LINKING RESOURCE MOBILIZATION APPROACHES AND VENTURE PERFORMANCE IN HIGHLY RESOURCE-CONSTRAINED ENVIRONMENTS

Abstract

Drawing on resource orchestration and social network theories, this study examines the relationships between bricolage, optimization, and new venture performance. We argue that optimization (i.e., standard application of resources acquired from resource markets) increases performance whereas bricolage (i.e., improvisation and unconventional resource applications) causes the opposite effect. We also argue that the effect of these RM approaches is contingent upon entrepreneurs' network diversity. Using survey data from agricultural ventures in Nigeria, we found support for our propositions. The findings also show that entrepreneurs' social capital affects the value of resource orchestration in relationship-based economic systems. We discuss the theoretical and practical implications of these findings.

Keywords: Resource mobilization; optimization; bricolage; new venture performance; social networks; Nigeria

1. Introduction

The agricultural sector in sub-Saharan Africa is increasingly seen as an important driver for economic development, employment, and wealth creation (FAO, 2023; PwC, 2020). However, entrepreneurial ventures operating in this sector face challenges in mobilizing resources due to the resource-constrained environment they operate in. Unlike their counterparts in resource-rich contexts, these ventures often face shortages of critical resources and receive less support from ineffective government institutions (Bradley et al., 2012; Ngoasong, 2018; Linna, 2013). Given that these ventures operate in resource-constrained contexts where local pools of critical resources and infrastructure are commonly lacking (Barney, 1991; Wernerfelt, 1984; Reypens, et al. 2021), they must find creative alternative means of combining and mobilizing resources in pursuit of developing agricultural solutions. Consequently, resource mobilisation (RM), which involves the construction, transformation, acquisition, and utilization of resources (e.g., physical, human, organizational capital) to exploit entrepreneurial opportunities, is an important part of the entrepreneurial process (e.g., An, et al. 2020; Agarwal et al., 2020; Bush & Barkema, 2021; Reypens, et al. 2021), and thus presents a crucial area of inquiry in resource-constrained contexts.

Extant literature on RM in resource-constrained environments suggests that entrepreneurial ventures commonly adopt two RM approaches, namely: *optimization* – i.e., acquiring standard resources for standard applications; and *bricolage* – i.e., improvising with discarded or slack resources (Baker & Nelson, 2005; Desa & Basu, 2013; Fisher, 2012) to respond to and/or overcome the resource limitations of their environments. Also, the literature shows that the impact of these RM approaches on venture performance is equivocal (Baker & Nelson, 2005; Senyard et al. 2014). For example, although empirical works show that bricolage improves performance (An et al. 2020; Bojica et al. 2018; Garud & Karnoe, 2003; Salunke et al. 2013; Senyard et al. 2010) in resource-rich contexts, some studies have argued that it may offer

deficient, inferior resources (Garud & Karnoe, 2003) or resources that are 'just good enough' (Berchicci & Hulsink, 2006; Kickul et al. 2018) and could negatively impact growth in resource-constrained contexts (Baker & Nelson, 2005). More specifically, although studies like An et al. (2020) noted that bricolage has the potential to support overall firm performance, such positive findings often fail to acknowledge that productivity and yield rate can suffer from the "second-best solutions, maladaptation, imperfection, inefficiency, incompleteness, [and] slowness" (Lanzara, 1999, p. 347) associated with bricolage—drawbacks that are currently the reality of ventures in the agricultural sector.

Moreover, prior studies about optimization are mostly set in resource-rich contexts where assumptions about the presence of resource holders and providers (e.g., Grossman et al., 2012; Hallen & Eisenhardt, 2012; Zhang et al., 2008), their willingness to engage in transactions with entrepreneurs (e.g., Shane & Cable, 2002; Starr & MacMillan, 1990; Zane & DeCarolis, 2016), and the existence of strong market-supporting institutions to facilitate resource exchange (e.g., Armanios et al. 2017; Zhang et al. 2010) can be taken for granted. However, this raises questions about how these prior findings about the performance implications of optimization apply to entrepreneurial ventures operating in resource-constrained environments where the prevailing assumptions in the literature may not apply (Reypens, et al. 2021).

Furthermore, the RM literature highlights the role of entrepreneurs in effectively managing and realizing the potential of their firms' strategic resources (Hitt et al. 2011; Ndofor et al. 2011; Sirmon et al. 2011). In this regard, the literature has also attributed the success and failure of mobilizing resources to individual entrepreneur differences (cf. Katz & Gartner, 1988), thus suggesting that the RM-performance relationship may not be straightforward but could be contingent on entrepreneurs' personal attributes. However, there is limited research on the boundary conditions under which RM approaches affect firm performance. Specifically, there is a

lack of work on how entrepreneurs' social networks bound the RM-venture performance relationship. Social networks influence the type or direction of a firm's decisions to adopt a particular practice (Das & Teng, 2002; Rowley, Behrens, & Krackhardt, 2000) and they provide valuable benefits and create strategic advantages (Dyer and Singh, 1998; Goerzen & Beamish, 2005; Gulati, 1999), especially for fledgling ventures (Sorenson & Audia, 2000; Stuart & Sorenson, 2003a). Understanding how these networks interact with RM approaches to affect performance is important but under-researched. Against the foregoing backdrop, this study addresses the research question: *What is the relationship between RM approaches and new venture performance in resource-constrained environments, and how is this relationship contingent on entrepreneurs' network diversity (i.e., the extent to which an entrepreneur's network includes actors from a broad range of professions or occupations)?*

To answer this question, we examine the value of bricolage and optimization approaches among new agricultural ventures (usually resource-constrained firms) in Nigeria (a resource-constrained context). We focused on new agricultural ventures because they epitomize substantial and critical resource shortages. Our research setting, Nigeria, is a context lacking critical resource inputs such as seedlings and fertilizers as well as advanced mechanised systems, talent, and access to finance (FAO, 2023; ITA, 2023; PwC, 2020). This resource constraint is exacerbated by the structure of the country's agriculture sector, which is made up of several smallholder farmers who are generally deficient in the resource mobilization skills needed for navigating voided market-supporting institutions. Essentially, our study is set in a unique context where resource constraints are experienced at both national and sectorial or industry levels.

Integrating resource orchestration theory with the resourcing literature, we argue that in developing countries where resources are often scarce (Seelos & Mair, 2005; Zahra et al. 2008) and the institutions that can enhance resource access are either weak or unavailable (Kistruck et

al. 2011; Mair & Marti, 2009), RM approaches enable firms to overcome resource constraints and improve their performance. However, we disentangle and delineate opposite effects for bricolage (negative) and optimization (positive). Acknowledging that resource advantages depend on entrepreneur qualities and characteristics (cf. Katz & Gartner, 1988), we also draw from social network theory (Gulati et al. 2000) to examine how the RM-firm performance relationship is contingent on *network diversity* – defined as the extent to which an entrepreneur's network includes actors from a broad range of professions or occupations (Burt, 1992; Chen & Tan, 2009). Network diversity is important in RM because it influences the type or direction of a firm's decisions to adopt a particular practice (Das & Teng, 2002; Rowley, et al. 2000); creates access to valuable resources that provide strategic advantages (Goerzen & Beamish, 2005); shapes the emergence and development of new ventures (Kleinbaum & Stuart, 2014; Uzzi & Spiro, 2005); and contributes to the growth and creation of value for fledgling ventures (Stuart & Sorenson, 2003a). We advance that the diversity of an entrepreneur's network moderates the value of RM approaches.

This study contributes to conversations in the entrepreneurship, RM, and new venture resourcing literatures in the following ways: First, it sheds light on the effect of bricolage on new venture performance, specifically highlighting the value-destroying impact bricolage has on firms' profitability. This contradicts the dominant trajectory of resource orchestration theory, which has advanced bricolage as a value-adding strategy for overcoming resource constraints (Baker & Nelson, 2005; Fisher, 2012; George et al. 2012). In this regard, this study extends the resourcing literature by showing that bricolage is a double-edged sword that may enhance new venture performance but can also destroy value. This is important because, while the dark side of bricolage has been mooted and broached in prior literature (Bojica et al. 2018; Stinchfield et al. 2013), empirical proof has been limited. This study challenges the taken-for-granted implicit

assumption of resource orchestration theory regarding enabling institutional conditions for bricolage. It advances that not all resource-constrained contexts are the same, and that conditions in developing countries (as opposed to developed countries) may not be supportive of valuable bricolage. In the Nigerian agricultural sector, where our study is set, it is evident that agro-entrepreneurs are less skilled in the right combinations of resources to effectively deploy value-adding bricolage. Our findings suggest that skills are a very important mechanism for successfully orchestrating bricolage, and their deficiency in Nigeria's agricultural sector context renders bricolage ineffective.

