (millet porridge waste), dawadawa - fermented condiment that is made from the seeds of African locust bean tree (*Parkia biglobosa*)(WAF), cocoa pods, maize farm (FMH), coconut husk (ZLC), waste oil, charcoal aggregates, reactors (BPS), faecal waste (SFS), Turkey berry (ACF), shea butter, black soap (EFS), batteries, agents, and distributors (TNS).

Figure 6.4: Code Cloud Resource Compendium



Source: Research data 2024

The respondent from WAF narrated how he approached his father and asked him for basic infrastructure, such as a small space and containers under a mango tree in the house initially. These helped them to have their first larvae and study how they decomposed. They later expanded the business by using local cocoa beans for chocolate, with other protein sources.

FMH obtained raw materials for the production of the organic fertilizer by contacting the companies transporting the cocoa waste and asking them to send some to his site, to which they agreed. BPS, on the other hand, was careful in sourcing materials to develop products for the market. He looks at the market environment and identifies the affordable products that can easily penetrate it. He then gathers the local resources, like charcoal aggregates or waste oil, for production. He cited an example:

Like you saw the charcoal gasifier, mostly, when you go to where charcoal is sold, these smaller aggregates. Sometimes, we use them for landfill purposes. The gasifier consumes that type of coal to produce a lot of heat with high calories to help you cook whatever you want. It can even power a generator. (BPS, Pos. 24)

Not only that, he uses both local and foreign components like reactors to convert waste oil to energy. He added that:

You've seen this stove sitting here; it uses the used oils from vehicles. Those oils end up in drains, causing problems to aqua-life but we are making good use of it. We are finding proper ways of oxidizing it to produce energy. (BPS, Pos. 25)

6.1.2 Financial Resource

From the profile comparison chart in Fig. 6.3 above, finance recorded two (2) codes each against BSP, ACF, SFS, and EFS. On the one hand, ZLC and TNS had a (1) code each, while WAF and FMH recorded three (3) and four (4) codes, respectively. Unlike other resources, finance was mostly gathered through self and close relations, such as family and friends. Out of the eight (8) cases, six (6) (WAF, FMH, BPS, ZLC, ACF, and SFS) had finance from self, family members, including wives, and friends. Two (2) of the ventures, SFS and TNS, obtained financial support from donor funding and trade credit. According to TNS:

[...] So far, we haven't taken a bank loan for our business. ... We have an agreement with our manufacturers. They give it to us at a certain price, we pay a lower price, but then, we are given some months to sell them and then pay back... We pay some small amount, or sometimes we don't pay anything, then it is given to us, sold, and paid back. (TNS, Pos. 20)

The source of funding for SFS was different from the rest because of the PPP arrangement they had with the Dutch Government. The participant affirmed that:

[...] donor funding came from the African Development Bank and the Dutch Government ... at the initial face, so these were the 2 key contributors so far as funding is concerned for the start of the project. ... They supported the business and also gave out seed money for this current plant. (SFS, Pos. 22)

BPS, on the other hand, asserts that he works with professional fabricators, but they are not permanent with him because he cannot afford to pay them full time. As and when he needs them, he calls them. He invites them on their terms and time. They come and work, pay them, and they go. It is also realized that the businesses in the environmental sector (ZLC and TNS) had the least code under finance. These two ventures do not face much competition because it is a new sector

which calls for more businesses to get into. The ZLC respondent narrated how they have scaled without depending much on finance. This was revealed when he was asked about the new resources that were purchased or acquired, if any, in response to the changes made to scale the business, he said:

When we were scaling, we would have bought a costly carbonizer machine to burn the charcoal, We bought one of the cheapest ever, and that alone was about \$60.000... we were forced to innovate. Now we are using the local boys like I mentioned earlier and we are getting the same value and even more. (ZLC, Pos. 49)

TNS, on the other hand, was run on trade credit from its suppliers and, for that matter, has relatively less financial pressure in that low-competitive sector.

6.1.3 HR Mobilisation

Comparatively, in Fig. 6.3, BPS had two (2), FMH three (3), WAF, ZLC, SFS, EFS, and TNS recorded four (4) codes each, and ACF obtained eight (8) HR codes. Concerning HR, training is key to obtaining employees and other resources in the study. WAF had the idea for the production of BSF through training from a South African friend and intellectuals from the University of Ghana. They also trained other people to produce the larvae for their business initially. The owner said:

People think if you train others, you create competitors, but when you are in a new industry, I will say that it's always good to do training for trainees to expand the industry. They go out there to create awareness. (WAF, Pos. 49)

ZLC also commended training. He trained people to gather coconut husk and also produce charcoal for him. He said the following during the interview:

Currently, what I have done is to train people close to where these resources are so they can burn the coconut into charcoal so the raw materials come to us. (ZLC, Pos. 38).

As the entrepreneurs have trained some people to undertake part of the activities in the value chain, they can take care of other things. WAF had this to say:

We realized that we were focusing on all the components of the BSF value chain. Thus, waste resource, waste transportation, processing, rearing/breeding the larvae to produce eggs continually, making products out of the larvae, we were doing all in addition to marketing. We were spreading ourselves too thin. It took us some time to come to that realization. What we decided to do was to just focus on one of them, which is the value addition. The others were training people because we were not sustainable at that stage. People think that if you train others, you create competitors, but when you are in a new industry, I would say that it's always good to do training for trainees to expand the industry. They go out there to create awareness. You let them set up. It's good, they set up, talk to people about the product, and they take certain risks because, as it is, we were the only people doing much. (WAF, Pos. 49)

ACF, on the other hand, scaled his business by training local women farmers to be part of his HR to farm the Turkey berry for the business. He asserted that:

...the outgrower women farmers are holding the business now. They are more dependable. We used to buy our major raw material in the open market. ...when the company was growing, we needed to go into farming, so we tried farming like three (3) times and failed. It was the fourth (4th) attempt that we contacted the small holder women farmers and we sold the idea to

them. Two people agreed, others rejected and then, we started. Now, we have about 100 women farming the crop for us. (ACF, Pos. 48)

HR capacity in terms of skills and know-how differs. While BPS reports the availability of fabricators and welders, but lacks the finance to engage them as full employees, FMH reports of lack of engineers with the right competencies to repair broken machines. They then get expatriates from Iran and China for maintenance, and therefore added that:

I have to bring down expatriates from Iran or China to fix major problems with equipment.
(FMH, Pos. 29)

This proves that a lack of finance causes firms to use parallel bricolage in mobilizing resources. BPS respondent confirms this by saying:

Fabricators and welders are not permanent with me because I cannot afford to pay them full time. As and when I need them, I call them. We invite them on their terms and time. They come and work, pay them, and they go. (BPS, Pos. 33)

On the other hand, selective bricolage is used in HR when finance is available for the right employees. WAF asserts that:

Currently, we don't use the same employees. You rotate employees when you are in a tight situation. (WAF, Pos. 54)

6.2 How Resource Constraints Enable the Scale of Entrepreneurial Firms Through Bricolage

The second objective is to ascertain how resource constraints enable the scale of the entrepreneurial firms through bricolage. To meet this goal, participants were asked to narrate circumstances that

make it difficult to obtain resources to scale their entrepreneurial firms and how such difficulties were overcome to enable the scale of their businesses.

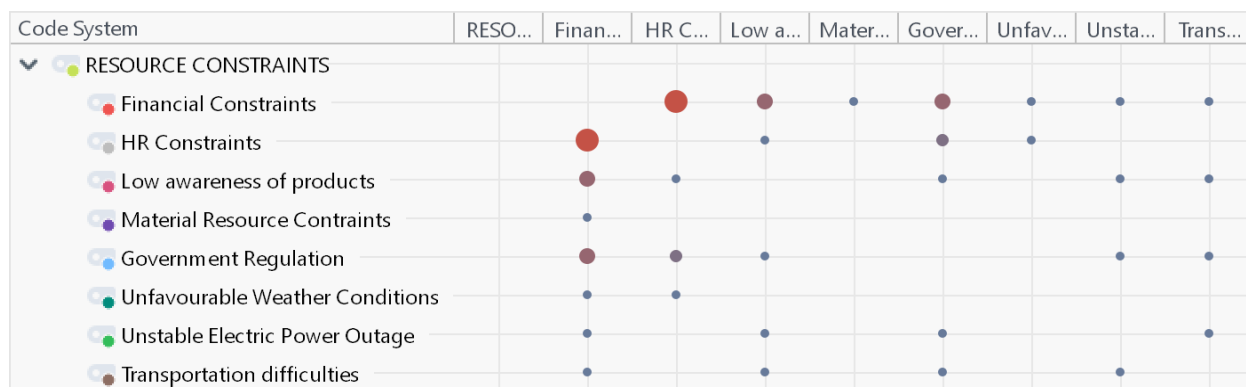
Figure 6.5: Code Matrix Browser on Resource Constraints

Code System	WAF	FMH	BPS	ZLC	ACF	SFS	EFS	TNS
▼ RESOURCE CONSTRAINTS								
Financial Constraints	■	■	■	■	■	■	■	■
HR Constraints	■	■		■	■		■	
Low awareness of products	■					■		■
Material Resource Constraints			■					
Unfavourable Weather Conditions					■			
Government Regulation				■		■	■	
Unstable Electric Power Outage						■		
Transportation difficulties						■		

Source: Research data 2024

From the Code Matrix Browser in Fig. 6.5, the various resource constraints facing the entrepreneurs were financial constraints (9 codes), HR constraints (5), low awareness of products (3), material resource constraints (1), unfavorable weather conditions (1), government regulation (3 codes), unstable electric power outage (1), and transportation difficulties (1).

In the study, it was found that a resource-constrained environment is the context that calls for bricolage to be enacted. The first three from the Code Matrix Browser in Fig. 6.5, are the main constraints; however, the explanation on how the resource constraints enable the scale of the entrepreneurial firms could be found below.

Figure 6.6: Code Relations Browser on Resource Constraints

Source: Research data 2024

6.2.1 Financial Constraints

From the code relations browser on resource constraints in Fig. 6.6 above, it is evident that financial constraint was the greatest and had more impact on HR, followed by low awareness of products or low publicity and government regulations. However, there is less or weak relation with government regulation and material resource constraint that may call for stringent regulations on how to handle material resources for instance or there are no challenges in that relation.

Difficulties in getting financial support from the government or the market was the major constraint and affected all the businesses under study.

Financial constraint causes the less resourced entrepreneurs to engage in bricolage for business establishment and growth. When entrepreneurs find it difficult to get the needed finance from formal banks, they turn to their close relations such as family and friends to overcome challenges or take advantage of the opportunities. When asked how EFS overcomes resource constraints, the owner said:

We can be creative to source funds from small financial institutions through our networks for a turnaround of, say, 6 months. (EFS, Pos. 35)

Sourcing funds from small and close lenders enables EFS to finance some of the imported materials for his business. He continued saying that:

...import takes 4 months cycle maximally, so if I offer any investor 25-30% interest, for a turnaround of say 6 months, it's pretty decent and I am doing it on US dollars so you are guaranteed against these fluctuations'. That's what I am doing now, and I can pay those rates because I can save that much more when I import. (EFS, Pos. 35)

According to WAF, all the resources and management of the business were on his wife and himself. This is evident in a participant's narration:

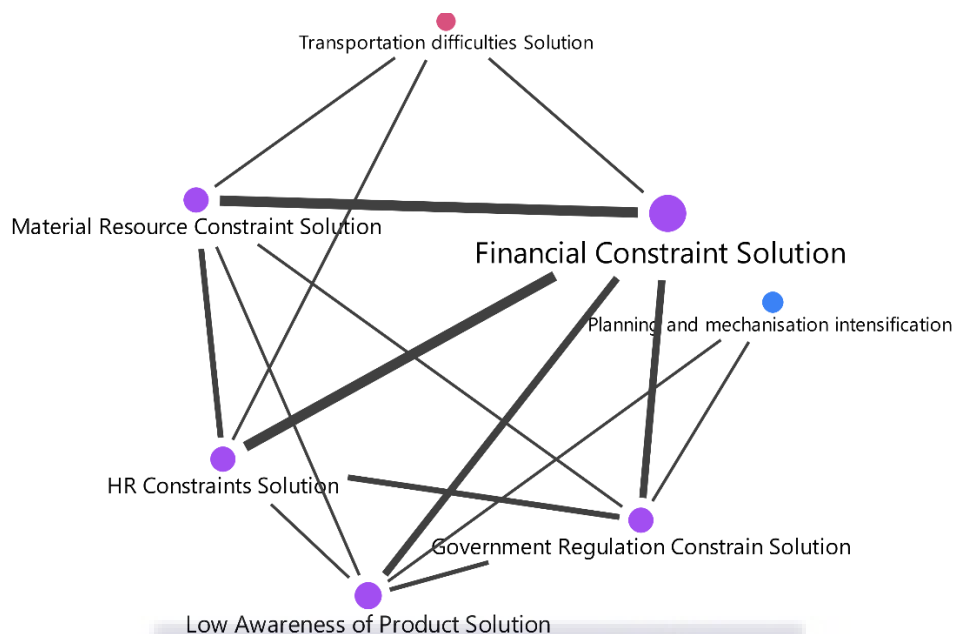
We were co-founders. When it came to the money for the business, it was just the two of us – myself and my wife. (WAF, Pos. 33)

It was obvious that finance for scaling was a challenge. When asked how they have ever overcome a specific constraint, the participant continued and said:

The second one was how to scale. Like the Research & Development stage, we've proven the concept, now we needed to replicate it to a larger scale and everything involves money, which was difficult to come by. (WAF, Pos. 34)

From the Resource Constraint Solution Map in Fig. 6.7 below, it is evident that in seeking material and human resources, finance was greatly interacted with than any of the constraints. It was then followed by low awareness of product and government regulations.

Figure 6.7: Resource Constraint Solution Map



Source: Research data 2024

Answering a question on the key resource constraints facing the entrepreneurial firms, one of the participants responded:

... liquidity is a major concern. It does not make the business attract bigger contracts, especially from ... and other government agencies. (FMH, Pos. 32).

FMH used NGOs like USAID to facilitate grant funding to overcome financial constraints. According to WAF, the financial burden drove them to search for a grant to keep producing. As a requirement, the grant providers asked them to conduct a marketing study to know the profit potential of the market as the product was not known to its targets – the farmers. The result proved the product had potential, so they pitched among other SMEs and had funding to scale the business in the form of building the facility to increase their capacity, at least at the pilot level. In reality, WAF had some customers but was not making profits. They rather used their presence on TV and

other channels to showcase the quality and affordability of the BSF as a good animal feed to build their clientele, the brand as well as promoting the idea.

6.2.2 HR Constraints

Obtaining the right HR was difficult for some firms like FMH because of financial constraints. In situations where skills and competencies in repairing machines are found outside Ghana, it takes finance to get engineers for maintenance. From the study:

Engineering constraints constitute a major concern for the venture. Local engineers do not have the capacity or skill to fabricate and maintain the equipment used for the production of fertilizer.

(FMH, Pos. 32)

FMH has been bringing engineers from abroad to fix major problems with equipment to run the business. Wrong or bad attitudes to work and difficulties in getting resources due to long travel times compelled ZLC and WAF, respectively, to train and use temporary workers outside their business. Such difficulties propelled ZLC, for instance, to produce charcoal close to a fuel filling station without burning, as discussed earlier. Others also depended much on interns from the universities.