Moreover, this study extends the resourcing literature by offering a nuanced view of how optimization positively and bricolage negatively impact new venture performance in resource-constraint environments of developing countries and thus advances that not all RM approaches are beneficial to new ventures, as resource orchestration theory postulates. In doing so, this study joins and corroborates conversations about optimization's value-generating (Desa & Basu, 2013; Reypens et al. 2021) and bricolage's value-destroying (Baker & Nelson, 2005; Bojica et al. 2018) potential and contributes to and sheds empirical light on the debates surrounding the ambivalence of resource mobilization in highly resource-constrained environments (Jayawarna et al. 2020).

Second, by investigating the contingent effect of an entrepreneur's network diversity, this study integrates social network theory to bound the value of RM approaches and adds to prior research about network attributes in entrepreneurial and resource processes or outcomes (e.g., Bellavitis et al. 2017; Khayesi et al. 2014; Semrau & Werner, 2014). In this regard, this study heeds Hoang and Antoncic's (2003) call to explore the moderating role of networks in new ventures' organization processes and addresses Stuart and Sorenson's (2007) critique of the mis-conceptualization of entrepreneurs as nonstrategic actors by showing that entrepreneurs' strategic cultivation of diverse networks is crucial for value creation. Given our context in the Nigerian

agricultural sector, our study shows that high network diversity, when combined with either optimisation or bricolage, is beneficial for new ventures because it provides valuable information needed to provide solutions to resource constraints.

Finally, scholars have noted the limited management research in developing countries, as reflected by the scant empirical research on entrepreneurial activities in Africa (Adomako et al. 2021; George et al. 2016a; Zoogah et al. 2015). Consequently, our empirical study of ventures in Nigeria not only helps increase our understanding of new ventures in these settings, but also adds African insights to the entrepreneurship literature, thus answering calls for the consolidation of management research on Africa within current academic debates (Zoogah & Nkomo, 2013). It particularly addresses the paucity of empirical research on resourcing strategies in developing countries where assumptions from developed countries may not apply (Reypens et al. 2021). In particular, our study specifies how (i.e., the mechanics) and when (i.e., under which circumstances) entrepreneurs in the Nigerian agricultural sector are able to use RM approaches to achieve positive outcomes (Crook et al. 2008; Lichtenstein & Brush, 2001; Morrow et al. 2007).

2. Theoretical Framework

2.1 Resource Orchestration Theory

Resources are obviously crucial for entrepreneurial success and competitive advantage (Barney, 1991; Crook et al., 2008). However, "abundant resources alone will not keep an industry giant on top" (Hamel & Prahalad, 1993: 77). Rather, it is the right use of resources that determines competitive advantage (Ketchen et al. 2014). The thrust of this argument is captured by resource orchestration theory, which refers to the different activities that firms engage in to effectively mobilize, manage, and realize the potential of their strategic resources (Hitt, et al. 2011; Ndofor et al. 2011; Sirmon, et al. 2011: 64). The components of resource orchestration include *resource*

structuring (i.e., managing the resource portfolio by acquiring, accumulating, or divesting resources), *resource bundling* (i.e., combining resources to build capabilities through stabilization, enrichment, and pioneering processes), and *resource leveraging/application* (i.e., creating value in the marketplace by mobilizing, coordinating, and deploying capabilities). For most new entrepreneurial ventures, resource portfolio structuring is the first and main resource orchestration issue they encounter (Nason et al. 2019). This is because most of these ventures suffer from the liabilities of newness and smallness (Aldrich, 1999; Stinchcombe & March, 1965) resulting from not only their lack of resources but also their lack of resource mobilization knowledge (Bhawe et al. 2016; Kuratko et al. 2005). Most new ventures are resource-constrained firms, hence our focus on them.

Resource orchestration theory has provided processes through which firms can structure their resource portfolios, such as acquiring resources from factor markets, accumulating resources through internal development, and divesting resources (Sirmon et al. 2007). Extant research has explored different resource structuring strategies (Michaelis et al., 2020; Powell & Baker, 2011; Welter et al., 2018). Some of these structuring strategies include bricolage and optimization (Baker & Nelson, 2005; Fisher, 2012); financial bootstrapping (Jayawarna et al. 2020; Jonsson & Lindbergh, 2013); and thrift (Powell & Baker, 2011). While previous studies have explored and examined resourcing strategies, most of them have been mainly in developed country contexts. Consequently, there is still limited understanding of how these strategies affect the performance of entrepreneurial ventures in developing countries (Desa & Basu, 2013; Reypens et al., 2021).

Examining RM approaches in developing countries is important because of the severe resource challenges that characterize these countries (Reypens et al. 2021). Indeed, though firms everywhere face resource challenges, those in developing countries face even greater challenges

for obvious reasons. First, in contrast to developed countries, new ventures in developing economies must devise their own means of constructing resources because there are relatively fewer previous founding attempts that may serve as examples, which limits entrepreneurial and organizational knowledge about possible successful RM processes (Foo et al. 2020; Sydow et al. 2020). Second, developing countries are often characterized by unstable political regimes that create uncertainty and weaken market-supporting institutions. This limits access to the resources needed to pursue entrepreneurial opportunities (Desa & Basu, 2013; Villanueva et al. 2012).

Overall, the quality, effectiveness, or ease of resource mobilization is likely to be more challenging in developing countries due to the presence of institutional voids and institutional adversity. Therefore, findings and conclusions about the value of RM in developed contexts may not be replicable in developing contexts. Indeed, in their explication of resource orchestration, Sirmon et al. (2007: 278) argue that "because environments vary in their degree of uncertainty and munificence and because these conditions affect the potential value of a firm's resources and capabilities, value creation based on resource management is at least partly contingent on a firm's external environment". Resource access is one of the most daunting challenges for entrepreneurs in developing countries (Busch & Barkema, 2021), which leads us to conceive of these countries as "highly resource-constrained".

2.2 Bricolage

Bricolage refers to "making do by applying combinations of resources already at hand to new problems and opportunities" (Baker & Nelson, 2005: 336). Broadly, it entails recombining existing resources for new uses. This approach, which allows a venture to accumulate resources by internally developing them, may be born out of necessity when firms cannot afford the cost of standard resources. As Sirmon et al. (2007: 279) outline in their resource orchestration

framework, “internal development of resources becomes even more critical in less munificent environments, in that resources cannot be easily acquired from external factor markets in these environments.” This approach relies on resources that are ‘available cheaply or free often because others judge them to be useless or substandard’ (Baker & Nelson, 2005: 336). Entrepreneurs scavenge for these resources (Baker & Nelson, 2005; Stinchfield et al. 2013) or access them through their networks (Baker, 2007; Baker, et al., 2003).

Entrepreneurial ventures in the Nigerian agricultural industry engage in the combination of physical, labour, and skill inputs from discarded or slack resources. For example, one of the entrepreneurs we interviewed during our preliminary study used her mother's backyard (physical input or material resource) to start her poultry farm. She also used free help from her non-professional mother to care for and sell the chickens, and her sister (not a professional delivery company) to deliver orders to customers (labour input). Further, she applied her own amateur knowledge (skill inputs) to prepare chicken feed (e.g., maize bran, anchovies, wheat, lime, and soya beans ground into a fine cut mixture). This combination of resources helped her grow the venture until she was able to scale it up. A farmer also resorted to collecting left-over foods from restaurants to feed his pigs while another collected yam skins and cassava peels from local “chop bars” (food vendors) to feed his goats and sheep.

2.3 Optimization

Optimization, sometimes called resource-seeking (Desa & Basu, 2013), is an alternative resource mobilization approach. Baker and Nelson (2005: 353) define it as a “continued attempt to acquire standard resources”. The extant literature often conceptualizes optimization as a rational behavior (Desa & Basu, 2013; Reypens et al., 2021), as opposed to bricolage which is seen to be “less rational” (Stinchfield et al., 2013, p. 894). Thus, much of the work on

optimization has taken an action-oriented perspective underpinned by rationality and efficiency (Sunduramurthy et al. 2016), building on the notion that entrepreneurs respond to resource-constrained environments by seeking to acquire standard resources from external sources at market prices (Baker & Nelson, 2005; Desa & Basu, 2013; Reypens et al. 2021). Thus, optimization is similar to the process of structuring resource portfolios through resource acquisitions in factor markets (Sirmon et al. 2007). In Nigeria, our preliminary investigations showed that ventures experience resource shortages that cannot be filled internally with existing resource stocks, so they tap from factor markets. Also, some farmers and agro-entrepreneurs engage in optimisation due to their lack of interest or confidence in bricolage. For example, a farmer we interviewed started his poultry business by using a loan from a cooperative society to purchase standard resources such as machinery and poultry feed due to his distrust of bricolage and its effectiveness.

2.4 The Value of Resource Mobilization

Some studies have examined and explored the value of RM. Overall, the literature shows that the impact of RM approaches on venture performance is equivocal (Baker & Nelson, 2005; Senyard et al. 2014). For example, although empirical works show that bricolage improves performance (An et al. 2020; Garud & Karnoe, 2003; Salunke et al. 2013; Senyard et al. 2010), some studies have argued that it may offer deficient, inferior resources (Garud & Karnoe, 2003) or resources that are 'just good enough' (Berchicci & Hulsink, 2006; Kickul et al. 2018) and could negatively impact growth (Baker & Nelson, 2005). Other studies have theorized a positive relationship between optimization and performance (e.g., Baum et al. 2001; Lee et al. 2001), but empirical proof is still lacking.

A synthesis of the RM-performance literature revealed two things worth highlighting. First, existing studies are mainly set in advanced and resource-rich countries such as the US, UK, and Australia (Salunke et al. 2013) where the availability of resource providers and holders is often taken for granted. These studies also assume that strong market-supporting institutions exist to facilitate resource exchange and ensure that resource providers adhere to quality standards (Grossman et al. 2012). These assumptions do not account for institutional weaknesses in developing countries (Foo et al. 2020) and how they create significant contingency for the RM-performance relationship (Shirokova et al. 2020).

Second, existing studies offer little about the boundary conditions of the RM-performance relationship, thus limiting our understanding of the contingent value of RM approaches. In developing countries where social capital serves as a substitute for weak market supporting institutions (Liedong et al. 2017), it is likely that entrepreneurs' social relationships moderate not only their resourcing strategies but also the effectiveness and impact of those strategies (Davidson & Honig, 2003; Khayesi & George, 2011; Khayesi *et al*., 2014). Yet, there is still limited research about how social networks affect the value or performance impacts of RM processes in resource-constrained developing countries. We seek to address the above gaps to facilitate a better understanding of the relationship between optimization, bricolage, and new venture performance. Below, we present our research model (Figure 1) and hypotheses.

[Figure 1 about here]

3.0 Hypotheses

3.1 Optimization and New Venture Performance

As argued in the resourcing literature, ventures that use standard resources can generate and leverage capabilities to create value (Helfat & Peteraf, 2003; Sirmon et al. 2007). However, the

value of strategic resources is contingent upon their standard or quality (Barney & Arikan, 2001; Crook, et al. 2008). We advance that this contingency is reflected in optimization, whose primary goal is to use standard resources for standard applications. Optimization pushes entrepreneurs to identify standard resources needed for growth, development of innovative capabilities, enhancement of management and structural efficiencies, quality improvement, and fulfilment of strategic goals (Holcomb et al. 2009), culminating in superior performance.

The thrust of the foregoing arguments, which is replete in the resource-rich contexts, also applies to resource-constrained contexts, albeit via a mechanism rooted competitive dynamics. As previously argued, unlike in developed and resource-rich contexts, entrepreneurial ventures operating in developing countries often experience shortages of critical resources. At the same time, they receive less support from ineffective market-supporting institutions that are required for facilitating standard resource exchanges. (Bradley et al., 2012; Ngoasong, 2018; Linna, 2013; Reypens et al. 2021), which impedes the pursuit of entrepreneurial opportunities (e.g., Ge et al. 2019; Sydow et al. 2020; Webb et al. 2019). These constraints are even worse for the agro-entrepreneurs who are mostly smallholder farmers. For Nigerian agricultural ventures, optimization is expensive, mainly as acquiring suitable lands for production, procuring machinery to process poultry feeds, and hiring skilled employees to optimize output are unaffordable for many.

In the developing and resource-poor context depicted above, we argue that the agricultural ventures that can deploy optimization can stand out because their rivals will be less able to use a similar strategy, creating competitive disparity. The constraints of the context make standard resources rare, creating opportunities for competitive advantage. Research in severely resource-constrained contexts in sub-Saharan Africa has shown how the possession of rare resources contributes to success (e.g., Otoo et al., 2018). Rare resources provide a base for leveraging

differentiation from competitors, which has been reported to have a strong positive impact on the performances of micro and small businesses in sub-Saharan Africa (e.g., Acquaah & Agyapong, 2015). We posit that a venture that adopts optimization will not only be unique, but it will also have standard resources at its disposal to leverage strategies and create value propositions that competitors may struggle to match. This competitive advantage arising from unequal resource access in resource-constrained contexts should not be taken for granted. In resource-rich contexts, the availability and ease of accessing resources (which are then non-rare) are more likely to create competitive parity. In resource-constrained contexts, the opposite is expected. Consequently, we argue that entrepreneurial ventures that acquire and bundle standard resources into competencies to pioneer new capabilities will experience strong performance (Shane & Eckhardt, 2005; Shane& Venkataraman, 2000).

Hypothesis 1: In resource-constrained developing countries, the optimization approach to resource mobilization has a positive relationship with new venture performance.

3.2 Bricolage and New venture Performance

In resource-constrained developing countries, firms can overcome resource scarcity through bricolage (Desa & Basu, 2013; Bojica et al. 2018). Entrepreneurial ventures that cannot afford to buy standard resources can create substitutes by accumulating imperfect, undervalued, or discarded slack resources for their operations (McCarthy & Wolfson, 1996; McDougall & Oviatt, 2000). Making do with the resources at hand helps entrepreneurs pursue opportunities that would not have been possible. The goal of such entrepreneurs is often cost minimization, and they satisfice by 'playing the hand they are dealt' (Eisenhardt & Bourgeois, 1988).

There is empirical evidence to show that bricolage creates value and increases firm performance (An *et al.*, 2020). In fact, bricolage theory advances the value of improvisation for

capability development and innovation (Witell et al. 2017). However, some other studies have noted that bricolage could negatively affect firm performance (e.g., Bojica et al. 2018). Taking cues from these studies, we argue that bricolage may not create financial value in the highly resource-constrained contexts of developing countries. Our reasons are twofold. First, one of the central themes of bricolage is the combination and reuse of resources for different applications than those for which they were originally intended or used (Levi-Strauss, 1967). Previous studies have highlighted the important role of this resource combination in innovation and economic growth (Beltagui *et al.*, 2021; Salunke *et al.*, 2013; Witell *et al.*, 2017), mainly as it "may help firms explore and exploit new opportunities" (Baker & Nelson, 2005: 357). The literature also acknowledges that the positive attributes of bricolage such as inducing creativity in ventures (Baker and Nelson, 2005; de Klerk, 2015), boosting the launch of new products with creative features (Wu et al., 2017), and ultimately nurturing innovativeness (Gundry et al., 2015; Kickul et al., 2018; de Klerk, 2015; Salunke et al., 2013; Senyard et al., 2014) is influenced by bricolage's selective adoption (Baker and Nelson, 2005; Reypens, et al., 2021), thus suggesting that the creativity and innovation-nurturing capability of bricolage may be enabled through knowledge generation and experimentation.