6.2.3 Low Awareness of Products

Some ventures needed publicity to let customers be more aware of their good products. Agricultural inputs like protein feeds made of BSF by WAF and compost by FMH and SFS needed publicity for people to be aware of the products. Few farmers were adopting BSF feed and organic manure. It was difficult to convince farmers to adopt the products of the respondents because they

are used to the fish or soya meals as protein meals for animals and inorganic fertilizer for crop farming. A respondent claimed that:

You have the idea of the product, but now it's new, and nobody knows about it. How to make them understand and use it is a challenge. (WAF, Pos. 35)

In another case, it was recorded that:

... previously we had issues where people were not really accepting compost because they are used to the inorganic that is very quick in releasing nutrients within a space of 3 days, whereas the compost will take time, but then, it leaves a long-lasting positive effect on the soil. It vitalizes the soil by improving the fertility and then the yield. Erhmm inorganic leaves nitrite oxide that is harmful to the soil but these farmers are always looking at what do I get immediately. It takes a lot of effort to be able to convince them to patronize the compost, and that is a challenge (SFS, Pos. 28)

According to the SFS participants, they have internal and external strategies targeting the right customer to promote the use of organic fertilizer. Some employees are adjudged brand ambassadors, and the promotion of the manure has been encouraging.

6.2.4 Material Resource Constraints

In other accounts, materials are available, but the high dollar rate makes it difficult to either make a purchase domestically or import them from abroad. Therefore, the businesses with weak financial strength, like BPS, had more challenges securing material and human resources.

Another respondent asserted that:

Material resource is not a problem; it's only that the prices keep going up. It depends on the currency. The materials are very much available. (EFS, Pos. 34)

The high cost of the dollar leads to high shipping and clearing costs of materials.

Some ventures like TNS did not face constraints in obtaining material resources. This was because TNS' inability to get the goods paid from the inception of the business compelled their trade credit agreement with the manufacturers for goods to be paid later. Manufacturers agreed because it was a time when solar power was being promoted. On the other hand, BPS, ACF, and SFS were those that had codes (each) against material resource constraints, unfavorable weather conditions, and transportation difficulties.

6.2.5 Unfavourable Weather Conditions

The severity of climate change is affecting the growth of plants like Turkey berry, which ACV uses for its beverages. ACV was the only firm that complained about unfavourable weather conditions - dry spells in the study. The interviewee said:

Our major crop is the turkey berry plant, an agricultural product that depends on natural weather. (ACF, Pos. 42)

Having failed several times in cultivating the plant, the owner was compelled to negotiate with indigenous women farmers for the production in an environment with irrigation during the dry seasons. Collaboration with the women farmers saved the business.

6.2.6 Government Regulation Constraints

A participant narrated how he goes about handling government regulation. When asked to narrate how he had ever overcome specific resource constraint(s) in his business, he said:

By being stubborn (ZLC, Pos. 34). Yeah, by being very stubborn. Sometimes pretending that a regulator doesn't even exist. You're forced to. Let me tell you. I'm sure I hope you'll add it to your thesis. Doing the wrong things moves faster than doing the right things. Okay. So if I was doing it illegally, I could just see somebody at the port, pay some custom officer to go. Yeah, because we are going through the right channels, they are putting every roadblock in our way.

(ZLC, Pos. 35)

When asked how difficulties to obtain resources enabled him to scale his business, he said:

It has forced us to be innovative. Originally we started with coconut and we didn't have enough money to collect all from the streets. So, for the lack of resources, we have been forced to think.

Currently, what I have done is to train people close to where these resources are so they can burn the coconut into charcoal so the raw materials come to us. Now, even though we are close to a filling station, we can produce charcoal. We don't burn here. (ZLC, Pos. 38)

ZLC has been forced to stand out from any other charcoal business in Ghana. When they started, nobody was packaging charcoal. They packaged it and added some premium. The owner gave an example:

... we were able to sell just 5kg in the supermarkets for 70 Ghana Cedis (USD 4.50 on August 8, 2024) because of the value we have added. Not because we wanted to make it fancy or because we were forced to think and make value. ... we noticed that the imported brands were selling at

way higher prices, and if we were also going to sell ours in a plastic bag like everybody, we wouldn't get those prices. (ZLC, Pos. 38)

6.2.7 Unstable Electric Power Outage

Power supply is a necessity in business. The unstable electric power outage disrupted the operations of SFS but at the same time, served as a facilitator for innovation. To avoid a costly downturn because of intermittent power cuts, SFS was obliged to use biogas to generate electric energy to run the business. The interviewee asserted that:

The system is supposed to synchronise with the GRID to be able to export whatever we are generating, and so if we had the materials and the Grid's voltage was not all that stable, we would not be able to generate power, though we have raw material. (SFS, Pos. 30)

SFS does not solely depend on the national power grid due to the biogas. With such resourcefulness, the firm can function independently during blackouts with less cost of energy. SFS leveraged the crises and has become a leader in sustainable, resilient waste management in Ghana.

6.2.8 Transportation Difficulties

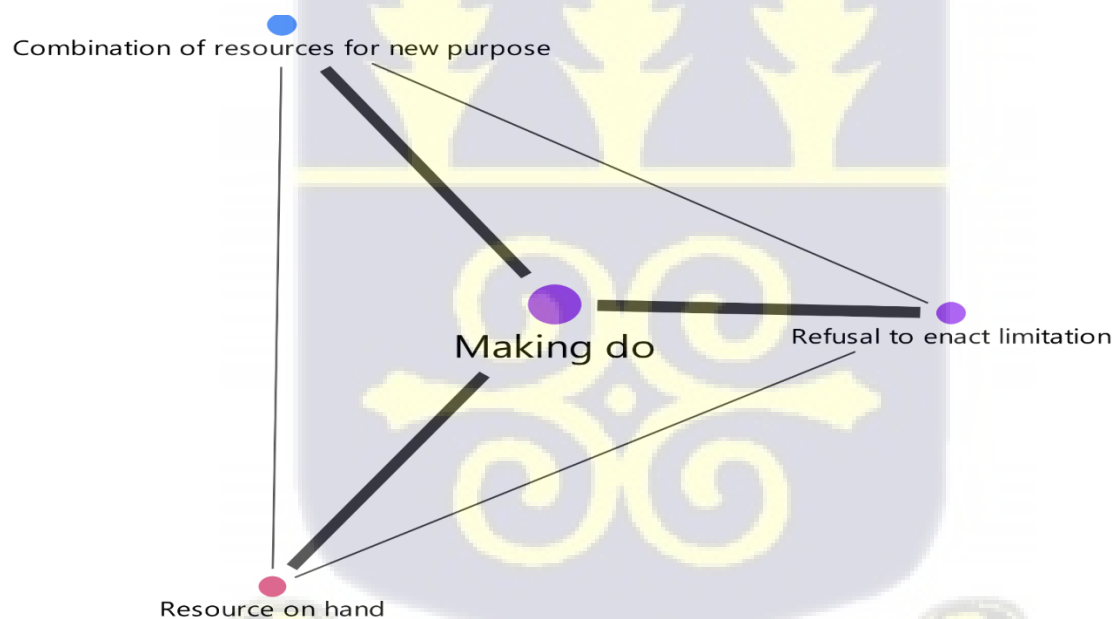
Transportation constraints served as a catalyst for bricolage in the process of firm scaling. In ACV, transportation difficulties necessitated creative problem-solving and resourcefulness, pushing the entrepreneur to engage in *bricolage* – the practice of making do by recombining and repurposing existing resources in novel ways. The business was having difficulty disposing of some of its waste after processing, as the waste transporters were not able to dispose of it frequently. The owner said:

... we did brainstorming, and God gave us an idea to convert what we used to call waste into another product.... it gave us more revenue, saved cost on waste management, and that was a very great one for us. (ACF, Pos. 40)

SFS, on the other hand, arranged with private transporters to cut the waste materials for them. Through such adaptive strategies, the firm not only maintains operational continuity but also unlocks pathways for growth and scaling that are tailored to its unique environments. Thus, transportation difficulties do not merely constrain growth—they actively shape the innovative practices that enable firms to expand under conditions of resource scarcity.

6.3 Bricolage Characteristics, Illustrative Codes, and Interactions

Figure 6.8: Bricolage Characteristics Interaction



The size of the nodes in Fig. 6.8: Bricolage Characteristics Interaction above tells the magnitude of the influence of the characteristics. Making do has more codes and broader nodes; it is, therefore, influential in the relation.

Figure 6.9: Code Relations Browser on Bricolage Characteristics

Code System	Com...	Maki...	Resou...	Refus...
▼  BRICOLAGE CHARACTERISTICS				
 Combination of resources for new p				
 Making do				
 Resource on hand				
 Refusal to enact limitation				

From the above Code Relations Browser on bricolage characteristics in Fig. 6.9, making do with local resources moves a lot with the combination of resources for new purposes. This means that constraints cause the entrepreneurial firms to experiment, innovate, and improvise to develop new unintended products. This confirms that the ventures that “make do” experiment to innovate to develop new products. ACF is an example. Out of constraints, they converted waste into a new product, and that served as a new stream of revenue. Table 6.2, shows how the entrepreneurial firms demonstrated bricolage behaviour to make do, use resources on hand, refuse to enact limitations, and combine resources for new purposes.

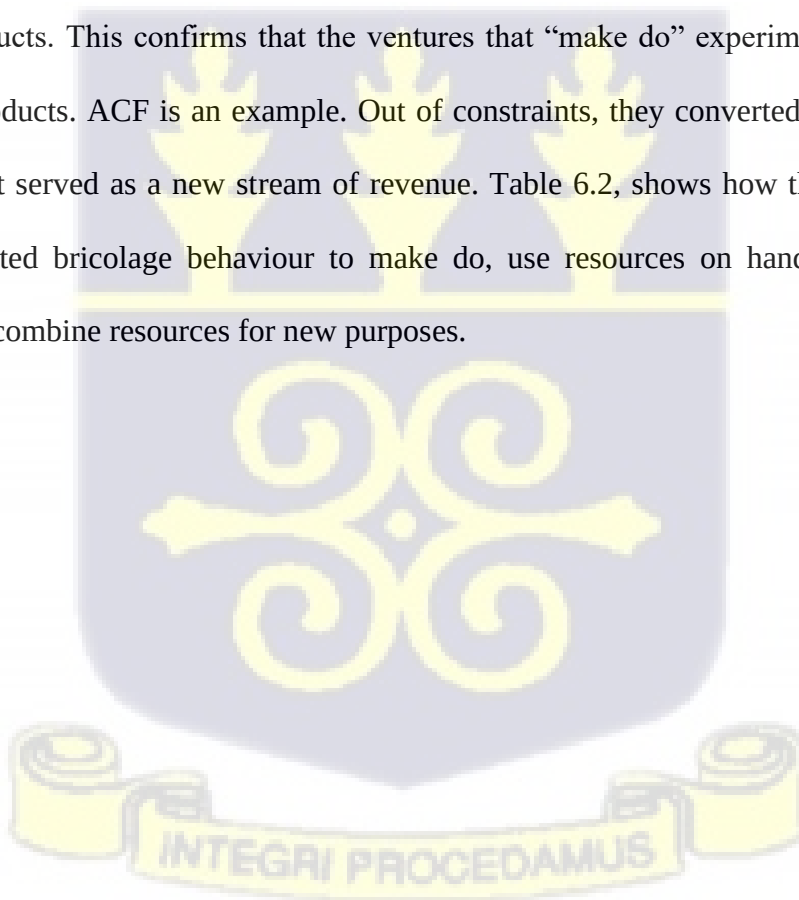


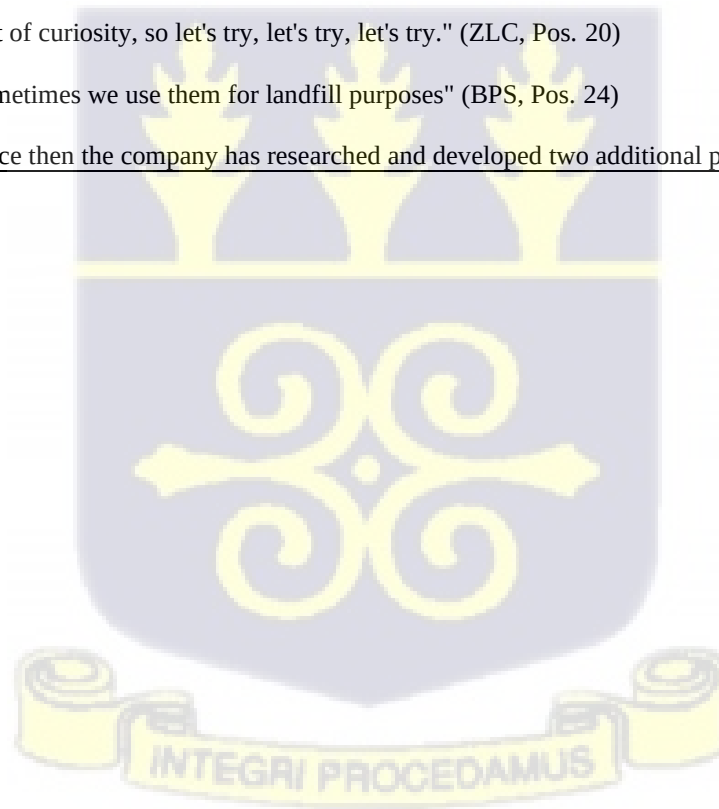
Table 6.10: Key Illustrative quotes of bricolage characteristics

Bricolage characteristics	Quotes
Making do: Rely on the resources on hand to accomplish tasks.	"...opt for cheaper, affordable components but quality ramps" (TNS, Pos. 44) "However, I've found that we can be creative in our approach to accessing money from small investors around us." (EFS, Pos. 35) "We are doing most things by hand, so there are minor things to purchase, such as a labeler. Apart from that, we are still using the simple techniques we started with." (EFS, Pos. 53) "harness that resource as a waste" (SFS, Pos. 19) "Convert what we used to call waste into another product" (ACF, Pos. 39) "Is it possible we can also make charcoal with this coconut? Yes" (ZLC, Pos. 20) "We've never paid a dime for marketing. Local women, really blew us up." (ZLC, Pos. 47) "Like you saw the charcoal gasifier, mostly, when you go to where charcoal is sold, these smaller aggregates.... The gasifier consumes that type of coal to produce a lot of heat with high calories to help you cook whatever you want. It can even power a generator." (BPS, Pos. 24) "We had some containers from my father and used that to teach ourselves under a mango tree. So we had to do things in a smaller setting." (WAF, Pos. 23) "We are also into using our local cocoa beans for chocolate with other protein sources to promote our indigenous products. Those that are dying off, we have to bring them back, like 'dawadawa' chocolate. We tell people we have dawadawa chocolate, they doubt mmmmmhhhh! But let them taste it, and they call for more. It's like meeting a different market." (WAF, Pos. 42)
Resource on hand: The troves of the bricoleur are objects, tools, ideas, and broad skills owned or scavenged.	"Our core ingredients or products are shea butter and liquid black soap (alata soap)." (EFS, Post. 20) "...and so the idea was how could we harness that resource as a waste, unwanted materials into something useful." (SFS, Post. 19) "In fact, it was a Doctor friend of mine who spoke to me about the Turkey berry fruit." (ACF, Pos. 20) "I first started the business with my wife." (ZLC, Pos. 23)

	"As an engineer, I study a lot about converting waste to energy, motivated by seeing a lot of waste around us and we are facing challenges of managing our own waste." (BPS, Pos. 21) "Locally. Your own small money. Nobody gives you anything. Anything at all you do it is from your own pocket." (BPS, Pos. 24) "Craftily, I mobilized money from my national service and other small activities" (FMH, Pos. 20) "My wife and I quickly mobilized what we had" (WAF, Pos. 22) "We are also into using our local cocoa beans for chocolate with other protein sources... the idea is to promote our indigenous products" (WAF, Pos. 42)
Refusal to enact limitation: Bricoleurs resist environmental constraints imposed upon them.	"Being innovative, instead of using ECG to charge the batteries, which is still increasing light bill, we decided to go into solar." (TNS, Pos. 19) "No, I will not be in a business that will let me depend mainly on another organization." (EFS, Pos. 30) "Keep searching for solutions to add value." (EFS, Pos. 42) "we tried farming like 3 times and failed. It was the 4th attempt that we now contacted the small holder women farmers and succeeded" (ACF, Pos. 47) "We have been forced to stand out from any other person by packaging our product. When we started, nobody was packaging and even still, how many people package charcoal? So for the lack of resources, we packaged it and added some premium." (ZLC, Pos. 38) "By being stubborn. Yeah, by being very stubborn. Sometimes pretending that a regulator doesn't even exist." (ZLC, Pos. 35) "So for the lack of resources, we have been forced to think. Currently, what I have done is to train people close to where these resources are so they can burn the coconut into charcoal so the raw materials come to us." (ZLC, Pos. 38) "I started in a very crude way but turned out to success upon my first 30kg bag came out and trial was carried on the maize field" (FMH, Pos. 20) "We were making losses and thus the reality, although they were showcasing us on TV and other outlets. We were also using that to build our clientele, the brand as well as promoting the idea." (WAF, Pos. 38) "we took our lessons and corrected ourselves" (WAF, Pos. 43)

Combination of resources for new purpose: Bricoleurs recombine resources on hand and use them in ways they are not originally intended for. Exploit contributions not thought of by other competitors.	"He started as a telecom company. They were installing the landline telephones. Then along the line, around 2004 there was electricity problem that started coming, the customers needed constant power, so he decided to venture into battery systems of generating power." (TNS, Pos. 19) "He started with some legacy batteries. HR. there are people that started from the beginning and they are still in the business." (TNS, Pos. 53) "let me repackage it and make it more presentable for different markets." (EFS, Pos. 20) "I decided to stop doing that. I could not stop until..... That was the time I was doing share butter and black soap." (EFS, Pos. 23) "I'm a Chemist, I did plant investigations. my wife too is a food scientist... God gave us an idea to convert what we used to call waste into another product." (ACF, Pos. 21) "Out of curiosity, so let's try, let's try, let's try." (ZLC, Pos. 20) "Sometimes we use them for landfill purposes" (BPS, Pos. 24) "Since then the company has researched and developed two additional products" (FMH, Pos. 18)
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Source: Research data 2024



6.4 Scaling Entrepreneurial Firms Through Bricolage

The final objective was to identify ways by which bricolage could be used to scale entrepreneurial firms affordably in Ghana. These called for questions, which were: how can local resources be used affordably to scale the entrepreneurial business? Participants were also asked to describe any major change (growth, opportunity, or challenge) that indigenous resources (finance, HR, Materials, networks, technology, intellectual, etc.) were used to handle in the business. In addition, there was a question on how successfully that change (growth, opportunity, or challenge) was handled in terms of resources. Moreover, participants were asked if any resources were used at the inception of the business but were no longer needed. Lastly, how do others enhance performance of the participant's venture?

Forms of scaling behavior through bricolage had fifty-six (56) codes among the eight (8) entrepreneurial firms in Fig. 6.10. These forms of scaling are geographic footprints (6 codes), cooperation, networks and training (14 codes), bulk buying (1 code), increasing organizational headcount (4 codes), increasing number of users (12 codes), physical capacity enhancement (8 codes), and raising funds and revenue (11 codes).

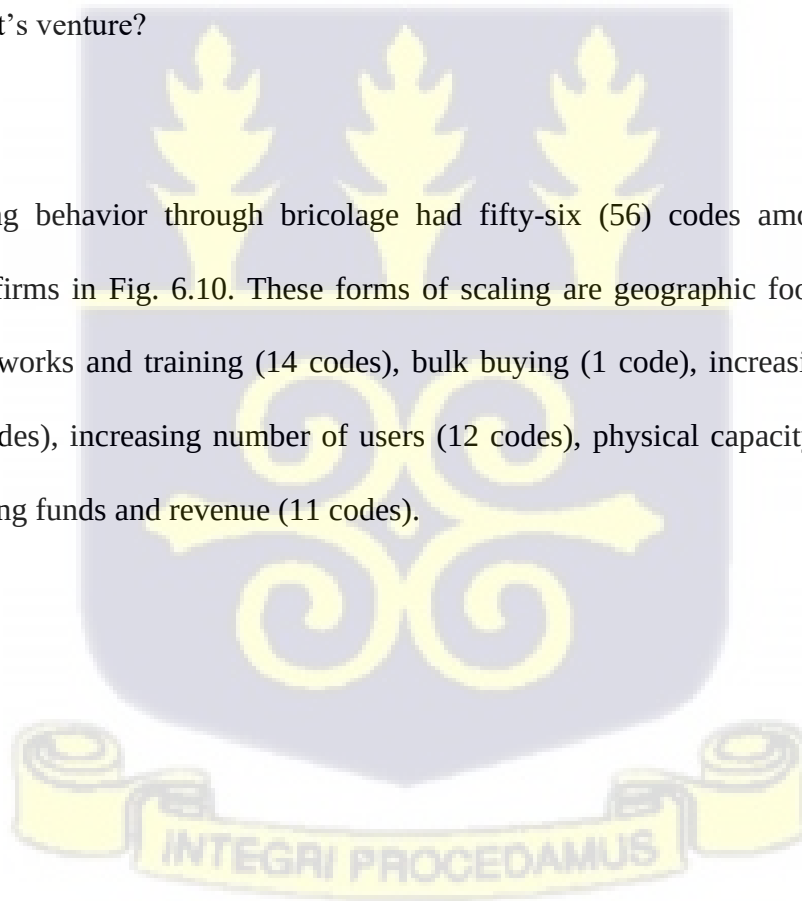


Figure 6.10: Code Matrix Browser on Scaling Behaviour

Code System	WAF	FMH	BPS	ZLC	ACF	SFS	EFS	TNS
SCALING BEHAVIOUR								
Geographic Footprint								
Coopetition, Networks and Training								
Bulk Buying								
Organisational Headcount								
Increasing Number of Users								
Physical Capacity								
Funds Raised and Revenue								

Source: Research data 2024

From Fig. 6.11, collaboration in the form of coopetition, networks and training moves highly with increasing number of users (with 6 intersection codes), followed by increasing funds and revenue (with 5 intersection codes) and increasing organizational head count with 4 intersection codes. Raising funds and revenue has the direct ability to increase number of users with 5 intersection codes and improving physical capacity and increasing organization head counts with 4 intersection codes.

Figure 6.11: Code Relations Browser on Scaling Behaviour

Code System	Geogr...	Coop...	Bulk B...	Organ...	Increa...	Physic...	Funds...
SCALING BEHAVIOUR							
Geographic Footprint							
Coopetition, Networks and Training							
Bulk Buying							
Organisational Headcount							
Increasing Number of Users							
Physical Capacity							
Funds Raised and Revenue							

Source: Research Data 2024

The ability to have funds and more revenue streams positively affected the forms of scaling. Finance is therefore used to enact scaling. It was realized that, except for BPS and TNS, all the businesses at the initial stages had financial assistance from friends and family. However, they found it difficult to scale until they obtained funding in the form of grants, donations, or loans. BPS participant confirmed this by saying:

I could not get funding from anywhere but through my own personal efforts. Nobody is prepared to give you anything. I cannot also afford to go for a loan for a project that I am still researching and correcting things every day. (BPS, Pos. 45)

Unlike BPS, which found it difficult to scale due to the inability to obtain external funding, SFS had financial assistance from a development bank and a European government to scale. FMH also had external financial assistance. The participant made it known that:

I started in a very crude way After 5 years in operation, I had a reasonable amount of equity invested in the company. (FMH, Pos. 20)

In addition, FMH had support from NGOs and USAID for funding. ACF also said they started everything with kitchen tools until they had financial support from a bank and three (3) development partners. Through that, they won a few grants and had some loan facilities that enabled them to buy equipment for the factory. Moreover, EFS applied for funding and had it for expansion. From the participant, a customer directed him to a place for a grant. He did that and succeeded. He said:

... a customer told me that I should go for a grant. I should submit my product and show them and see what they can do. He gave me some guidance on applying for it, which we did. (EFS,

Pos. 20)

It was also found in the data that different forms of collaboration in a way of coopetition, networks and training had positive influence on scaling.

According to FMH, collaboration with USAID facilitates grant funding for some scaling purposes. He added that:

..., consultants assist me to get funding. NGOs in the agric space create opportunities for me to sell and expand. (FMH, Pos. 25)

It was found that the fertilizer industry is dominated by the government and is highly regulated. The government buys and subsidises farmers. So if a business does not enjoy a subsidy, it becomes difficult to remain in business. There were instances where FMH used GIZ and USAID grants to subsidize the farmers to patronize fertilizers. When the FMH participant was asked how successful that collaborative or networking opportunity was? The answer was:

This has been very successful and has developed a different business model for me to compete well in the market. (FMH, Pos. 41)

Such a scaling strategy has increased the number of fertilizer users by helping FMH improve its market share.

There was also collaboration in the form of coopetition. In this case, direct competitors come together to do business as partners. TNS and ZLC participants buttressed the benefit of coopetition in bricolage by saying:

We do not have competitors but partners, so we network a lot. We even don't call our competitors, competitors. The solar industry is quite small so if you make people your

competitors, you end up not making it. Mostly, we take projects to people and receive some from others, so a lot of partnership happens. (TNS, Pos. 48).

In Ghana, TNS is the main wholesaler and distributor for major global solar manufacturers. As main distributors, their domestic partners, including the so-called competitors, buy from them. That gives them an advantage over them. They therefore have the power of experience.

It was interesting to hear the owner of ZLC boldly say:

We don't have a competitor. In fact, we are training people to compete with us. (ZLC, Pos. 53)

Astonishingly, the participant showed the researcher a WhatsApp message from a customer and concluded on the importance of cooptation:

There is more demand than we can ever, ever, ever meet. Yesterday, I was engaging a customer, an old-time customer of mine. I will show you... This is a client of mine... You can read for yourself, 20 thousand tons, a ton is 1000kg, and now he wants 2000 of that. So imagine everybody is doing some, so I can buy from them and sell. That's why I don't fear competition.

(ZLC, Pos. 53)

It was also reported by TNS and WAF that training may cause competition, but it helps other people to join in the industry to share risk with. Training is therefore used to replicate good ideas. WAF declared on training that:

We were spreading ourselves too thin. It took us some time to come to that realisation. What we decided to do was just to focus on one of them which is the value addition. The others, we were training people because we were not sustainable at that stage. (WAF, Pos. 49)

ZLC trains people close to where the resources are so they can burn the coconut into charcoal and transport the raw materials to a warehouse near a fuel station.

Training also increases awareness, thereby raising the number of product users. WAF respondent asserted that:

People think if you train others you create competitors but when you are in a new industry, I will say that it's always good to do training for trainees to expand the industry. They go out there to create awareness. (WAF, Pos. 49)

Moreover, networking with individuals and international organisations or NGOs help in obtaining funding to scale the business. It is also a major means to increase all forms of scaling. This is confirmed in Fig. 6.11 (Code Relations Browser on Scaling Behaviour), where collaboration in the form of cooptation, networks and training increases the number of users and organizational headcount. ZLC testified of how they have networked and collaborated with local women and have never paid for marketing. It was recorded that:

Local women, really blew us up. We started in Abeka, before we realized, we were in Kotobabi, Legon, Cantonments, everywhere. We used those same women, one will call, the other one will also call – referrals, without paying anything for marketing. So, it's been the best marketing or the best resource we've had. (ZLC, Pos. 47)

Replication of success through training is a key means of scaling through bricolage. Training increased the production hands and therefore raised geographic footprint and organizational headcount. On these lines, ZLC said:

Now, even though we are close to a fuel filling station we can produce charcoal. We don't burn here. We train them. In fact, I'm even coming from one of them. He alone has also trained other people so now the chain is wide.... we train them then they'll also employ people. (ZLC, Pos. 38)

Constraints, according to ACF, either prevent or enable scaling. When asked if difficulties obtaining resources enabled him to scale his business, he said most of the constraints, if handled well, lead to scaling. According to him, finding ways of raising funds and affordably increasing revenue is a major means of scaling. When asked how it is done, he said:

Well, there are many things that we do, one of them is bulk buying. We buy in bulk, saving costs.

At the time that inflation is rising and the forex is also changing, it doesn't affect you immediately. (ACF, Pos. 35)

He continued by adding multiple sourcing. When prices of raw materials are high, he takes quotes from more suppliers and looks for better deals in terms of quality. In all situations, ACF made sure to minimize costs through bargaining. From the participant, these are appropriate because the cost of raw materials increases, but they do not shift all the incremental costs to customers.

He concluded on the relationship between constraints and scaling by saying that the previous are:

... blessings in disguise, so if you meet a challenge, you don't cry, stop, and turn. You face the challenge and in attempting to solve that difficulty, you discover new strategies, measures, methods, and partners, which many times will be a better deal. So it's always encouraging when you get to that level where everything looks like it's going to stop, but because you're brainstorming looking for solutions, there you get a better deal. (ACF, Pos. 38)

When asked to describe any major change in a form of growth or an opportunity that the business has ever used local resources to handle, the owner of ACF said:

...when the company was growing, we needed to go into farming, so we tried farming like 3 times and failed. It was the 4th attempt that we now contacted the small holder women farmers and we sold the idea to them. Two people agreed, the others rejected and then, we started and now, we have about 100 of them farming the crop for us. That is a local source, local challenge and just tried to brainstorm and we got that idea. (ACF, Pos. 48)

Networking with local farmers made ACF adopt backward integration to farm turkey berry plant for scaling.

On the part of increasing physical capacity to scale, participants were asked about the new resources that were purchased or acquired in response to any change that took place. It was realized that the respondents like SFS who could obtain greater funding expanded their physical capacity than the others. SFS for example was able to mechanise to improve production through lean operation. The participant said:

You already don't have a certain capacity and so it meant that we have to invest in some mechanised systems to meet production which we have done. (SFS, Pos. 37)

This triggered an increase in sales and the participant acknowledged that:

... we have made great improvement as far as sales of compost is concerned. (SFS, Pos. 34)

It was also evident at EFS that:

...when people come to the newly rented shop by the roadside, the expectations are significant.

Greater than what they came to see when the showroom was in our home. (EFS, Pos. 43)

WAF, on the other hand, expanded its building (increasing physical capacity) after obtaining a grant and rented some space to the chocolate business.

From Fig. 6.10, TNS had the highest codes (3) in increasing the number of users in the study because they collaborated to even convert their competitors to partners to get more users of solar energy. The participant said:

We are still convincing people to go into solar so if you compete, it will not help, rather, partnership is the best. (TNS, Pos. 49)

They also have affordable products for rural communities. Some are solar fans and solar TVs. They are trying to balance and meet different customer needs. To gain more users of the products, EFS enhanced them by adding essential materials to make it more appealing to various senses and smooth as well. The participant said:

Over the years we have turned ... into a product ...looks very different. Most importantly, we realized that here is a product that is not been valued at all and it's been exported in raw form but it's a matter of adding a little value to it. (EFS, Pos. 20)

Increasing the number of users causes recruitment, network, and training to raise organisational headcount. TNS participant said:

"We have recruited a good number of people into our team and that's a sign of growth. HR, customer service, marketing, research and innovation, internal risk, and compliance officer. (TNS, Pos. 50)"

From the above narratives, ZLC trained trainers-of-trainees to have more people to produce the charcoal briquettes. ACF on the one hand gave the idea of producing turkey berry fruit to local women and they had about 100 of them farming the crop for business expansion. As a result, ACF

hired an agronomist to assist the local women farmers to produce to specifications. The owner added that:

Yes, we train them periodically, once a quarter. Last year, we got a new agronomist who happen to live close to the women. He is now in charge of training in agronomic practices. (ACF, Pos. 52)

6.5 Themes Discovered

The study revealed themes after utilising the thematic data analytic process (Braun and Clark, 2012; Yin, 1994; and Eisenhardt, 1989) with MAXQDA software. The themes were identified in the findings drawn from the coding and were aligned with the theory of bricolage in the mobilisation of resources for scaling entrepreneurial firms. The themes from the findings are: bricolage resource mobilisation as a response to resource scarcity, key enablers of bricolage resource mobilisation, and scaling through bricolage.