However, the strong institutions and infrastructure that are crucial for inducing creativity in ventures (Baker and Nelson, 2005; de Klerk, 2015) and for nurturing innovativeness, experimentation and improvisation (Gundry et al., 2015; Kickul et al., 2018; de Klerk, 2015; Salunke et al., 2013; Senyard et al., 2014)) and knowledge generation are often lacking in developing countries. For instance, resource innovations for bricolage often occur in DiY laboratories (Suire, 2019), but these laboratories are largely non-existent or ineffective in developing countries (Damoah and Botchie, 2021). In places where improvisation approaches (e.g., DiY laboratories) – akin to bricolage – exist (Barau & Wada, 2021), their commercial

viability or scalability has remained questionable due unfavorable institutional environments. We therefore contend that the lack of intermediaries for facilitating bricolage knowledge in developing countries, coupled with ineffective government support for the generation of improvisation ideas, may render this resourcing strategy ineffective. Entrepreneurship studies in emerging and developing countries have highlighted the importance of intermediaries (Oriaifo et al., 2020; Armanios et al., 2017), but they are either absent or ineffective in these countries. Essentially, the skills (e.g., creativity, resourcefulness, etc.) required to deploy bricolage to yield good productivity are often lacking in Nigerian agricultural ventures operating in resource-constrained environments.

Reliance on bricolage might limit a venture's ability to scale up operations effectively, mainly because the use of discarded resources may not generate high yields. For instance, using left-over and expired foods from restaurants to feed pigs is unlikely to breed the pigs quickly when compared to using scientifically formulated pig feed. Moreover, bricolage may lead to inconsistencies in product quality, which adversely affects performance. Given the context of Nigerian agricultural ventures operating in resource-constrained environments, the use of bricolage can make productivity and yield rate suffer from randomization of resource orchestration and "second-best solutions, maladaptation, imperfection, inefficiency, incompleteness, [and] slowness" (Lanzara, 1999, p. 347). Without standard resource applications, the venture might struggle to maintain consistent standards, potentially leading to customer dissatisfaction. This leads us to hypothesize that:

Hypothesis 2: In resource-constrained developing countries, bricolage has a negative relationship with new venture performance.

3.3 The Moderating Effect of Network Diversity on Optimization

The extant literature emphasizes the importance of viewing the RM – performance relationship from a contingency perspective (e.g., Garud & Karnoe, 2003; Martens et al. 2007). In particular, studies have highlighted the importance of entrepreneurial networks for overcoming resource constraints (Jack & Anderson, 2002; Ostgaard & Birley, 1994). Thus, to better understand our hypothesized relationships for optimization and bricolage, we draw on social network theory to propose moderating effects of network diversity. While networks matter in developed countries, they matter more in developing countries characterized by "relationship-based capitalism" (Adhikari *et al.*, 2006) whereby "who you know" shapes economic exchange and business transactions (Sun *et al.*, 2012). In these countries, networks serve as substitutes for weak market-supporting institutions (Xin & Pearce, 1996) and enable firms to overcome institutional adversity (Liedong & Frynas, 2018).

Due to the lack of or presence of weak resource market intermediaries in developing countries, firms adopting an optimization approach may struggle to find quality resources at good market prices. We advance that network diversity, defined as the degree to which a venture's network includes actors from a broad range of professions or occupations (Burt, 1992), can fill intermediary gaps by availing useful resource market information to entrepreneurs (Goerzen & Beamish, 2005) or serving as a link to quality standard resources. At one extreme, high network diversity indicates that a venture has a diverse range of network actors from different professions or occupations, many of which provide useful market information and link to quality standard resources. At the other extreme, low network diversity indicates that a venture has very few network actors from different professions or occupations who barely provide useful market information and link to quality standard resources.

A high network diversity facilitates optimization through its greater likelihood of bringing forth diverse, or 'nonredundant' information relating to identification and access to scarce

standard resources (Shane & Stuart, 2002; Stuart & Sorenson, 2007). It provides entrepreneurs with a variety of ideas and perspectives that can help them acquire quality and complex resources (Baker, 1990). Diverse network actors can also match entrepreneurs with trusted and reliable resource providers, thereby reducing the transaction cost of searching for supply partners. For new ventures, this helps in two ways: First, it mitigates their liability of newness by helping them overcome their lack of prior organizational knowledge and experience while also facilitating access to affordable standard resources for superior performance (Villanueva, et al. 2012). This is particularly important because of the proliferation of "fake" or sub-standard equipment and merchandise in developing countries due to poor enforcement of quality standards and the abundance of copyright/patent infringements (Klantschnig & Huang, 2019; Monye, 2018). Second, it saves them from costly searches and frees up time and financial capital for other value-adding activities. These benefits of network diversity amplify the effect of optimization on new venture performance.

Hypothesis 3: High entrepreneur network diversity strengthens the positive relationship between optimization and new venture performance.

3.4 The Moderating Effect of Network Diversity on Bricolage

For new venture entrepreneurs adopting the bricolage approach in resource-constrained developing countries, having a diverse network is generally favorable for the following reasons: First, considering that social capital serves as a substitute for weak market supporting institutions in developing countries (Liedong *et al.*, 2017), a diverse network may serve as an intermediary for overcoming market failures and accessing ideas and information for valuable improvisations. Previous management and entrepreneurship studies have already reported how social ties to diverse institutional actors can help entrepreneurs "verify" resources, uncover potential problems

(Ozdemir et al., 2016), and increase innovation (Naqshbandi, 2016). These actors provide a firm with access to information and knowledge, which culminate in learning advantages (Goerzen & Beamish, 2005). Learning avails efficient ways to combine and use resources outside of their standard scope of application, thus enabling bricolage to generate value (Kessler & Bierly, 2002). Thus, in resource-constrained contexts where information gathering and transfer are difficult (Mair & Marti, 2009), knowledge heterogeneity is lacking (Sydow et al. 2020), and competitive advantage depends on complex adaptation (Seelos & Mair, 2005), learning from network contacts can be beneficial for bricolage (Goerzen & Beamish, 2005).

Second, network diversity can help entrepreneurs and new ventures escape the "bricolage trap". This trap is likely to be more prevalent in developing countries, where resource constraints may push capital-strapped entrepreneurs into extensive bricolage across multiple domains. For new ventures that have yet to build up their own knowledge of bricolage, diverse network actors may not only provide information for determining the right combination and number of effective bricolage domains (Anderson et al. 2005), but they may also provide insights about their own successful bricolage experiences to help entrepreneurs make the right decisions. This is especially useful because information and knowledge regarding the right combination of bricolage domains are distributed unevenly throughout society, making network diversity a useful conduit for accessing this knowledge. In resource-constrained developing countries, especially in Africa, where technology hubs and knowledge repositories for tinkering and DiY innovation are lacking (Atiase *et al.*, 2020), diverse networks allow entrepreneurs to pool and accumulate knowledge for effective improvisation, thus helping them to overcome the institutional voids and adversities that undermine bricolage. Therefore, we hypothesize that:

Hypothesis 4: High entrepreneur network diversity weakens the negative relationship between optimization and new venture performance.

4. Methods

4.1 Research setting

This study is set in the largest industry in Nigeria – i.e., agricultural industry. About 80% of the industry comprises indigenous smallholder farmers (Mgbenka et al. 2015) who are often plagued by inadequate inputs, obsolete technology, and poor financing (FAO Statistics, 2017). The industry employs two-thirds of the entire labor force and accounts for 24.14% of Nigeria's gross domestic product (The World Bank, 2020). Nigeria offers a valuable research context for our study because even though its private sector makes significant contributions to economic development and employs approximately 50% of the working population (Apulu & Latham, 2011; Ihua, 2009), firms face several challenges.

The agricultural sector is spectacularly resource-constrained due to two main reasons. First, Nigeria's largest foreign exchange earner is crude oil exports, which makes the oil and gas industry the government's main priority. Consequently, the agriculture sector has received little attention and funding. Despite Nigeria signing up to the 2003 Maputo Declaration which stipulated that African countries set aside 10% of their budgets for agriculture, the country's budgetary allocation for agriculture in the recent past has been abysmal - 1.7% in 2017, 2% in 2018, 1.56% in 2019, 1.34% in 2020, and 1.8% in 2022. This chronic underfunding precipitates grave constraints for the sector, including shortages of seedlings, fertilizers, irrigation equipment, and mechanized production and harvesting systems (PwC, 2020). Initiatives to address this underinvestment in agriculture have largely underperformed. For instance, the Anchor Borrowers' Programme (ABP) was launched in 2015 to provide small scale farmers with adequate financing, but mismanagement, corruption, and high default rates have thwarted progress.