6.5.1 Bricolage Resource Mobilisation as a Response to Resource Scarcity

While patterns were broadly similar across the eight ventures, minor variations existed in the allocation of financial, material, and human resources, based on the individual firm contexts. Bricolage was identified as an evolving entrepreneurial process (*EFS, Pos. 23; FMH, Pos. 19*). It is not static but evolves with the entrepreneurial journey, particularly during critical periods of scarcity (*ZLC, Pos. 38; WAF, Pos. 34; EFS, Pos. 35*). In resource-scarce conditions, entrepreneurs improvise (*ZLC, ACF*) by using a resource compendium within their immediate reach (*ACF, Pos. 48; WAF, Pos. 23*). Financial resources are foundational, directly influencing the ability to

mobilise material and human resources. The entrepreneurial firms with severe financial limitations struggled more significantly to acquire other types of resources (BPS).

Entrepreneurs access resources by leveraging personal and professional networks, highlighting the importance of “who they know” (FMH and WAF). There was evidence that team diversity and a shared vision enhanced capacity for collaboration and innovative problem-solving. The background and embeddedness of entrepreneurial teams in the local context facilitate resource access and relevance. Bricolage leads to the production of high-quality goods that are difficult to match (ZLC and ACF).

Cross-sector partnerships and external networking (TNS, SFS) were found in the study. It took the form of collective bricolage that occurs when a group of actors - either individuals or organisations - draw on a shared repertoire of practices, combining previously used ideational and institutional resources from past policy-making efforts and adapting them to new situations (Carstensen and Röper, 2024). This entails distinct and related dimensions of competition and cooperation. TNS through coopetition also builds relationships among suppliers to achieve collaborative synergy, which is essential for expanding the resource base and achieving resource access. Collaborative problem solving is viewed as a dynamic, non-linear cobbling that involves creatively exploring and reinterpreting diverse perspectives and ideas using a varied set of tools (Carstensen and Sørensen, 2025). The essence is to create a market and scale with competitors.

6.5.2 Key drivers of bricolage resource mobilisation

The entrepreneurial firms under study operate in severe resource conditions, and as a result, bricolage is essential to explore how value can be created in penurious environments. Resource scarcity was revealed as the trigger for bricolage (Ghalwash and Ismail, 2024). The entrepreneurial

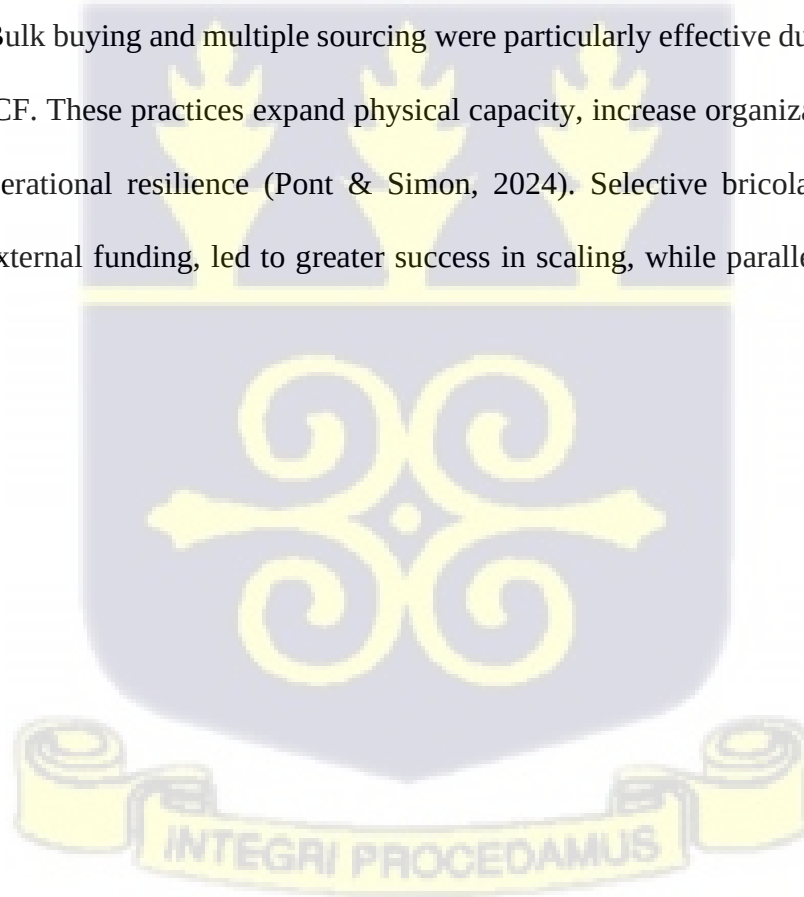
firms navigate their penurious conditions through networks and alternative financial strategies to overcome resource mobilization challenges. Given that, bricolage is described as a necessity-driven resource mobilisation process that emerges as a response to unmet needs and constraints. In the study, resource constraints were viewed as opportunities since scarcity compelled entrepreneurs to think more resourcefully (Huang and Tu, 2025). For example, resource constraints compel entrepreneurs to experiment, improvise, and innovate, resulting in unintended but viable products (ZLC, Pos. 20; EFS, Pos. 42; ACF, Pos. 39). To overcome challenges in obtaining the needed resources in the study, entrepreneurs create and engage in multiple overlapping networks to access different types of resources (human, material, and financial). Close social and professional networks became essential for substituting formal infrastructure. As a result, the Founders' experience and resilience were pivotal in navigating scarcity (ACF, WAF, and FMH). For example, when formal financing is unavailable, the owners in the study turned to informal networks – family, friends, and personal contacts – for support (EFS, Pos. 35; WAF, Pos. 22) – financial bricolage. The networks serve as critical bridges to otherwise inaccessible resources (SFS and TSN). Human capital was developed through networking with external casual employees to tap into local knowledge and build internal capacity (WAF and ZLC).

6.5.3 Scaling Through Bricolage

In resource-scarce environments, bricolage is more than a survival tactic. It is a strategic approach that drives innovation at scale. This study, therefore, redefines bricolage as a quality-driven and potentially scalable approach to entrepreneurship. Emphasis is placed on strategic collaboration in the form of coopetition (ZLC), cost-saving strategies (ACF), and the selective use of bricolage (SFS). These elements are pivotal for entrepreneurial scaling in resource-constrained contexts.

Collaboration, in the form of coopetition, pools resources together to scale within TNS. Furthermore, it was found in ZLC and WAF that collaboration required the training of both actual and casual employees, creating a ripple effect that increased user adoption of products and services. Replicating success through training is a critical strategy for scaling via bricolage (ZLC). These initiatives led to revenue generation, enabling further investment and scaling. The mutually reinforcing cycle underscores the importance of interdependence and collective growth in entrepreneurial settings.

Multiple sourcing allowed firms to reduce costs (ACF, Pos. 35), improve input quality, and minimise risks associated with supplier dependency during high input costs in RCE (Ivanov and Dolgui, 2020). Bulk buying and multiple sourcing were particularly effective during times of high input costs at ACF. These practices expand physical capacity, increase organizational headcount, and increase operational resilience (Pont & Simon, 2024). Selective bricolage, supported by education and external funding, led to greater success in scaling, while parallel bricolage posed challenges.



CHAPTER SEVEN

DISCUSSIONS OF FINDINGS

7.0 Chapter Overview

This qualitative research is based on eight (8) case studies of entrepreneurial firms in Ghana. This research aims to expand on the work of Levi-Strauss (1967) and Baker & Nelson (2005) by examining how entrepreneurial ventures utilise the bricolage process to mobilise resources - financial, human, and material - to scale up within a constrained environment. Focusing on the objectives, this chapter discusses the empirical findings, identified themes, and key issues in scaling through the bricolage process in such a context. Thus, it proves whether the cross-case themes confirm, extend, or challenge existing literature.

7.1 Mobilisation of Resources Through Bricolage Process

Objective one of this study examines how entrepreneurial firms mobilise resources, specifically financial, material, and human resources, through a bricolage process in penurious environments. These types of resources are adopted for the study because “resource scarcity may entail a lack of employees with the right formal skills (human resources), a lack of adequate facilities (material resources), and a lack of capital (financial resources). For this study, the research uses the term ‘resources’ to be both tangible and intangible firm-based financial, material, and human resources. Precisely, the firm-based resources comprise human capital, physical assets, financial capital, and materials (Clough *et al.* 2019; Amit and Schoemaker, 2016; Di Domenica *et al.*, 2010). The empirical findings of this study indicate that all eight (8) entrepreneurial firms as a starting point

of bricolage refused to be enacted by limitations and ‘make do’ with local resources (Busch and Barkema, 2021).

7.1.1 Material Resources

The findings revealed all eight (8) entrepreneurial firms harness waste as a resource and convert it into another product successfully (Sindhu, Gnansounou, Rebello, Binod, Varjani, Thakur, ... and Pandey, 2019; Holt and Littlewood, 2017). Material resources are sourced from several places. This is because specific resources are used distinctly. This finding is aligned with previous studies that indicate that resources that may hold no value for one firm can be highly valuable to another (Desa 2012). The owner of ZLC testified that he had no business with charcoal until he was roaming and saw a lot of coconut husk being used to cook “kenkey”. He narrated how, out of curiosity, the idea of experimenting or engaging with coconut husk to produce charcoal briquettes came into his mind. The owner of ZLC, vigorously engaged with what was at hand with the problem, and it produced a feasible outcome (An, Zhao, Cao, Zhang, and Liu, 2018). In addition, the rejected charcoal granules by ZLC are used to power other machines by BPS.

Linking the findings to the literature, bricolage is a local, contextual, unconscious, and sudden process to respond to resource scarcity. It cannot be thought of outside specific situations (Glasbeek, 2024; Linna, 2013). It is an immediate means of mobilizing resources in a resource-indigent surrounding. ZLC and ACF improvised when they were facing pressing issues and acted suddenly by using whatever local material they had at hand as there was not much time. In the study, when ACF was faced with high costs and delays in disposing of waste after processing, they brainstormed and suddenly had an idea to convert the waste into another new product. That new product brought in more revenue and saved costs on waste management as well (ACF, Pos. 40).

Due to the difficulties in obtaining resources, the entrepreneurs were forced into the practice of making do (Baker and Nelson, 2005), a process involving ‘fiddling’ (Simba, Ojong and Kuk, 2021) and scavenging (Holt and Littlewood, 2017) by applying combinations of resources at hand to new problems and opportunities” (Baker and Nelson, 2005, p. 33). From the findings, scavenging in bricolage emphasizes using what is accessible to refuse the limits imposed by lack of resources. This approach fosters a resourceful, improvisational mindset, where items that might otherwise be thrown away or ignored are seen as valuable. It supports sustainability by reducing waste while promoting creativity and problem-solving. While ACF was scavenging for HR by using interns and local women farmers to farm turkey berry fruit. EFS and BPS were liaising with several market queens and charcoal sellers to obtain food waste and charcoal aggregates respectively. TNS opts for cheaper, affordable components but quality ramps from several sources.

Difficulties in getting resources cause entrepreneurial firms to be in several networks to draw different types of resources from several sources. In the findings, SFS deals with the municipal assembly, quite a lot of market queens, and the food and beverage industries to obtain waste materials. In their resource compendium, the firms depended on rejected and cheap or affordable resources like BSF larvae (WAF, Pos. 49), cocoa beans/waste (FMH, Pos. 19), waste oil (BPS, Pos. 54), coconut husk (ZLC, Pos. 20), turkey berry plant (ACF, Pos. 49), faecal waste (SFS, Pos. 19), black soap - *alata soap*, (EFS, Pos. 49), and batteries (TNS, Pos. 53) for their businesses. In a comparative study of technology entrepreneurship, Garud and Karnoe (2003) contrasted between bricolage and breakthrough or engineering processes of resource mobilisation in a wind turbine. The Denmark actors, due to financial resource constraints used a low-tech approach (bricolage) through scraps and steadily improved over the US actors that used purpose-designed sophisticated

technology (engineering). Ultimately, materials mended from scraps turned out to be superior to those used by American firms. This demonstrates that seemingly inferior resources can lead to the creation of superior new products.

7.1.2 Financial Resource

Of all, financial resource is the most important form of capital for start-ups and growth (Atiase, Mahmood, Wang and Botchie, 2017). It is evident in the study that financial resources control all the other types of resources. It corroborates the findings of Hayat, Safi, Wahab, Shahzad, and Chen (2023), who studied renewable energy financing in OECD economies. They realized that financial resources allow entrepreneurs to support sustainable development and enhance clean energy solutions. The entrepreneurs, therefore, try to obtain finance from several sources including self, friends, and family (WAF, FMH, BPS, ZLC, ACF), trade credit (TNS, Pos. 22), microfinance (EFS, Pos. 36), tipping fees or charges, donations (SFS, Pos. 29, 22), bank loans, (FMH, Pos. 21 and ACF) equity (FMH, Pos. 21), and grants (FMH, Pos. 21; ACF, Pos. 56; EFS, Pos. 35). The several sources of funding in different circumstances correspond to the findings of Sarkar and Mateus (2022) that support can come from many sources. However, it is realised in the study that financing from friends and family has become a buzzword in start-up financing. The findings on sources of finance also agree with Lukeš, and Zouhar (2024) and Rutherford, Pollack, Mazzei, and Sanchez-Ruiz (2017, p. 675-676) that entrepreneurs mostly obtain their finance from friends and family at the start-up stage. Therefore, the financial bricolage form – micro-lending, equips entrepreneurial ventures with the ability to enhance their financial sustainability. This not only aids in securing financial resources but also fosters the establishment of credibility between the

recipient and the provider through informal channels (Kariv and Coleman, 2015; Kwong et al., 2019).

One of the characteristics of bricolage is collaboration in resource mobilization (Sarkar and Mateus, 2024; Kwong, Tasavori, and Wun-mei Cheung, 2017). The findings on the PPP arrangements at SFS highlight a synergy between the public and private sectors, combining the strengths to achieve mutual goals. This finding supports the proposal by Intindola and Ofstein (2021), who argued that the integration of resources by members of cross-sector partnerships constitutes a form of bricolage. Their study draws on Gray's (1985) work, which emphasizes the role of collaboration in enhancing outcomes. The PPP arrangement in SFS extends beyond the individual level, representing a collective/network bricolage (Mateus and Sarkar, 2024; Khurshid and Snell, 2021; Duymedjian and Rüling, 2010; Baker et al., 2003) that aims to address a grand challenge. The study of Di Domenico, Tracey, and Haugh (2020) explains the benefits of PPP better. The partnership provided flexible financing models that allowed SFS to be funded through private capital, public funds, and user fees, rather than relying solely on public sector budgets or debt. In that arrangement, risks are shared between the public and private sectors; therefore, the private business's financial risks are lessened.

In contrast to all the sources of funding in the study, TNS was the only one that was in a trade credit arrangement with its manufacturers. Trade credit, where suppliers allow businesses to purchase goods or services and pay for them later, provides a vital source of short-term financing for these enterprises (Huang, Goodell, Xia, and Yuan, 2024; Abdulai, Dary and Domanban, 2024). Trade credit is the most important and only source of external financing for TNS. The findings on

the source of finance for TNS agree with Amoako, Akwei, and Damoah (2021), where the manufacturers rely on trust-based relationships in agreeing with TNS to access financial resources from them. Recognizing the pivotal role of trade credit in alleviating financial constraints for entrepreneurial firms is crucial. For informal businesses, which often lack access to formal credit sources like bank loans due to limited collateral, credit history, or documentation, trade credit offers an alternative way to manage cash flow and sustain operations. It enables these businesses to acquire necessary inventory, meet customer demand, and grow without immediate financial outlays, helping them overcome liquidity challenges and reduce the financial pressure that may otherwise limit their growth potential.