Second, the agricultural industry in Nigeria is dominated by smallholder farmers, most of whom lack the skills required to mobilize resources or even access government support. During our preliminary interviews, some agro-entrepreneurs lamented how they were required to make informal payments to access government support schemes that were officially advertised as free. The kickbacks demanded were mostly unaffordable, thus locking them out. Additionally, many smallholder farmers in Nigeria lack previous founding and entrepreneurial experience, which limits their resource mobilization skills. This lack of experience and skills can be partly attributed to the Nigerian government's strategies and interventions to facilitate youth participation in agriculture, such as the Youth Commercial Agriculture Development Program (YCAD), Youth Employment in Agriculture Program (YEAP), Youth Initiatives for Sustainable Agriculture (YISA), and the Fadama Graduate Unemployed Youths and Women Support (GUYS) Program (Adeyanju, et al., 2021). These interventions target youth and unemployed graduates who often lack managerial knowledge and skills to mobilize resources. Additionally, due to the ineffective implementation of the interventions, the agency of the youth and the unemployed to effectively canvas resources becomes impaired. Overall, institutional and agency reasons make the Nigerian agricultural industry resource-constrained, and thus suitable for our study.

4.2 Research Design and Data Collection

Because of the imprecise and incomplete addresses of some of the new ventures on governmental and nongovernmental databases, we followed Khayesi et al. (2014) recommendation to obtain contact data from industry associations and university sources. We used academic colleagues to review the initial questionnaire and then pretested it with 20 representative ventures in Nigeria, after which necessary revisions were made. We selected the study sample using the following criteria: First, the firms had to be located within or close to Nigeria's four main urban areas:

Lagos, Ibadan, Port Harcourt, and Abuja. This was done to reduce bias caused by unequal access to resources (Busenitz et al. 2003). Second, the new ventures had to be more than three and less than 10 years old. The lower limit was selected because this is the first point at which performance can sensibly be assessed (Stam & Elfring, 2008). Third, for the ventures in this set, the data were collected from the founders and owners, who were actively involved in the RM activities (Kumar et al. 1993). We provide the sample composition in Table 1 below.

Because of the lack of reliable contact information in Nigeria, we employed Hoskisson et al.'s (2000) approach by administering the questionnaire on-site. This helped us identify suitable respondents and clarify any misunderstood concepts, yielding a high response rate (Li & Zhang, 2007). In total, we received 153 usable responses (80% response rate). Although the sample size may not be considered very large, it is comparable to other entrepreneurship studies (Stevens et al. 2015) and surpasses the usual recommendations for complex statistical analyses (e.g., MacCallum et al. 1999). To avoid endogeneity, we collected the data in two phases – i.e., data for the dependent variable was collected a year after the initial survey.

[Table 1 about here]

4.3 Measures and validation

Dependent variable. To operationalize *new venture performance*, we used self-reported performance indicators for three reasons. First, objective financial data are not publicly available from new ventures, especially in a weak institutional environment where trust can be very low (Li et al. 2005). Second, subjective performance measures are easy to obtain and— with strong reliability and validity—can be used to examine a broad range of performance dimensions (Dess & Robinson, 1984). They have been widely used in past research (e.g., Wiklund & Shepherd

2005). Third, subjective performance measures were used to avoid the problems associated with objective performance measures in emerging economies, including non-standard financial reporting, inflation and devaluation of local currencies, and widespread use of informal means of exchanging value (Adomako et al. 2018). Furthermore, it has been indicated that self-reported performance has a strong correlation with objective performance indicators (Dess & Robinson, 1984). Thus, we used aggregate scores of the following 10 self-reported indicators of new venture performance relative to competitors: employment growth, sales growth, market share, net profit margin, innovation in products, gross profits, speed in developing new products and services, quality of products and services, cost control, and customer satisfaction. The respondents used a scale ranging from 1 for "much worse" to 7 for "much better" to rate these items ($\alpha = 0.849$), which is consistent with previous studies (e.g., Stam & Elfring, 2008).

Independent variables. *Bricolage and Optimization.* We followed Desa and Basu's (2013) approach to operationalize the bricolage and optimization constructs by measuring them along three important dimensions: materials, labor, and skills. Prior research shows that these distinct types of resources are very important and are difficult for new ventures to access (Zahra et al. 2008). We adapted and expanded pools of items from Desa (2012) and Desa & Basu (2013) to create a nine-item scale. We ran a confirmatory factor analysis (CFA) of the bricolage construct using the maximum likelihood (ML) procedure (Hair et al. 2006). The results showed a good overall model fit (P > 0.049; CMIN/DF 1.522; CFI = 0.967; GFI = 0.955; AGFI = 0.916; PCLOSE = 0.328; RMSEA = 0.059). Similarly, we ran a CFA of the optimization construct, which also showed a good model fit (p > 0.024; CMIN/DF 1.650; CFI = 0.968; GFI = 0.944; AGFI = 0.895; PCLOSE = 0.226; RMSEA = 0.065). The items and measures are presented in Table 2.

[Table 2 about here]

Moderating variable. *Network diversity*. To operationalize network diversity, we followed the approach suggested by Chen and Tan (2009) by using a position generator approach. We measured network diversity by the variety of occupations in which the respondent knew someone or had social connections. As suggested by Chen and Tan (2009), we selected 18 occupations based on their relevance to the research setting so that when combined, they reflect the entrepreneurs' occupation-based social network extensivity. These occupations include government official, community association leader, bricklayer, professor, investor, bank loan officer, lawyer, accountant, IT engineer, manager, police officer, unskilled labourer, entrepreneur, physician, driver, electrician, mechanic, and director of a company. Network contacts in these diverse occupations can provide useful support to an entrepreneur, such as introduction to useful business contacts or the provision of financial assistance, physical resources, business services, information, advice, and training. In the Nigerian agricultural industry for example, government officials can provide information on government schemes and subsidies, investors can provide money to acquire the land and equipment needed for farming, lawyers and community leaders can help with resolving issues with land and contracts, etc.

Following prior studies that have examined new ventures using models that incorporate variables at both firm and individual levels (e.g., Dencker & Gruber, 2015), we controlled for firm-level and entrepreneur-level factors. We operationalized firm age as the logarithm of the number of years from the founding year to the year 2015. We measured firm size as the logarithm of each firm's total number of full-time employees, including founders (Stam & Elfring, 2008). For work experience, we included years of education, industry experience, and managerial experience because they may have a significant impact on entrepreneurial success (Semrau &

Werner, 2014). We included prior RM experience because prior founding experience can have an impact on entrepreneurial outcomes (Davidsson & Honig, 2003; Delmar & Shane, 2006). Following previous studies (e.g., Semrau & Werner, 2014), we measured prior RM by asking entrepreneurs if they have previously succeeded in mobilizing resources for a new business.

Analytical approach. We used a hierarchical moderated regression for our analysis, juxtaposing different models with and without interaction terms (Stam & Elfring, 2008). We followed Aiken and West's (1991) suggestion to mean-center the independent variables before creating the interaction terms. We used different regression diagnostics for all the models to ensure that all the modelling assumptions were satisfied. We also performed the Kolmogorov–Smirnov test for normality.

Validity test. To capture our theoretical constructs, we relied on the self-reports of the venture owners. Although common method variance concerns may be raised when using this approach, we provide some explanations regarding how we addressed this. First, the context of our study—Nigeria—necessitates the exploration of difficult waters. This is because data of any kind are scarce. Thus, this was considered over standard methodological considerations (Chang et al. 2010). Second, prior entrepreneurship studies support the validity and reliability of self-reported measures (Semrau & Werner, 2014).

To safeguard against the possibility of common method bias, we followed Podsakoff *et al*. (2003) recommendation to evaluate and minimize biases in the research design (before data collection) and through statistical controls (after data collection). First, we created a psychological and methodological separation by guaranteeing confidentiality, providing a cover story, and using different response formats to prevent our respondents from linking the predictor variables to the criterion variables. Second, we attempted to use existing measures from the

literature to the greatest extent possible and, by doing so, validate the measurement scales' internal consistency and factor structure (Conway & Lance, 2010). Third, we ran a CFA using AMOS structural equation modelling by including a latent common method variable and then connecting it to all observed items in the model. Then, we compared the standardized regression weights from this model to the standardized regression weights of a model without the common latent factor to check if there were any large differences greater than the 0.200 threshold (Podsakoff et al. 2003). These findings indicated that common method bias was not a serious concern in the current study. In addition, all our constructs showed good interitem reliability, with Cronbach alphas that surpassed the 0.6 threshold (Bagozzi & Yi, 1988). Finally, we ran a test for multicollinearity and heteroscedasticity by evaluating the variance inflation factors (VIFs) and a graphic plot of the residuals, prior to and after conducting the interaction models, respectively.