Hence, this study proposes that:

***P1.** Financial resources are foundational, directly influencing the ability to mobilise material and human resources to scale.*

7.1.3 HR Mobilisation

Human resources is a problem in entrepreneurship. Difficulty in getting the right skills to work retards the growth of enterprises. As a result, the study found three (3) out of the eight (8) enterprises to be using training of temporary employees at the places where they could get the right local resources for production. For example, ZLC trained people to gather coconut husk and also produce charcoal for the business (ZLC, Pos. 38 and 53). WAF also did the same to get people to produce the black soldier fly larvae for their animal feed production (WAF, Pos. 49). ACF on the other, trained women farmers to produce the turkey berry plant (ACF, Pos. 48). As the entrepreneurs have trained some people to undertake part of the activities in the value chain, they can take care of other things.

The above training examples of ZLC, WAF, and ACF suggest the demonstration of bricolage in pedagogy in the study. ZLC and WAF empower individuals through resource reallocation and improvisation to create using improved materials. They engaged in creative activities with a range of objects, like coconut husk and waste malt, to innovatively produce charcoal briquettes and protein feed, respectively. It was found in the study that with the principle of ‘making do’ in bricolage, ZLC, WAF, and ACF used adult education approaches to engage the unemployed in a skill transfer exercise in entrepreneurship. In contrast, the entrepreneurs performed the role of facilitators, not teachers or experts, a similar finding to agricultural advisors in the study of Teele and Nkoane (2024), who used bricolage to improve skill transfer among emerging farmers. With a massive experience, they circulated tacit knowledge among themselves by using limited resources to complete specific tasks (pp. 16-17).

By linking the bricolage activities of Sarkar (2018) to the findings, the entrepreneurs in the study often utilize their spare time to make do. In the findings, team diversity and a shared vision are key factors in entrepreneurial teams (Su, Yang, and Wang 2020). For example, the respondent at WAF said the first resource to think of was time. The wife was working full time at a travel and tour agency but because she needed to be on the ground in business, she took that bold step and worked fully in their private business (WAF, Pos. 22). In addition, corpreneurship formed a strong part in the success of three of the cases (WAF, ACF and EFS). In the study, the diversity of the founding team members, in particular, is significant (Wang, Yu, and Meng 2023), as it provides a broad knowledge base and positively influences the relationship between bricolage practices and venture performance. ACF for instance was established by couples. The husband is a Chemist who

studied plant investigations and the wife, is a food scientist (ACF, Pos. 21). EFS also had strong backing from the wife in the business.

It was found in the study that the bricoleurs in the cases who were the entrepreneurial actors (ACF, ZLC), depended on who they were, what they knew, and who they knew to operate the business.

7.1.3.1 The Entrepreneurial Actor: Who they are, what they know, and who they know

There were four characteristics found in the data so far, as mobilising human resources in this research is concerned. They refuse to be constrained by limitations in HR, the entrepreneur's experience, partners or teams, and means of exposure to the idea. The local knowledge of the owners shapes the way they see challenges and attack them with local resources at hand. This local knowledge with the entrepreneur's experience, compels the owners to behave innovatively to refuse to be constrained by limitations, despite the context they find themselves in. With a background of having a passion for business, WAF was motivated by how he used to sell games and burn songs on CDs to his mates during school time. That partly prompted the owner to turn the opportunity into an innovative business for solving animal feed problems.

Means of exposure to the business ideas also came in diverse ways to propel the scale. WAF was established after attending an African Innovation Summit in Rwanda, and met a South African who was looking for people to solve the African waste challenge. FMH was first exposed to the idea during a World Bank Project with the title "Waste Not a Waste" when he was offering a national service. As an engineer, BPS was willing to apply the knowledge acquired from school to solve a challenge by converting waste to energy. ZLC, out of curiosity, experimented with coconut

husk into charcoal and ended up being a prolific business. A medical Doctor introduced the Turkey berry fruit to the owner of ACF when his wife was diagnosed with anemia. As a chemist and the wife is a food scientist, research was conducted with the Ghana Standards Authority to identify therapeutic properties in the plant. The founder of SFS had the idea of helping low-middle-income societies to use waste as a resource for livelihood. He saw the need to team up in a PPP arrangement with the government of Ghana, and the Ashaiman Municipal Assembly to realise the vision. With such a team, SFS can produce biogas for electric energy and organic fertilizer to improve soil fertility. The founder of EFS, on the other hand, was driven by value addition to the undervalued local products like shea butter and black soap.

7.2 How Resource-Constraints Enable Bricolage Resource Mobilisation Process

The second objective is to analyse how resource-constraints enable the scale of entrepreneurial firms through bricolage. Witell et al. (2017, p. 292) proposed that bricolage is built on four capabilities, which are (1) actively addressing resource scarcity, (2) making do, (3) improvisation, and (4) networking with external partners (Baker & Nelson, 2005; Linna, 2013). All of the characteristics are found in this study, but making do controls all. As already illustrated in Fig. 6.10, making do with local resources involves combining various resources for new purposes. This suggests that constraints drive entrepreneurial firms to experiment, innovate, and improvise, leading to the development of unintended products. It confirms that ventures relying on resourcefulness engage in experimentation and innovation to create new products.

7.2.1 Addressing Resource Scarcity

Most of the findings on how resource-constraints enable bricolage to scale prove that resource shortage is the trigger of bricolage (Simba et al., 2021). The findings prove that financial constraint has been a favourable condition to enable the scale of businesses through bricolage. Resource constraints, especially finance, cause the less resourced entrepreneurs to engage in bricolage for business establishment and growth. Seven (7) entrepreneurs, except TNS found it difficult to get the needed finance from formal banks in the study, but they turned to their close relations such as family and friends to overcome their challenges or take advantage of the opportunities. In response to the challenging circumstances faced by entrepreneurs in displaced environments, microlending programs - particularly financial bricolage - have emerged as a key form of resourcefulness. These programs help develop the capacity to improve the financial sustainability of organisations over time (Cheung et al., 2019; Kariv and Coleman, 2015). An interviewee attested that one can be creative in accessing money from small investors (EFS, Pos. 35). FMH was also compelled to use NGOs like USAID to facilitate grant funding for their financial freedom. In the bricolage theory, the constrained context in which bricolage unravels is often also the reason why it does unravel (Sarkar and Mateus 2023). On the contrary, the actions of the entrepreneurs prove that when resources are lacking, entrepreneurs and ventures are forced to look inward at their resources and resort to their close networks. The findings highlight that bricolage is born out of necessity (Duymedjian and Rueling, 2010). When entrepreneurs are faced with resource scarcity, they are compelled to look into their resource troves to make do with the immediate resource at hand or scavenge through those they know (Rod, 2024), instead of waiting to lose the opportunity (Busch and Barkema, 2021; Reypens et al., 2021).

This is in contrast with when they are well-resourced, where they take on an “engineering” mindset (Lévi-Strauss, 1966), seeking additional resources to develop their vision. They pursue a well-

defined causation process (Neck, Neck, and Murray, 2018), based on rational decision-making models employed by neoclassical economics. The literature on that “engineering mindset” assumes that developing new products requires resource sufficiency for the process to be conducted systematically. However, necessity is the mother of invention and innovation may be triggered to actively address resource scarcity in adverse contexts (Cunha et al. 2014).

A common feature driving the scale of entrepreneurial firms through bricolage in the study is the entrepreneurial actor with the entrepreneurial team. The entrepreneurs under study refused to be constrained by limitations. TNS started as an installer of landline telephones, but due to electricity problems, customers needed constant power, so TNS decided to venture into battery systems to generate power. It was realized from the case that instead of using the interrupting national electric power (ECG) to charge the batteries which was still increasing the electricity bill, he decided to go into solar (TNS, Pos. 19). The need for a constant supply of power, instead of interrupting the national grid compelled the telecom company to repurpose the existing networks to cultivate a new customer base. ACF tried to have a turkey berry farm for three farming seasons but failed. The business succeeded on the fourth attempt when the owner agreed with smallholder women farmers before he was successful. Also, ZLC was forced to think differently due to the lack of resources. People who were close to where the resources were were trained for the production of charcoal for the business (ZLC, Post. 38). In addition, WAF was making losses, although they were advertising their idea on TV and other outlets. WAF was not discouraged but used the advert to build and promote the brand and clientele.

A significant finding in the research proves that the background of the founding team members is relevant as suggested by Wang, Yu, and Meng (2023) to drive the scale of the business in resource-

constrained environments. The owner of ACF, who is a Chemist, and his wife, a food scientist, moved the scale of the business in a constrained environment. Idea generation is a key driving issue enabling the bricolage resource mobilisation process. The ideas for the businesses came in diverse ways, mostly related to making do or resources on hand concerning bricolage characteristics. WAF was established after attending an African Innovation Summit in Rwanda and met a South African who was looking for people to solve the African waste challenge. FMH was first exposed to the idea during a World Bank project with the title “Waste Not a Waste” when he was offering a national service. As an engineer, BPS was willing to apply the knowledge acquired from school to solve a challenge by converting waste to energy. ZLC, out of curiosity, experimented with coconut husk into charcoal and ended up being a prolific business. A medical Doctor introduced the Turkey berry fruit to the owner of ACF when his wife was diagnosed with anemia. As a chemist and the wife is a food scientist, research was conducted with the Ghana Standards Authority to identify therapeutic properties in the plant. The founder of SFS had the idea of helping low-middle-income societies to use waste as a resource for livelihood. The founder of EFS was driven by adding value to the undervalued local products like shea butter and black soap. TNS started as an installer of landline telephones, but due to electricity problems, customers needed constant power, so TNS decided to venture into battery systems to generate power. The need for a constant supply of power, instead of interrupting the national grid, compelled the telecom company to repurpose existing networks to cultivate a new customer base. A shift attributed to market bricolage.

To overcome resource shortage, Simba et al. (2021) suggest improvisation or fiddling, making do, and recombining resources to mitigate resource deficiency. From the literature, everyone does not

objectively see the potential. Potentials are enacted by the observer–bricoleur to discover prevailing resources innovatively (Cunha et al., 2014). From the findings, it is realized that through bricolage, scarcity is viewed as an opportunity for those who can unlock the potential hidden within the available, unused resources. When approached with the mindset of a “bricoleur” (Levi-Strauss, 1966), resources can provide surprising benefits. Entrepreneurial firms with the ability to engage in bricolage may therefore leverage creative combinations of resources (Halme, Lindeman, and Linna, 2012) to seize these opportunities. According to Cunha et al. (2014, p.204), “...inferior resources may render superior new products” through the entrepreneurial actor.

From the study, it is identified that resourcefulness is key to scaling through bricolage. It was found that the entrepreneurs acted resourcefully in resource scarcity to scale their ventures. According to Moss, Loo, and Parada (2021, p. 1), resourcefulness is “a property that allows individuals and organizations to get more from less, by identifying novel and clever ways to bring, assemble, and deploy resources” (Williams et al., 2019:1). From Fig. 6.10 in chapter 6, it is established that ‘making do’ relates a lot to the combination of resources for new purposes in the Code Relations Browser on bricolage characteristics. The interpretation is that bricoleurs often refuse to enact limitations by ‘making do’ with local resources for a new purpose. This, through experimentation, avoids perfectionism, which eliminates all errors. Improvisation avoids perfectionism, which eliminates all errors - a state of perfection that does not (and cannot) truly exist (Kurakto et al. 2023). Like Kurakto et al. (2023), this study proposes that the closer one gets to perfection, the more time it requires to attain it, making action seem less urgent. As a result, opportunities may slip away, or the challenge may become insurmountable if bricolage is not engaged. Improvisation demands a thorough process of trial-and-error experimentation, resulting in the gradual

accumulation of knowledge and skills. This learning occurs through both the failures and successes of various experiments (Duymedjian & Rüling, 2010). Improvisation may not conform to performance standards (Steffens, Baker, and Davidsson, 2023) but leads to innovative products. ZLC and ACF improvised through rigorous experimentation to produce innovative charcoal briquettes (ZLC, Pos. 20) and herbal foods (ACF, Pos. 40) respectively.

In challenging existing literature that bricolage produces outcomes with limited quality (Steffens et al. 2023) and therefore has adverse consequences on sales and profit (Reypens, Bacq, and Milanov, 2021), the finding on ZLC, is an exception. ZLC produces smokeless charcoal briquettes that burn for a longer period (ZLC, Pos. 54). SFS, on the other hand, engaged in continuous improvement (SFS, Pos. 37) in scaling by using minimum viable products (Shepherd & Gruber, 2021) and made scaling possible.

Hence, this study proposes that:

P2: Resource constraints compel entrepreneurs to experiment, improvise, and innovate, resulting in unintended but viable products.

7.3 Scaling Entrepreneurial Firms Through Bricolage

Research objective three ascertained how bricolage could scale entrepreneurial firms affordably. According to Jansen, Heavey, Mom, Simsek, and Zahra (2023, p. 587), scaling is the creation of transformational efforts concerning people, processes, and places (Coviello, 2019), and developing and spreading pockets of excellence across the organization (Shepherd and Patzelt, 2022); ... to

deliver a viable business model (Tippmann et al., 2023). From the study, entrepreneurial firms scale through bricolage by collaborating in coopetition, networks, and training.

The collaboration had the greatest number of codes under ways of scaling entrepreneurial firms in the study. This results in a ripple effect of increasing the number of users of products and services of the entrepreneurial firms (WAF, Pos. 49; FMH, Pos. 40; ZLC, 45 and 47; SFS, Pos. 34; EFS, Pos. 43; TNS, Pos. 19, 42 and 49). From the Code Relations Browser on Scaling in Fig. 6.12, increasing the number of users mostly increases funds and revenue, and vice versa. That gives the entrepreneurial firms the ability to buy in bulk through multiple sourcing for better deals in price and quality (ACF, Pos. 34). That helped in saving funds to improve physical capacity in diverse ways in the study (WAF, Pos. 54; ZLC, Pos. 49; SFS, Pos. 37, 47 and 51; EFS, Pos. 43) and increase organisation head counts (ZLC, Pos. 38; ACF, Pos. 48; WAF, Pos. 54 and TNS, Pos. 50). It is also possible to scale through multiple sourcing. In periods when prices of raw materials are high, ACF obtains quotes from several suppliers for a better deal in price and quality. This permits diversification without relying on a sole supplier that will have inherent risks (Ivanov and Dolgui, 2020). This finding is similar to that of Pont and Simon (2024) on cost reduction and resilience-building strategies in adverse circumstances. ZLC used coconut husk, which is a very local waste product to create value and also utilized a very local supply chain – the women selling charcoal on the streets to create awareness of the product (ZLC, Pos. 45). To increase physical capacity, SFS had to mechanise to get more sledge (SFS, Pos. 37). TNS also increased organisational headcount by recruiting a good number of employees in the study year and that was a sign of growth. The areas they filled were HR, customer service, marketing, research and innovation, internal risk, and compliance officer (TNS, Pos. 50). All these were undertaken to scale the businesses.

Coopetition, which is a form of interorganisational collaboration where competing firms, operating in similar or overlapping geographic and product markets, work together (Benitez-Nuñez, Santana, Dorta-Afonso, and de Saá-Pérez, 2025; Ritala, 2018), was also found in the study at TNS and ZLC. According to Besana (2018), competition is not more useful in solving the allocation of scarce resources, but coopetition through networks and partnerships with competitors pools resources together. Coopetition, therefore, made TNS and ZLC engage with their competing firms as partners (Jakobsen, 2020). TNS and ZLC narrated the benefits of coopetition in bricolage by attesting that their work does not have competitors but partners. As a wholesaler, TNS receives and takes projects from competitors, therefore identifying them as partners, and extending the solar industry. (TNS, Pos. 48). ZLC also attested to how they were training people to produce charcoal and sell it back to them as competitors. Their goal was to meet market demand that was greater than what they could supply (ZLC, Pos. 53). The findings on coopetition in TNS and ZLC can be attributed to the need to navigate challenging environmental conditions, as suggested by Gnyawali and Charleton (2018). This collaboration aims to advance the awareness and adoption of solar energy in Ghana. In the literature, Sarkar and Mateus (2024) studied the collaboration of heterogeneous actors with a shared goal to address urgent needs through responsive collective structures as found in this research. Their study explores the initiatives of six diverse and impactful groups, focusing on the transition from individual to collective entrepreneurial agency. The findings in this study demonstrate how networks among competitors can self-organize and develop innovative solutions using available resources to scale. The coopetition mindset ‘make do’ with a network of distributed actors who can effectively self-organize and operate. The coopetition concept depicted in TNS and ZLC highlights the network entrepreneurial action that transcends individual agency to inclusive and collaborative efforts.