5. Results

The descriptive statistics, bivariate correlations among the variables, and VIF scores are shown in Table 3. It is worthwhile to note that some of the variables are significantly correlated, indicating potential relationships among them. However, the correlation coefficients are not high enough to suggest multicollinearity. The highest correlation coefficient is 0.45, which is below the recommended cut-off of 0.8 or 0.9 (Field, 2013; Tabachnick & Fidell, 2014). Besides this "ballpark" check of multicollinearity, we also generated collinearity diagnostics for each model. The highest VIF score for the variables across all the models is 1.34 This statistic is less than 10, the level at which multicollinearity becomes a serious concern (Bowerman & O'Connell, 1990). The average VIF for each model is not substantially greater than 1 and the tolerance values for all

variables are less than 0.2, indicating that multicollinearity does not affect the models (Field, 2013).

Table 4 shows the results of the hierarchical regression analyses. In the first step (model 1), we regressed only the control variables. In the second step (model 2), we added the predictor variables to test hypotheses 1 and 2. Consistent with our predictions, the relationship between optimization and new venture performance is significantly positive ($b = 2.33$, $p \leq 0.01$) while that of bricolage is significantly negative ($b = -1.19$, $p \leq 0.05$). Therefore, hypotheses 1 and 2 are supported. A unit increase in optimization is associated with 2.33 unit increase in performance whereas a similar increase in bricolage is associated with a 1.19 unit decrease in performance. In models 3 and 4, we introduced the interaction terms for optimization-network diversity and bricolage-network diversity respectively to test hypotheses 3 and 4. We followed Aiken and West (1991) to mean-center all the independent and moderator variables before creating the interaction terms. There was no evidence of multicollinearity in the models containing the interaction terms. The result (model 3: $b = 0.28$, $p \leq 0.01$) shows that the moderating effect of network diversity on the optimization–new venture performance relationship (hypothesis 3) is supported. Similarly, the result (model 4: $b = 0.15$, $p > 0.10$) shows that the moderating effect of network diversity on the bricolage–new venture performance relationship (hypothesis 4) is partially supported. The significantly negative effect of bricolage (model 2) reverses to become positive, though insignificant, thus indicating a mitigating effect of network diversity on the direction of effect. However, in the full model, the result is positively significant (model 5: $b = 0.26$, $p \leq 0.10$), fully supporting hypothesis 4).

[Table 3 & 4 about here]

To better understand the nature of the interactions, we computed low network diversity as one standard deviation below the mean and high network diversity as one standard deviation above the mean. After, we created plots for the two possible combinations of network diversity (Aiken & West, 1991). Table 5 highlights the average marginal effects for RM approaches (direct effect) and Table 6 highlights the average marginal effects for the different variable combination of network diversity and RM approaches, along with the coefficients, t-values, and significance. Figure 2a indicates that optimization on new venture performance is broadly positive, but high network diversity strengthens this positive relationship. Figure 2b also indicates that the negative relationship between bricolage and new venture performance is mitigated by high network diversity.

[Table 5 & 6 & Figure 2a & 2b about here]

6. Discussion

In this study, we examined the relationship between bricolage, optimization, and new venture performance in Nigeria's agricultural industry. In developing countries particularly, entrepreneurs are more likely to be exposed to—and likely to be directly impacted by—severe resource constraints due to lack of critical resources, infrastructure, and market-supporting institutions. Faced with resource challenges, entrepreneurs are inclined to take mitigating actions (Fisher, 2012) and find "novel and clever ways to bring, assemble, or deploy resources" (Williams et al. 2021, p. 6), which include adopting bricolage and optimization approaches. Regardless of which approach is adopted, both are important resourcing strategies that allow entrepreneurs to mobilize resources in highly resource-constrained environments (Baker & Nelson, 2005; Fisher, 2012). We found that optimization (bricolage) has a positive (negative) relationship with new venture

performance. Before proceeding to the theoretical contributions of this study, two of our findings deserve more attention and explication.

First, the negative impact of bricolage is particularly noteworthy. To shed more light on this counterintuitive finding, we would like to highlight the role of entrepreneurial, managerial, and technical knowledge for improvisation or "making do". Bricolage entails the combination and deployment of resources across different domains, such as physical, labor, and skill inputs (Fisher, 2012). Hence, entrepreneurs or new ventures that deploy bricolage must understand how to effectively combine resources (Baker & Nelson, 2012; Fisher 2012). Indeed, the extant literature recognizes that the skills and knowledge entrepreneurs bring to a venture can help create a competitive advantage (Fisher, 2012; Baker & Nelson, 2005). The literature further notes that entrepreneurs with high levels of skills and knowledge will know how to combine material, labour, and skills inputs to create value (Baker & Nelson, 2012; Fisher 2012). However, given the lack of managerial knowledge and intellectual capital in the Nigerian agricultural sector (Bloom et al. 2010; Bruhn et al. 2010), it can be difficult for new ventures to apply the right combinations of the "resources at hand". Essentially, knowledge is an important mechanism for successfully orchestrating bricolage, and its deficiency in Nigerian agricultural sector contexts renders bricolage ineffective. In Nigeria, where our study is set, it is likely that the entrepreneurs are less skilled in the right combinations of resources to effectively deploy value-adding bricolage. Our study's finding extends previous research (Baker, 2007; Powell, 2011; Powell & Baker, 2014) by revealing that bricolage may have a negative effect on venture performance.

Second, our use of a contingency perspective revealed that network diversity reduces the negative effect of bricolage on new venture performance while accentuating the positive effect of optimization. This finding is interesting because previous research has evaluated the role of entrepreneurs' networks for mobilizing resources and tapping broad experience for sustaining the

growth and performance of new ventures (e.g., Arregle, et al. 2015; Stuart & Sorensen, 2007), but only a few studies have shown the dynamic role of networks in the RM process in resource-constrained developing economies (e.g., Khayesi et al. 2014; Semrau & Werner, 2014). Importantly, our findings further highlight the importance of social ties and capital in Nigerian agricultural ventures where they play several roles, including availing critical resources and knowledge, conferring legitimacy, replacing weak market supporting institutions, and moderating economic exchange (Acquaah, 2007; Batjargal, 2003; Bhagavatula et al. 2010; Prashantham, 2011; Xin & Pearce, 1996).

Moreover, our study highlights that it is not only the size of social networks or the intensity of network ties that matter in entrepreneurial processes, but also other network attributes such as network diversity. Research has shown that network attributes can be both beneficial and detrimental to new ventures. For example, Khayesi *et al.* (2014) note that although a network can be beneficial, it can come at a higher cost in developing economies where entrepreneurs' financial resources are used to fulfil social obligations, or the demands placed on them by their social relations (Kiggundu, 2002). Our study shows that high network diversity, when combined with either optimization or bricolage, is beneficial for Nigerian agricultural ventures because it provides access to information, skills, experiences, and knowledge needed to generate solutions to institutional challenges in resource-constrained environments. Our findings also show that for successful RM to occur in the context of Nigerian agricultural ventures, the choice of a RM approach is not sufficient. In this context, RM also entails considering the strategic interactive behavior of entrepreneurs with network contacts (Shane & Stuart, 2002). Hence, even though social networks could be costly for new ventures, they are valuable for resource orchestration in Nigerian agricultural ventures as they can effectively and efficiently use the network contacts of

resource providers, irrespective of the limitations that a network may bring (Hallen & Eisenhardt, 2012; Stuart & Sorenson, 2007).

6.1. Theoretical Contributions

Our findings contribute to the entrepreneurial resourcing literature and particularly to the emerging work on entrepreneurship and resourcing strategies in developing countries (e.g., Sutter et al. 2019; Sydow, et al. 2020; Reypens et al. 2021). First, this study shows that bricolage can be value-destroying in resource-constrained developing countries, marking a departure from the common trajectory of resource orchestration theory, which generally posits a positive view of "making do" through bricolage (Baker & Nelson, 2005; An et al. 2020; Stenholm & Renko, 2016). This study therefore contributes to the resourcing literature by advancing that bricolage is a double-edged sword. It extends theory by demonstrating that while bricolage may be value-creating, it may also be value-destroying. In doing so, it highlights how resource orchestration theory has taken for granted that institutional conditions in resource-constrained contexts are critical for supporting the successful orchestration of bricolage. This is not surprising, because much of the extant theorizing is set in developed countries where institutional conditions are supportive.

In Nigerian agricultural ventures, the value of bricolage is hampered by institutional adversity and market inefficiencies, as we hypothesized (Nnadozie et al. 2017; Nilsson, et al. 2022). While previous works have already broached the notion of negative bricolage (Baker & Nelson, 2005; Bojica et al. 2018; Kickul et al. 2018), this study extends the conversation and provides the empirical evidence that has been lacking. It sheds light on the value of bricolage and optimization in a developing country context where RM effects may differ due to the lack of supporting institutions, knowledge and infrastructure that are often taken for granted in advanced

countries (Khavul & Bruton, 2013; Reypens et al. 2021). According to resource orchestration theory, both resourcing approaches are intended to generate positive impacts for firms, but we found mixed results that lend empirical support to previous findings (e.g., Bojica et al. 2018). Overall, our study shows that optimization is superior to bricolage, suggesting that using standard resources yields better outcomes than improvisation. We thus generate finer insights about the differential value of resource structuring approaches used in resource orchestration in the context of Nigerian agricultural ventures.

Second, this study generates useful insights into the relationship between social capital and resource orchestration by showing how social network diversity increases the value of resource structuring strategies. This contribution is important because even though social network literature advances the usefulness of social capital for entrepreneurial ventures to mobilize resources (Batjargal, 2003; Drummond et al. 2018; Thornton et al. 2011) and the entrepreneurship literature highlights the role of founders/managers' networking in RM (Baker et al. 2003; Chirico et al. 2011), there is still limited research about how network diversity moderates the value of RM approaches. We show that a diverse network creates information, learning and knowledge advantages for acquiring resources in factor markets or for improvising with available resources, and thus serves as a boundary condition for the RM-performance relationship.

Social networks are particularly important in developing and emerging countries where they serve as substitutes for weak marketing supporting institutions (Liedong et al. 2017). However, they can also be detrimental to new ventures, especially when entrepreneurs' financial resources are used to fulfil social obligations (Khayesi et al. 2014) or the demands placed on them by their social relations (Kiggundu, 2002). Our study shows that even though social networks could be costly, they are valuable for resource orchestration in developing countries.

Focusing on Nigerian agricultural ventures, this study advances scholarly work on contextualizing entrepreneurship (Shepherd et al. 2020; Sydow, et al. 2020; Welter et al. 2019), and responds to calls for more research on entrepreneurship in Africa (Elumelu, 2016; George et al. 2016a; Zoogah et al. 2015), and specifically the agricultural industry (Whitfield, 2012).

6.2 Practice Implications

Beside theoretical insights, this study has practice and policy implications for entrepreneurs, new ventures, and policymakers in developing economies. Our findings show that entrepreneurs can improve venture performance by adopting an optimization approach. Adopting bricolage seems to destroy economic value, but entrepreneurs who can exploit the advantages of their high network diversity (e.g., information, referrals, and recommendations) may be able to mitigate the harm done by bricolage. In resource-constrained environments, and specifically for Nigerian agricultural ventures, the choice of RM approach alone is insufficient. Exploiting the value of diverse network contacts is crucial for generating competitive advantage from resource structuring. For example, entrepreneurs can network to build relationships with stakeholders in government, financial institutions, and non-governmental organizations to help them access resource information and overcome the bricolage trap. Similarly, networks with agro-hubs and other players in the agricultural sector could avail themselves of new knowledge and learning to enhance their ability to recombine slack resources to overcome the challenges they face.

Additionally, our study implies that governments in developing countries such as Nigeria should not just enact policies that introduce schemes and programs for promoting entrepreneurship or tackling low productivity and yield in the agricultural sector, but should also

place a greater emphasis on making provisions for addressing the prevalent institutional and agency challenges that significantly affect the capacity of entrepreneurs to mobilize critical resources for agricultural ventures. Importantly, the effective implementation of any interventions should also be seriously considered, mainly because of the policy provisions are often not followed, compounding the resourcing misery of farmers and defeating the purpose of the interventions.

6.2 Limitations and future research

As is typical of empirical studies, ours is not without its limitations. However, these limitations provide opportunities for further research. First, the interpretation of our results is limited by generalizability concerns. We positioned our study within the broader context of highly resource-constrained developing countries, but our empirical analysis used data from a single case country – i.e., Nigeria. Our arguments, findings and conclusions are therefore not widely generalizable, though they may apply to other countries whose resource and institutional profiles are similar to Nigeria. Nevertheless, we encourage future studies to examine this topic using multi-country data. Doing so will make it possible to examine how country-level conditions may influence the RM-performance relationship.

Second, like previous studies (e.g., Adomako et al. 2018), we used perceptual measures. This is because in developing countries such as Nigeria, access to secondary firm-level data is limited. While the use of perceptual data is not a limitation because the multidimensional nature of entrepreneurship necessitates the use of multiple measures – i.e., subjective and objective (Stam & Elfring, 2008; Wiklund & Shepherd, 2005), we acknowledge that our approach could create common method biases. However, as described earlier, we used various techniques to

mitigate this issue. Nevertheless, we encourage future research to use objective measures, where possible.

Third, although we controlled for the impact of venture age on performance, we did not offer a longitudinal view of RM evolution. We encourage future research to apply longitudinal research designs, particularly to investigate how the use of optimization and bricolage changes as new ventures grow as well as the determinants of such changes. A related concern about our cross-sectional data is the potential for reverse causality (i.e., endogeneity), in the sense that while it is possible for RM approaches to cause performance effects, it is also possible for firm performance to affect the choice of RM approach. We considered addressing this problem by conducting instrumental variable regression. However, because our sample is industry and country invariant, we could not use instruments. Therefore, we lagged the independent variables by regressing performance data collected from the sampled firms one year after the initial survey. This way, it is logical to argue that RM approaches in a given year affect firm performance in the subsequent year but not vice versa, thus allaying concerns of endogeneity. Findings from the lagged regressions did not significantly differ from the main results.

Also, our results indicate that firm size is negatively correlated to optimization and positively correlated to bricolage. Conventionally, one would expect small firms to do bricolage and large firms to optimize or buy. However, it is also plausible that small firms, with their resource constraints, may prefer to optimize by buying standard resources for standard applications with the aim of maximizing efficiency. In the same vein, large firms have more endowments and slack resources that they can use for tinkering. Future research could explore how firm size affects the choice of RM approach.

In conclusion, this study generates useful insights about the value of RM approaches and the links between resource portfolio structuring and social capital. We hope that these insights will stimulate further research on RM, especially in resource-constrained developing countries.

References

Acquaah, M. (2007). 'Managerial social capital, strategic orientation, and organizational performance in an emerging economy'. *Strategic Management Journal*, 28, 1235–1255. doi:10.1002/smj.632

Acquaah, M., & Agyapong, A. (2015). The relationship between competitive strategy and firm performance in micro and small businesses in Ghana: The moderating role of managerial and marketing capabilities. *Africa Journal of Management*, *1*(2), 172-193. Doi: 10.1080/23322373.2015.1025684

Adeyanju, D., Mburu, J., Mignouna, D., & Akomolafe, K. J. (2021). Determinants of youth participation in agricultural training programs: the case of fadama program in Nigeria. *International Journal of Training Research*, *19*(2), 142-166.doi: 10.1080/14480220.2021.1905685

Adhikari, A., Derashid, C., & Zhang, H. (2006). Public policy, political connections, and effective tax rates: Longitudinal evidence from Malaysia. *Journal of Accounting and Public Policy*, *25*(5), 574–595. doi:10.1016/j.jaccpubpol.2006.07.001

Adomako, S., Amankwah-Amoah, J., Debrah, Y. A., Khan, Z., Chu, I., & Robinson, C. (2021). Institutional voids, economic adversity and inter-firm cooperation in an emerging market: the mediating role of government R&D support. *British Journal of Management*, *32*(1), 40-58. doi: 10.1111/1467-8551.12443

Adomako, S., Danso, A., Boso, N. & Narteh, B. (2018). Entrepreneurial alertness and new venture performance: Facilitating roles of networking capability. *International Small Business Journal*, *36*(5), 453-472. doi: 10.1177/0266242617747667

Agarwal, N., Chakrabarti, R., Prabhu, J. C., & Brem, A. (2020). Managing dilemmas of resource mobilization through jugaad: A multi-method study of social enterprises in Indian healthcare. *Strategic Entrepreneurship Journal*, *14*(3), 419-443. doi: 10.1002/sej.1362

Aiken, L.S. & West, S.G. (1991). *Multiple regression: testing and interpreting interactions*. Sage: Thousand Oaks, CA.