The coexistence of cooperation, which focuses on collective interests to create greater value, and competition, which emphasizes private gains from the value created, makes coopetition inherently paradoxical (Bengtsson et al., 2016b; Jakobsen, 2020; Felício, Caldeirinha and Dutra, 2019; Bengtsson, Raza-Ullah & Srivastava, 2018). This paradox can be examined through the lens of ambidexterity (Bin Makhshen, Rafi-ul-Shan, Bashiri, Hasan, Amar, and Khan, 2020; Bengtsson et al., 2016b), as ambidexterity is considered a key condition for understanding the paradoxical nature of coopetition (Bengtsson et al., 2016b). However, exploring ambidexterity is not the primary focus of this study.

In addition, collaboration in the form of a network with external stakeholders enabled FMH and SFS to increase their capacity to supply more organic fertilizers to farmers. Such a scaling strategy has a rippling effect of increasing the number of fertilizer users to improve their market share by increasing the number of organic fertilizer users.

Hence, this study proposes that:

P3a: Collaboration in the form of networks and coopetition is pivotal for mobilising resources to scale entrepreneurial firms in a resource-constrained environment.

Training also increases awareness, thereby raising the number of product users. WAF believes that training others may create competitors, but in a new industry, it is prudent to do so to expand the sector as trainees help in creating awareness (WAF, Pos. 49). Moreover, networking with individuals and international organisations or NGOs helps in obtaining funding to scale the business. It is also a major means to increase all forms of scaling. This is confirmed in Fig. 6.12

(Code Relations Browser on Scaling Behaviour), where collaboration in the form of coopetition, networks, and training increases the number of users and organisational headcount. ZLC testified to how they have networked and collaborated with local women and have never paid for marketing that made their presence spread from Abeka, through Kotobabi, Legon, Cantonments, in greater Accra through referrals (ZLC, Pos. 47).

As a mantra, WAF said “Train for trainees to expand the industry” (WAF, Pos. 49). By expanding training efforts, the number of production workers increased, which in turn expanded the geographic reach and organizational size (ZLC, Pos. 38, 53; WAF, Pos. 49). As outlined in the narratives, ZLC trained trainers-of-trainees to increase the workforce involved in producing charcoal briquettes. ZLC used training to overcome institutional limits and constraints imposed by regulations or resource environments as found in smallholder commercialisation (Tindiwensi, Abaho, Munene, Muhwezi, and Nkote, 2021). Even though the warehouse of ZLC is close to a fuel filling station, they do not burn charcoal there due to limitations imposed by regulators. Training has enabled ZLC to produce charcoal elsewhere near the source of raw materials and store it near a fuel selling point. Meanwhile, ACF introduced the idea of cultivating turkey berry fruit to local women, resulting in around 100 women growing the crop for business expansion and the sustenance of the ladies’ livelihood.

The analysed cases of ZLC, WAF, and ACF were similar to the findings of Busch and Barkema (2021). In their study, they developed and transferred bricolage heuristics in a low-cost manner to scale in multiple African countries. The firms they studied developed a set of simple heuristics that served as a “template.” They then selected aligned partners at low cost to roll out their bricolage practices selectively across Africa.

Hence, this study proposes that

P3b: Training collaborators in coopetition is a vital strategy for replicating success to scale bricolage in a resource-constrained environment.

Raising funds and revenue streams led to scaling the entrepreneurial firms in the study. Specifically, it increased the number of users, improved physical capacity, and increased organization headcounts. Finance is therefore used to enact scaling. It was realized that the businesses found it difficult to scale, until they had funds in the form of grants, donations, or loans to extend or improve physical capacity or infrastructure (WAF, Pos. 54; EFS, Pos. 43), increased organisational head counts in the form of engaging more employees including foreign engineers to work (FMH, Pos. 29). ACF and FMH struggled from the beginning but had a reasonable amount of bank loans and equity invested into the businesses through their efforts and facilitation by NGOs and USAID.

In the study, the entrepreneurial firms used both bricolage and resource-seeking behavior to gather resources for scaling. This goes with the literature (Kuratko, Burnell, Stevenson, Neubert, and Fisher, 2023, p. 1; Moss, Loos, and Parada, 2021) that asserts that entrepreneurs act resourcefully through techniques such as effectuation, bricolage, bootstrapping, and creative resourcing in transforming resources into desirable outcomes. It is to be noted that all the scaling forms discussed are important but not sufficient to scale businesses (Baker and Nelson, 2005). In the literature (Fisher, 2012; Baker and Nelson, 2005) bricolage pattern of use results in parallel and selective bricolage. In their study, ‘selective bricolage’ supports scaling of ventures, which was not so with

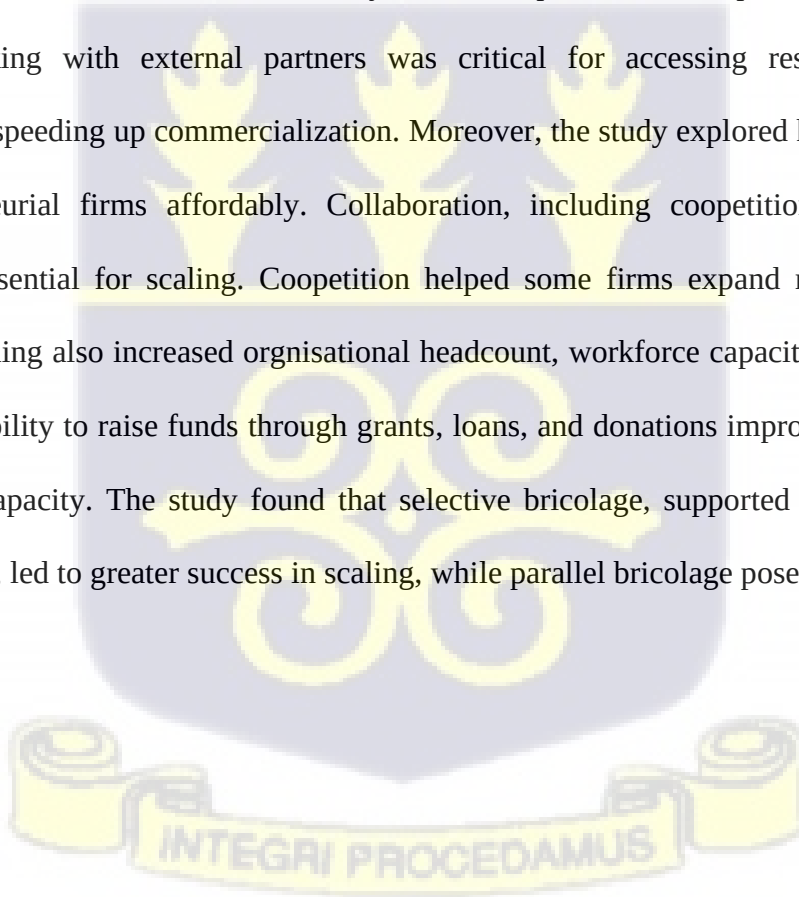
‘parallel bricolage’. This assertion has not been popular in the literature. Nevertheless, the bricolage study of Onwuegbuzie and Mafimisebi (2021) on how African Indigenous entrepreneurs scale up their businesses found that Indigenous entrepreneurs who did not have formal education and engaged in ‘parallel bricolage’ were unable to scale their ventures. However, those with formal education and indigenous knowledge, as well who used ‘selective bricolage’, were able to scale their ventures. From the findings of the study, all the participants were educated. Postgraduates were six (6) while graduates were two (2) (SFS and BPS), representing seventy-five (75%) and twenty-five percent (25%) respectively. From WAF, bricolage is used when one is in a tight situation. The narratives on the availability of finance and the right HR for maintenance prove that FMH adopts selective bricolage, while BPS embraces parallel bricolage, so it could not scale as it could not gain external funding. It mainly depended on self-funding. It therefore corroborates Onwuegbuzie and Mafimisebi’s (2021) findings that applying selective and ideational bricolage with mainstream education resulted in more meaningful solutions than using parallel bricolage by entrepreneurs without mainstream education.

7.4 Chapter Summary

The chapter has presented the study’s findings and provided reasons and explanations for the results of the analysis. The chapter firstly examines how entrepreneurial firms use bricolage to mobilize financial, material, and human resources in resource-scarce environments. Bricolage is described as a localised, improvisational process that responds to resource scarcity, fostering sustainability and creativity. The study found that the eight firms repurposed waste, often sourced cheaply or through networks, to create new products, demonstrating that discarded resources can be valuable. Key findings on the first objective include the importance of financial resources for

growth, the role of collaboration and cross-sector partnerships, and the use of employee training to access local resources. Team diversity and a shared vision were also crucial for success.

In addition, how the environment of scarcity enables bricolage resource mobilisation was discussed. The emphasis is on how resource constraints drive the bricolage process, with financial limitations prompting entrepreneurs to seek support from close networks instead of formal banks to encourage creative resource use. The entrepreneurial team's background and resourcefulness are vital for overcoming shortages and scaling the business. Despite literature suggesting that bricolage leads to inferior outcomes, the study found exceptions, such as producing high-quality goods. Networking with external partners was critical for accessing resources, fostering innovation, and speeding up commercialization. Moreover, the study explored how bricolage can scale entrepreneurial firms affordably. Collaboration, including coopetition, networks, and training, was essential for scaling. Coopetition helped some firms expand markets and raise awareness. Training also increased organisational headcount, workforce capacity, and geographic footprint. The ability to raise funds through grants, loans, and donations improved infrastructure and expanded capacity. The study found that selective bricolage, supported by education and external funding, led to greater success in scaling, while parallel bricolage posed challenges.



CHAPTER EIGHT

SUMMARY, CONCLUSION, AND IMPLICATIONS

8.0 Chapter Overview

Chapter eight provides a summary, conclusion, implications, and direction for future research. It examines the processes utilised in the study and explores their contributions to theory and managerial practice. The chapter is categorized into four (4) parts. The first section presents a summary of the study. It restates the research problem, outlining the study's objectives and detailing the key outcomes of each objective. The second section reflects on the study's contributions, focusing on the theories and methodology utilised, along with their implications for both theory and practice. The third section presents the conclusions, while the fourth section addresses the study's limitations and offers directions for future research.

8.1 Summary of the Study and Main Findings

Entrepreneurial firms are essential for generating employment in economically marginalized communities. Nevertheless, these entrepreneurs often struggle to secure the financial, material, and human resources necessary to launch and grow their businesses. The research set out to explore how entrepreneurial firms use bricolage process to mobilise financial, human, and material resources to affordably scale in a resource-constrained environment. To achieve this goal, three research objectives were established and they are to:

1. Examine how entrepreneurial firms mobilise financial, material, and human resources through a bricolage process in penurious environments;

2. Analyse how resource constraints enable the scale of entrepreneurial firms through the lens of bricolage; and
3. Ascertain ways by which bricolage could be used to scale entrepreneurial firms affordably.

As an initial step to achieve the first objective, the study explored how financial, material, and human resources are mobilized through the resource troves of entrepreneurial firms. The second objective arises from the lack of empirical research on what facilitates the scaling of entrepreneurial firms through the perspective of bricolage in a resource-constrained environment. Objective three, on the other hand, was based on the understanding that scaling bricolage is under-researched. Among the few, there are mixed feelings on how firms can be scaled on constrained budgets and cheap or rejected resources (Huang and Tu, 2024; Steffens et al., 2023).

There was a review of literature on the underpinning theory – bricolage and other relevant concepts such as resource and its mobilization (Kuratko et al., 2023; Fisher et al., 2020; Simba et al., 2021; Penrose, 1959) and scaling entrepreneurial firms (Shepherd and Petzelt, 2021; 2020; DeSantola and Gulati, 2018). Despite different types of bricolage (Glasbeek, 2024), the literature reveals four main characteristics. They are: making do, resources on hand, refusal to enact limitations, and a combination of resources for new purposes (Mateus and Sarkar, 2024; Donbesuur et al., 2023; Li and Yu, 2023; Bhardwaj et al., 2023). Linking the findings to the literature, bricolage is a local, contextual, unconscious, and sudden process to respond to resource scarcity. It cannot be thought of outside specific situations (Glasbeek, 2024; Linna, 2013). It is an immediate means of mobilizing resources in resource-indigent surroundings. Due to the difficulties in obtaining resources, the entrepreneurs were forced into the practice of making do (Baker and Nelson, 2005),

a process involving ‘fiddling’ (Simba, Ojong and Kuk, 2021) and scavenging (Holt and Littlewood, 2017) by applying combinations of resources at hand to new problems and opportunities” (Baker and Nelson, 2005, p. 33). From the findings, scavenging in bricolage emphasizes using what is accessible to refuse the limits imposed by lack of resources.

Data was gathered from eight (8) cases. Based on the protocols in a qualitative study (Braun and Clark, 2022; Creswell, 2014; Eisenhardt, 1989), the data was organized and prepared for thematic analysis using MAXQDA24. The analysis and findings were discussed concerning the research objectives and outcomes of previous studies in the literature. A summary of the main findings is presented in Table 8.1 below:



Table 8.11: Summary of Main Findings

Research objectives	Main findings
Research objective 1: To examine how entrepreneurial firms mobilise financial, material, and human resources through the bricolage process in a penurious environment.	The findings revealed similar patterns across the eight (8) cases with slight differences in material, financial, and human resource mobilization. Key findings include bricolage as a process that evolves along the entrepreneurial process, which is evoked in periods of resource scarcity to obtain resources in the compendium of the entrepreneur. Financial resources are crucial, influencing material and human resource mobilisation. Ventures with financial constraints struggle to mobilise other resources. The study also found that entrepreneurs leverage networks through whom they know (Rode, 2024) and creatively repurpose waste to overcome scarcity, instead of waiting to lose the opportunity (Busch and Barkema, 2021; Reypens et al., 2021). It was also realized that team diversity and a shared vision were crucial for success in resource mobilisation. A significant finding in the research proves that team diversity, a shared vision, and the entrepreneurial team's background with local knowledge are vital for innovative problem-solving and scaling as suggested by Wang, Yu, and Meng (2021) in constrained environments. In addition, despite literature suggesting that bricolage leads to inferior outcomes, the study found exceptions, such as producing high-quality goods that are difficult to match. Moreover, cross-sector partnerships and external networking are essential for resource access, fostering innovation, and accelerating commercialisation.
Research objective 2: To analyse how resource-constraints enable the use of bricolage to mobilise resources.	The research provided evidence to prove that difficulties in getting resources cause entrepreneurial firms to be in several networks to draw different types of resources from several sources. The findings reveal that resource shortage is the trigger of bricolage (Simba et al., 2021). In other words, bricolage is born out of necessity. This suggests that constraints drive entrepreneurial firms to experiment, innovate, and improvise, leading to the development of unintended products. Resource constraints, specifically finance, cause the less resourced entrepreneurs to engage in bricolage for business establishment and growth. In addition, entrepreneurs rely on networks, including family, friends, and close relations, to access resources when formal financial institutions are not an option. Financial bricolage, such as microlending programs, therefore helps entrepreneurs to improve their firms' financial sustainability and scale their businesses over time.
Research objective 3: To evaluate ways by which bricolage could be used to scale entrepreneurial firms affordably.	Collaboration, the frequent strategy for scaling entrepreneurial firms, created a ripple effect by increasing the number of users of the firms' products and services, which subsequently increases funds and revenue and vice versa. Also, entrepreneurial firms buy in bulk through multiple sourcing for better deals in price and quality. This cost-saving strategy allowed firms to reinvest in physical capacity and increase organisational headcounts. Multiple sourcing proved valuable for scaling, particularly during periods of high raw material costs. This permits diversification without relying on a sole supplier with inherent risks (Ivanov and Dolgui, 2020). This finding is similar to that of Pont and Simon (2024) on cost reduction and resilience-building strategies in adverse circumstances. Moreover, the findings demonstrate how a cooptation mindset 'make do' with a network of distributed actors who can effectively self-organise and operate. Moreover, in response to limited access to formal financing, cooptation is a good strategy for successful scaling. It depicts entrepreneurial action that transcends individual agency to inclusive and collaborative efforts. The businesses found it difficult to scale until they had funds in the form of grants, donations, or loans. Replicating success through training is a critical strategy for scaling via bricolage (Busch and Barkema, 2021). The study found that selective bricolage, supported by education and external funding, led to greater success in scaling, while parallel bricolage posed challenges. This goes with the literature (Kuratko, Burnell, Stevenson, Neubert, and Fisher, 2023, p. 1; Moss, Loo, and Parada, 2021) that asserts that entrepreneurs act resourcefully through techniques such as effectuation, bricolage, bootstrapping, and creative resourcing in transforming resources into desirable outcomes.

8.2 Reflections

The originality and contributions of the study are rooted in the approaches and processes used to investigate the phenomena and achieve the research objectives. These key aspects include the behavioural theory underpinning the study and the methodology employed for data collection and analysis for the empirical results. This section highlights the study's main contributions by examining the theories, literature reviewed, and methodology utilised.

8.2.1 Reflections on the Theory

To address the research problem and objectives, the study adopted a behavioural theory of bricolage as the underpinning theory. Bricolage is an enactment theory that best fits contexts characterized by scarce resources with high levels of economic uncertainty and seasonal activities (Scuotto et al., 2023, p.238). While bricolage is recognised as a tool for overcoming resource constraints in new ventures, few studies have directly explored its impact on identifying new entrepreneurial opportunities through scaling. Bricolage is centered on the effects of lacking external resources on a firm's advantage (Asakawa et al. 2019). Meanwhile, the so-called slack resources can satisfy the BoP market segment but are neglected (Cai et al. 2021). Bricolage is therefore used for the research to answer a call on using or extending existing management theories to understand resource mobilisation processes (Mateus and Sarker, 2024). It contributes to tackling new challenges and opportunities with limited resources (Cai et al., 2021; Sargani, Zhou, Raza, and Wei, 2020). Bricolage is understood as a process by which entrepreneurial firms scavenge, improvise, and drive innovation.

Apart from bricolage, the enactment theories that could be used to underpin a study on resource mobilization (Clough et al. 2019; Desa 2012, Desa and Basu 2013; Fisher, 2012; Sarasvathy, 2001) are resource dependence, effectuation, and bootstrapping. According to Steffens et al. (2023, p. 29), growth expectations increase resource replacement. In the growth trajectory of the firms in the study, it was realized bricolage enhanced competitiveness when it was used with resource seeking with mechanization. It could also be possible to blend enactment theories like resource base and planned behaviour theories in a study like this.

8.2.2 Reflections on Methodologies

The study context is less explored and limited knowledge exists about the process of scaling entrepreneurial ventures through bricolage in emerging economies like Ghana. This study was therefore grounded in an interpretive research paradigm and employed a qualitative research approach with a case study design. The emphasis was on careful case selection (i.e. theoretical sampling). In the end, eight (8) entrepreneurial firms, where the focal phenomena are likely to occur and case designs where the similarities and differences across cases are likely to improve theory building (Eisenhardt, 2021, p. 149) were used. Invariably, the study was conducted within the dimensions of interpretive reflexivity (Stoffelen, 2019) which uses a subjective approach to garner first-hand information from respondents. Such an approach is the best to enable a deeper understanding of the phenomena. Adopting such a constructivist paradigm helps the researcher to take on the role of an “insider” and act as a social actor in the study (Fard, 2012). The research design facilitates a deeper understanding of the bricolage process (Eisenhardt, 1989) in scaling ventures while contributing to offering novel theoretical and managerial insights (Yin, 2014).

The researcher could have applied a quantitative research method for data collection and analysis with a postpositivist worldview. An example is the use of the correlation design - a nonexperimental form where the researcher can use correlational statistics to describe and measure the association between the bricolage subtypes and the scale of entrepreneurial firms. Additionally, the researcher could have employed structural equation modeling, which integrates causal pathways and assesses the combined impact of multiple variables (Hair, Risher, Sarstedt, and Ringle 2019). Such a numerical or statistical-oriented data analytic method of inquiry (Saunders et al., 2019) could have supported hypothesis testing and predictions to examine the relationships among bricolage and forms of scaling in a resource-scarce context in Ghana. This could have also warranted the use of a large sample size for the results to be generalised beyond the scope of the research. However, the researcher wanted to study the phenomena in detail, hence the choice of selecting eight (8) cases is the best to obtain rich data to assess how the bricolage theory relates to the setting. In other words, this research has made it possible to examine the theoretical enlightenment of the bricolage behavior (Eisenhardt & Graebner, 2007) in a different setting.

The mixed methods research could have involved gathering and analysing both qualitative and quantitative data. It could have been through either convergent, explanatory sequential, exploratory sequential, or complex designs with embedded core research designs to answer research questions with hypotheses. Such a research method could have been appropriate due to its strength of drawing on both qualitative and quantitative methods and minimizing the limitations of both approaches (Creswell and Creswell, 2018). However, the possible challenges the inquirer could have been exposed to were discouraging, hence it was not used. Such challenges include

collecting extensive data, requiring intensive time for analysing both qualitative and quantitative data, and calling for the researcher to be abreast with both methodologies.

Nevertheless, scholars often consider qualitative and quantitative methods as opposite ends of a continuum. Accordingly, the researcher employed a qualitative approach, which, within the context of this study, was best suited for data collection and analysis to address the phenomenon of interest. Consequently, quantitative or mixed methods were deemed unsuitable.

8.3 Contributions of the Research

The contribution of this study is threefold. First, it examines bricolage within the context of entrepreneurial firms, highlighting its unique characteristics and enhancing scholarly literature on bricolage. Invariably, the study extends the boundaries of bricolage and explores the theoretical insights of bricolage behavior (Eisenhardt & Graebner, 2007) in a different context suggested by prior studies (Steffens et al., 2023). Additionally, it complements research on resource mobilization by showcasing how entrepreneurial firms leverage overlooked, undervalued, and low-cost but valuable resources from troves to develop innovative solutions and achieve scalability (Mateus and Sarkar, 2024; Onwuegbuzie and Mafimisebi, 2021; De Bernardi and Pedrini, 2020). The literature is extended to explore how entrepreneurial firms in Ghana solve problems by making do with the resources at hand in their penurious context. The study certifies that entrepreneurs in that resource-constrained context gain valuable benefits from their resource troves through the bricolage process. In doing so, this research contributes to the small but growing body of literature that explores entrepreneurial bricolage (Donbesuur, Owusu-Yirenkyi, Ampong and Hultman, 2023; Simba et al., 2021; Busch and Barkema, 2021) and suggests that bricolage capabilities

enable entrepreneurial firms to improvise and create affordable solutions by addressing key challenges.

This study, therefore, deepens the theoretical conversation on the enactment and behavioural theory of bricolage that tackle challenges with fewer resources. Thus, bricolage as a way of life helps resource-poor firms beyond establishment to scale. The study revealed how “making do” interacts more with the “combination of resources for new purposes” through entrepreneurial networking, stubbornness, experimentation, innovativeness, and improvisation to convert waste to valuable goods like organic manure and charcoal briquettes.

It was also found that competitors are not only rivals but partners. This could be termed as “*coopetition bricolage*” and it was seen as a key characteristic of bricolage in the context of the study. There was a good act of teaming up with competitors to “make do” with local resources that benefited both parties in the relationship. Based on the above discourse, the study therefore made an extension in the bricolage theory. This research answered a call on how existing management theories could be extended to understand bricolage by Mateus and Sarker (2024).

Second, the study has showcased the potential to scale businesses through bricolage and contribute to employment generation. It stresses the role of entrepreneurial firms in job creation, particularly in economically marginalized communities. Ghana is classified as a lower-income country (Tannor, 2021) with limited formal employment opportunities. The study highlights the significant potential for entrepreneurs to transform waste materials into valuable income-generating ventures. Using waste as a source of livelihood serves as a poverty alleviation model, offering substantial empowerment opportunities (Holt and Littlewood, 2017). By repurposing waste and creatively

combining resources to develop new products and services, entrepreneurial firms can cater to underserved and overlooked customer segments. Furthermore, this approach enables businesses to expand their customer base and extend their geographic reach, driving growth and innovation. In the study, training was used to generate employment in the entrepreneurship ecosystem for economic development. In the end, women and youth were capable of farming Turkey berry fruits for organic foods, culturing black soldier flies' larvae into animal protein feed, and burning coconut husk into quality charcoal briquettes.

Third, the focus of this research is shifted from the individual or micro level of analysis to the organizational level, emphasising the role of bricolage within entrepreneurial firms. The study contributes to research on scaling entrepreneurial firms by exploring how different forms of bricolage (e.g., parallel, selective, network bricolage) and resource bundles influence scaling (Giustiziero et al., 2021; Shankar and Clausen, 2020). It highlights the integration of selective bricolage with resource-seeking and optimization approaches along growth trajectories (DeSantola et al., 2022; Piaskowska et al., 2021; Picken, 2017). Therefore, it reveals that bricolage and resource-seeking behaviors are interconnected rather than simply existing as separate phenomena. Additionally, the study emphasizes conceptual blending (Glasbeek, 2024) in scaling ventures.

8.4 Implications for Management, Practice, and Policy

The findings of this research offer several valuable insights that are relevant to the management and practice of entrepreneurship in Ghana and, by extension, other emerging economies. Literature on resource mobilisation in constrained environments is dominated by the use of the bricolage

process as a coping mechanism in the start-up stage. However, theoretically, bricolage encompasses metaphysical principles like systems thinking and nonlinearity, depicting bricoleurs as similar to artists or skilled craft workers who develop deep, intuitive connections with the materials they engage with, including competitors. Hence, coopetition was evident in the scaling of entrepreneurial firms. This implies that “...bricolage does not inherently entail shallowness” (Glasbeek, 2024, p. 2). Bricolage involves the intuitive process of identifying effective solutions by utilizing and recombining available resources, including competitors in a resource-constrained environment. It is grounded in networking and continuous interactions, rather than a rigid cycle of planning. Bricoleurs, through these approaches, creatively solve challenges (Xie, Wang, Xu, and Cui, 2025; Papazu, 2021).

Apart from the theoretical contributions, the research has presented valuable insights to practitioners concerning bricolage. This study is useful to entrepreneurs who are faced with financial, material, and human resources. The study findings acknowledge the unique characteristics of bricolage to provide a good coping mechanism and a guide to mobilizing resources for managers to scale ventures. Practically, constraints can be addressed by managers in emerging markets through bricolage. The findings confirm the complementary application of selective bricolage and resource-seeking behaviour to scale in the entrepreneurial process. This depicts managers may find it difficult to solely use parallel bricolage to scale entrepreneurial firms in Ghana. Bricolage resource mobilisation processes rely on ‘making do’ with the local resources available to create social and commercial value (Rawhouser, Sutter, Holzaepfel, Conger, and Newbert, 2025). Through this study, practitioners would understand how to tap needed resources through bricolage, and resource-seeking approaches to appropriately scale firms. This means that

to enjoy a competitive advantage, both creation and discovery theories of entrepreneurship should be used. The creation perspective or enactment theories (such as bricolage, effectuation, and bootstrapping) may take a course of experimentation, affordable loss, and flexibility, with the resources “at hand” (i.e. who they are, what they know, and who they know) to result in entrepreneurial success (Perry et al., 2011). On the one hand, the discovery perspective or structured theories (such as resource-based theory and the theory of planned behavior), which is also known as causation, a goal-driven, deliberate model of decision-making (Sarasvathy, 2001) follows a well-prescribed approach to identify opportunities, efficiently, garner resources, and follow a strict plan to enjoy competitive advantage by entrepreneurs. This approach fosters a resourceful, improvisational mindset, where resources that might otherwise be thrown away or ignored are seen as valuable. It supports waste reduction and promotes creativity and problem-solving.

In addition, the findings reveal the use of local members in the community, irrespective of who they are: women farmers, market queens, women charcoal sellers, etc, to either reduce risks, draw resources from, and scale at low cost. However, some are not sustainable because they may have hidden costs. Training to make local people resourceful is better than passively waiting for resources to come from external sources, to miss opportunities, but the costs should be less than the benefits. However, managers should find ways to leverage idiosyncratic, local resources for sustainable advantage (Busch and Barkema, 2021).

The findings also have policy connotations. It was realised in the study that some entrepreneurs find it difficult to obtain permits to export their goods. Others also complain about their difficulties in qualifying to sell under the government’s subsidy program. The cap placed on the subsidy does

not qualify some of the firms to enjoy the government's subsidy program. In addition, some entrepreneurs complained of being taxed excessively. Given all the challenges, the government needs to create an enabling environment. One of them should be tax exemption to encourage job creation. Policymakers play a crucial role in enabling bricolage activities. One way they can also contribute is by helping entrepreneurs strengthen their networks and connections.

8.5 Conclusions

In conclusion, scaling enterprises in emerging markets is difficult due to the challenges in attaining resources compared to the developed economies. The research has detailed how entrepreneurs mobilize financial, material, and human resources through a resource compendium to scale their firms in a constrained environment. It has also enhanced the understanding of how resource-constrained environments enable the scale of entrepreneurial firms through bricolage. In general, the research has led to the review of the literature to steer the empirical study on scaling entrepreneurial firms. This has enhanced the understanding of resource and mobilization scaling through bricolage within unique resource constraints.

The study's findings reveal the importance of financial resources, collaboration, cross-sector partnerships, team diversity, and a shared vision for successful bricolage resource mobilization in a resource-scarce environment. It is realized that bricolage, described as a localized and improvisational process, fosters sustainability and creativity by repurposing discarded or low-cost resources. In addition, the research emphasises that resource scarcity drives the bricolage process, with entrepreneurs prioritising close networks rather than formal banks to creatively address financial limitations. While bricolage is often associated with inferior outcomes, the study found exceptions where high-quality products and innovations emerged. Networking with external

partners played a critical role in accessing resources, fostering innovation, and expediting product adoption.

Moreover, the study findings revealed that collaboration through coopetition, networks, and training helped firms to expand markets, increase workforce capacity, and grow geographically. External funding, such as grants and loans, further supported infrastructure development and capacity building. In other words, selective bricolage, combined with education and funding, leads to greater success in scaling, while parallel bricolage presents challenges.

8.6 Recommendations

The following recommendations are based on the key findings. The study demonstrates the struggles entrepreneurial firms pass through before mobilising financial resources. This study first of all, encourages reliance on informal support systems, such as family and friends, for initial resource access. Microlending should therefore be promoted. The formal and informal financial institutions should establish and expand microlending initiatives to provide financial support tailored to the needs of resource-constrained entrepreneurs. There is also a need for formal and informal institutions to provide targeted financial support to help firms expand infrastructure and improve workforce capacity. Such assistance should be in the form of grants or low-interest loans for addressing economic constraints that hinder resource mobilization of entrepreneurial firms.

It is also essential to establish regulations to guide the operations of entrepreneurial firms. However, these regulations should not hinder the growth and activity of the enterprises they aim to support. Policymakers should make sure that regulations are enabling by offering favorable tax policies, forex, and other supportive measures.

Successful bricolage practices should be highlighted and operationalised to promote local resource utilisation. In this case, projects demonstrating how high-quality outcomes can be achieved through resourcefulness and bricolage to challenge conventional views and inspire entrepreneurs should be broadcast. Selective bricolage, supported by education and external funding, to optimize resource utilisation and minimize inefficiencies, should be emphasised by entrepreneurial firms. The government and entrepreneurs should develop programs that teach entrepreneurs how to innovate and experiment with limited resources. This enables the creation of new products and services tailored to the bottom-of-the-pyramid market. There should be training on adaptive strategies, such as effectuation, bootstrapping, and bricolage, to help entrepreneurs transform limited resources into growth opportunities. Training programs can help firms to replicate successful models, expand their workforce, and increase their geographic footprint. In so doing, entrepreneurs should be trained to leverage local knowledge and repurpose discarded resources that are focused on creativity and innovation. Institutions focused on promotion and facilitation should prioritize supporting entrepreneurial firms. Entrepreneurs should also invest in programs that build diverse and skilled entrepreneurial teams with a shared vision, emphasising the importance of local expertise and problem-solving abilities. This study reveals the benefits of networking opportunities. Such platforms should be encouraged because they create chances for cross-sector collaborations to improve resource access, foster innovation, and enhance commercialization opportunities.

To cope with resource constraints, bricoleurs should be able to network with external partners. Accessing external resources is crucial for networking, as resources beyond the organisation facilitate new combinations of assets, enable complex problem-solving, lower development time

and costs, and accelerate the commercialization and diffusion of innovations. Claiming resources from external partners means the bricoleur can offer something valuable to the other actor in return. Networking, therefore, promotes the co-creation of innovation. Entrepreneurs, competitors, and other stakeholders can develop innovative solutions and scale through resource sharing. Ultimately, coopetition, that is, collaborative competition among firms as a practical alternative for pooling resources in the absence of formal financing, should be hailed. It is recommended that entrepreneurial firms in resource-scarce environments raise product awareness and collectively expand into new markets through coopetition. However, navigating the paradoxical dualities of coopetition can be demanding for firms due to their diverse goals. Given that, requiring managers with ambidextrous skills capable of clearly conveying the rationale behind simultaneously pursuing two seemingly contradictory actions is paramount. By implementing these recommendations, entrepreneurial firms can better overcome resource constraints, scale effectively, and achieve sustainable growth.

8.7 Limitations and Future Research Directions

Although the research makes important contributions, the qualitative study had limitations that serve as a pivot for further research. The first limitation concerns generalisation. The case study design employed in this study has limitations regarding sample size. This study includes a relatively small sample size, focusing mainly on eight (8) entrepreneurial firms in a single country, Ghana, without considering other emerging areas in Africa or elsewhere. Given that, the study findings cannot be generalised beyond the context of data collection. However, collecting data from different sources permitted triangulation of findings that ensures robustness and data reliability. Given the above limitations, future studies using bricolage to scale could employ a

quantitative research design across different settings to generalize the findings. A follow-up comparative study that enables data collection across multiple contexts would greatly enhance the literature on bricolage resource mobilization in resource-constrained settings. By increasing the sample quantitatively, studies can explore entrepreneurial firms to know how to replicate bricolage and scale in other regions appropriately.

Second, only bricolage is used as the underpinning theory; however, it was realised in the findings that scaling is enhanced when selective bricolage is combined with resource seeking. Future research should use bricolage and other creation and discovery theories without using any of them in isolation. Explanatory powers could also be enriched if such studies are supplemented with related perspectives like institutional theory for Ghana's weak formal institutions, or social capital theory for reliance on networks. This would help to draw the intersections and interactions of two or more theories. Alternatively, a longitudinal study on a single case could result in a deeper and richer analysis of the phenomenon.

Third, sustainable ventures normally operate in non-conducive environments (Pacheco et al. 2010), such as resource constraints. Bricolage, on the one hand, is a resource-constrained innovation. This study encourages future research to further study how entrepreneurial firms respond to challenges associated with resource mobilization and scaling through bricolage in a resource-scarce environment. While this study promotes the benefits of bricolage and aligns forms of scaling with the sustainable use of waste materials, this research suggests the exploration of the role of bricolage in sustainable development in future studies. Some research questions to study

may include: What role does bricolage play in sustainable development? How are the practices of bricolage legitimised in sustainability practices in waste management? How does coopetition in resource mobilisation create value beyond the boundaries of entrepreneurial firms to contribute to broader social and environmental sustainability? What should be focused on by policymakers when bricolage and the use of local knowledge are to be promoted to boost firms' response to resource scarcity?

In theory and practice, some scholars and practitioners have negative minds about making do with waste to produce goods and services. These negative feelings have resulted in bricolage inertia. For example, it was realised in the study that most farmers abhor the use of organic manure made from liquid waste. Further studies should be centered on the impact of culture on bricolage resource mobilization, adoption, and diffusion of the outcome of bricolage over time. In addition, policies regulating the use of waste for goods and services should be studied further.

The relationship between bricolage resource mobilization and scaling entrepreneurial firms seems to be subjective. However, the study depended on self-reported data on the use of bricolage behaviour in scaling entrepreneurial firms and therefore may lead to common method bias. However, triangulation from several data sources can cater to such bias. In terms of future research direction, focus group discussions could be added to the process of gathering data to enhance understanding of collaboration and bricolage within entrepreneurial firms that are scaling.

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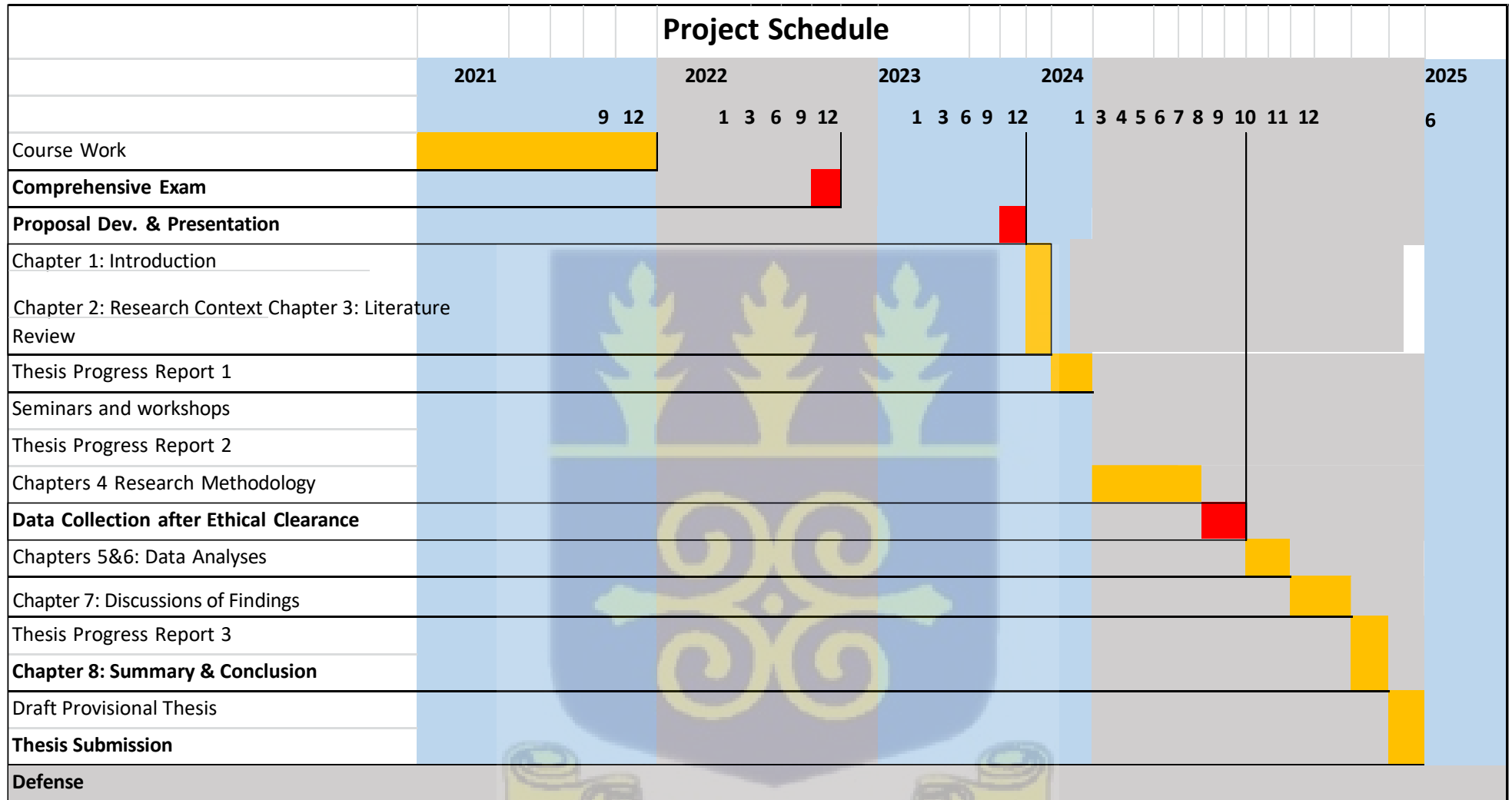
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APPENDICES



APPENDIX A: THESIS TIMELINE



APPENDIX B: ETHICAL COMMITTEE REPORT



UNIVERSITY OF GHANA ETHICS COMMITTEE FOR THE HUMANITIES (ECH)

P. O. Box LG 74, Legon, Accra, Ghana

My Ref. No: ECH 197/ 23-24

April 22, 2024

William Asamoah Owusu
Department of Marketing and Entrepreneurship
University of Ghana Business School
Legon

ETHICAL CLEARANCE (ECH 197/ 23-24)

The Ethics Committee for the Humanities (ECH) conducted a full-board review and approved your protocol titled:

BRICOLAGE: UNDERSTANDING HOW ENTREPRENEURIAL FIRMS SCALE AT AFFORDABLE COST. EVIDENCE FROM GHANA

PRINCIPAL INVESTIGATOR: WILLIAM ASAMOAH OWUSU

Please note that the final review report must be submitted to the Committee at the completion of the study. Your research records may be audited at any time during or after the implementation. Any modification of this research project must be submitted to ECH for review and approval prior to implementation.

Please report all serious adverse events related to this study to ECH within seven (7) days verbally and in writing within fourteen (14) days.

This certificate is valid until April 21, 2025. You are required to submit annual reports for continuing review.

Please accept my congratulations.

Yours Sincerely,

Professor Akosua K. Darkwah
ECH Vice-Chair

Cc: Professor Bedman Narteh, Department of Marketing and Entrepreneurship, UG
Dr. Kwame Adom, Department of Marketing and Entrepreneurship, UG
Professor Kobby Mensah, Department of Marketing and Entrepreneurship, UG

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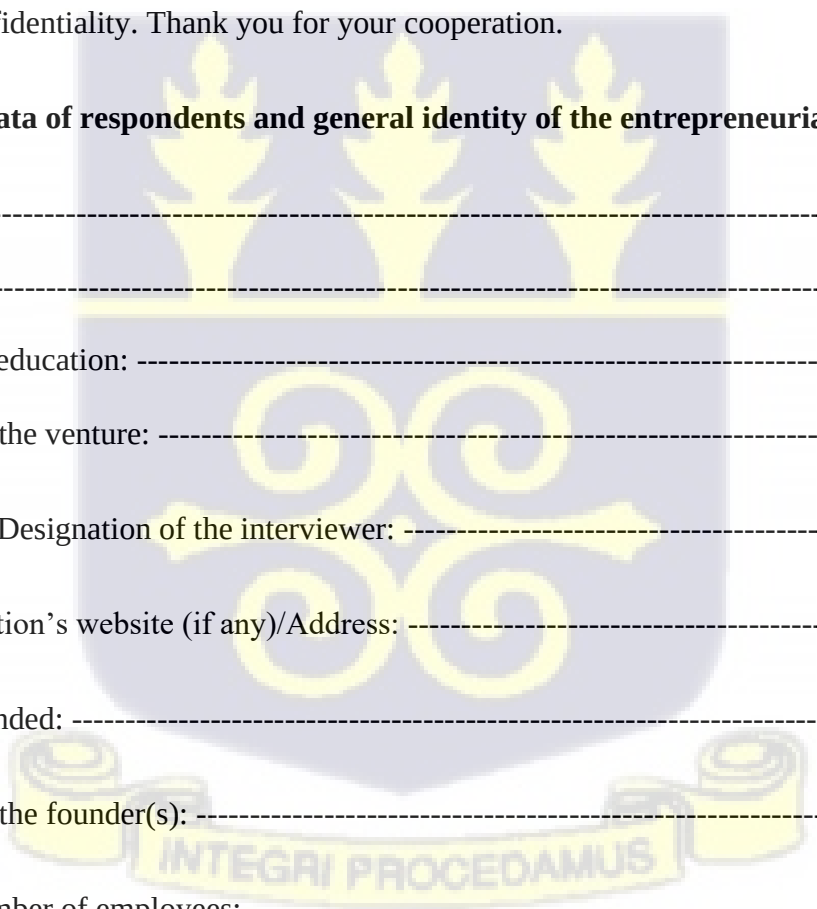
Email: ech@ug.edu.gh

APPENDIX C: INTERVIEW GUIDE

Dear respondent,

I am conducting research as part of my PhD study at the University of Ghana Business School, Department of Marketing & Entrepreneurship, and would be grateful to get the interview questions below answered. The primary objective of the study is to understand how entrepreneurial firms mobilise resources through bricolage processes to scale at an affordable cost. Bricolage resource mobilization mechanism is an effort to ‘make-do’ with any resources at hand. Kindly note that the data generated from this interview is purely for academic purposes, and responses shall be treated with utmost confidentiality. Thank you for your cooperation.

Demographic data of respondents and general identity of the entrepreneurial firm

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- i. Gender: -----
 - ii. Age: -----
 - iii. Level of education: -----
 - iv. Name of the venture: -----
 - v. Name & Designation of the interviewer: -----
 - vi. Organisation’s website (if any)/Address: -----
 - vii. Year founded: -----
 - viii. Name of the founder(s): -----
 - ix. Total number of employees: -----
 - x. Kindly specify the following: No. of full timers _____ Part timers ____ Volunteers ____

- xi. What are the areas of your venture's operation _____

General question

1. Kindly narrate what prompted you to start your business. Thus, motivating factors, process of venture emergence, historical context, etc.

Objective 1: Examine how entrepreneurial firms mobilise financial, material, and human resources through a bricolage process in penurious environments in Ghana.

2. Describe how you obtained the resources (Financial, Human, and Material) for the venture's initial establishment.
3. How do you currently mobilize resource(s) for your business?
4. Do you do it alone?
5. Yes/No
6. Provide your reason for either answer
7. How do others enhance the performance of your venture?
8. What are some of the key resource constraints facing your venture?
9. Kindly narrate how you have ever overcome specific resource constraints in your venture.

Objective 2: Analyse how resource constraints enable the scale of entrepreneurial firms through the lens of bricolage

10. How have difficulties in obtaining resources enabled you to scale your business?
11. Under what circumstances do you face difficulties in obtaining resources to scale your business?

12. What aided you in obtaining local/indigenous resources (Human, Financial, and Material) to scale your business?

Objective 3: Evaluate ways by which bricolage could be used to scale entrepreneurial firms affordably in Ghana.

13. How can local resources be used affordably to scale your business? How beneficial can local resources be in scaling your venture?
14. Kindly describe any change (growth, opportunity, or challenge) that you used indigenous resources (finance, HR, Materials, networks, technology, intellectual, etc.) to handle in your business.
15. How successful was that change (growth, opportunity, or challenge) handled in terms of resources?
16. What new resources were purchased or acquired, if any, in response to the change(s)?
17. Are there any resources that were used at the start but are no longer needed at this stage?
18. How is your resource mobilization process different from your competitors?

END