An, W., Rüling, C. C., Zheng, X., & Zhang, J. (2020). Configurations of effectuation, causation, and bricolage: implications for firm growth paths. *Small Business Economics*, 1-22. doi: 10.1007/s11187-019-00155-8

Anderson, A. R., Jack, S. L., & Drakopoulou D. S. (2005). The role of family members in entrepreneurial networks: Beyond the boundaries of the family firm. *Family Business Review*, *18*, 135–154. doi: 10.1111/j.1741-6248.2005.00037.x

Apulu, I. & Latham, A. (2011). Drivers for information and communication technology adoption: a case study of Nigerian small and medium sized enterprises. *International Journal of Business and Management* 6(5), 51-60. doi: 10.5539/ijbm.v6n5p51Armanios, D.E., Eesley, Charles E., Li, J., & Eisenhardt, K.M., (2017). How entrepreneurs leverage institutional intermediaries in emerging economies to acquire public resources. *Strategic Management Journal*, 38, 1373–1390. https://doi.org/10.1002/smj.2575.

Armanios, D. E., Eesley, C. E., Li, J., & Eisenhardt, K. M. (2017). How entrepreneurs leverage institutional intermediaries in emerging economies to acquire public resources. *Strategic Management Journal*, *38*(7), 1373-1390. doi: 10.1002/smj.2575

Arregle, J. L., Batjargal, B., Hitt, M. A., Webb, J. W., Miller, T., & Tsui, A. S. (2015). Family ties in entrepreneurs' social networks and new venture growth. *Entrepreneurship Theory and Practice*, 39(2), 313-344. doi: 10.1111/etap.12044

Atiase, V. Y., Kolade, O., & Liedong, T. A. (2020). The emergence and strategy of tech hubs in Africa: Implications for knowledge production and value creation. *Technological Forecasting and Social Change*, *161*, 120307. doi: 10.1016/j.techfore.2020.120307

Bagozzi R. P. & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science, 14*(1), 33-46. doi: 10.1177/009207038801600107

Baker T. (2007). Resources in play: bricolage in the toy store (y). *Journal of Business Venturing, 22*(5), 694-711. doi: 10.1016/j.jbusvent.2006.10.008

Baker, W. E. (1990). Market networks and corporate behavior. *American Journal of Sociology, 96*(3), 589-625. doi: https://www.jstor.org/stable/2781065

Baker, T., Miner, A. & Eesley, D. (2003). "Improvising firms: bricolage, retrospective interpretation and improvisational competencies in the founding process." *Research Policy, 32*, 255-276. doi: 10.1016/S0048-7333(02)00099-9

Baker, T. & Nelson, R. (2005). Creating something from nothing: resource construction through entrepreneurial bricolage. *Administrative Science Quarterly* 50, 329–366. doi: 10.2189/asqu.2005.50.3.329

Barau, A., & Wada, A. S. (2021). *Do-It-Yourself Flood Risk Adaptation Strategies in the Neighborhoods of Kano City, Nigeria BT - African Handbook of Climate Change Adaptation* (N. Oguge, D. Ayal, L. Adeleke, and I. da Silva, Eds.). Springer International Publishing. Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management* 17(1), 99–120. Doi:10.1177/014920639101700108.

Batjargal, B. (2003). 'Social Capital and Entrepreneurial Performance in Russia: A Longitudinal Study'. *Organization Studies, 24*, 535–556. doi: 10.1177/0170840603024004002

Baum, J. R, Locke, E. A, & Smith, K. G. (2001). A multi-dimensional model of venture growth. *Academy of Management Journal, 44*, 292–303. doi: 10.5465/3069456

Bellavitis, C., Filatotchev, I., & Souitaris, V. (2017). The impact of investment networks on venture capital firm performance: A contingency framework. *British Journal of Management, 28*(1), 102-119. doi: 10.1111/1467-8551.12162

Beltagui, A., Sesis, A., & Stylos, N. (2021). A bricolage perspective on democratizing innovation: The case of 3D printing in makerspaces. *Technological Forecasting and Social Change*, *163*. doi: 10.1016/j.techfore.2020.120453

Berchicci, L. & Hulsink, W. (2006). Of bikes and men. Paper prepared for the workshop on Strategic Entrepreneurship: the role of networking, Vrije Universiteit Amsterdam, July 3-4.

Bhagavatula, S., Elfring, T., van Tilburg, A., & van de Bunt, G. G. (2010). 'How social and human capital influence opportunity recognition and resource mobilization in India's handloom industry'. *Journal of Business Venturing, 25*, 245–260. doi: 10.1016/j.jbusvent.2008.10.006

Bhawe, N., Rawhouser, H., & Pollack, J. M. (2016). Horse and cart: The role of resource acquisition order in new ventures. *Journal of Business Venturing Insights*, *6*, 7-13. doi: 10.1016/j.jbusvent.2008.10.006.

Bojica, A. M., Ruiz Jiménez, J. M., Ruiz Nava, J. A., & Fuentes-Fuentes, M. M. (2018). Bricolage and growth in social entrepreneurship organizations. *Entrepreneurship and Regional Development*, *30*(3-4), 362-389. doi: 10.1080/08985626.2017.1413768

Bowerman, B. L., & O'Connell, R. T. (1990). *Linear statistical models: An applied approach* (2nd ed.). Belmont, CA: Duxbury.Bradley, S. W., McMullen, J. S., Artz, K., & Simiyu, E. M. (2012). Capital is not enough: Innovation in developing economies. *Journal of Management Studies*, 49(4), 684-717. doi: 10.1111/j.1467-6486.2012.01043.x

Burt, R. S. (1992). *Structural Holes: the social structure of competition*. Harvard University Press: Cambridge, MA.

Busch, C., & Barkema, H. (2021). From necessity to opportunity: Scaling bricolage across resource-constrained environments. *Strategic Management Journal*, *42*(4), 741-773. doi: 10.1002/smj.3237

Busenitz, L. W., West, G. P., Shepherd, D., Nelson, T., Chandler, G. N. & Zacharakis, A. (2003). Entrepreneurship research in emergence: past trends and future directions. *Journal of Management, 29*(3), 285-308. doi: 10.1016/S0149-2063_03_00013-8

CBN (2015) Annual Report https://www.cbn.gov.ng// [Accessed 28th April, 2017]

Central Bank of Nigeria. (2020). Anchors Borrowers' Programme. Availabe at: https://www.cbn.gov.ng/Out/2020/CCD/Anchor Borrowers Programme Guidelines - December 2018 (Non-Interest Banking Principle) Cleaned 04012019 (2).pdf. [Accessed 28 July, 2023]

Chang, S. J, Van Witteloostuijn, A. & Eden, L. (2010). From the editors: Common method variance in international business research. *Journal of International Business Studies, 41*(2), 178-184. doi: 10.1057/jibs.2009.88.

Chen W, & Tan, J. (2009). Understanding transnational entrepreneurship through a network lens: Theoretical and methodological considerations. *Entrepreneurship Theory and Practice, 33*(5), 1079-1091. doi: 10.1111/j.1540-6520.2009.00335.x

Chirico, F., Sirmon D. G, Sciascia, S., & Mazzola, P. (2011). Resource orchestration in family firms: Investigating how entrepreneurial orientation, generational involvement, and participative strategy affect performance. *Strategic Entrepreneurship Journal*, 5(4), 307-326. doi: 10.1002/sej.121

Conway, J. M. & Lance, C. E. (2010). What reviewers should expect from authors regarding common method bias in organizational research. *Journal of Business and Psychology, 25*(3), 325-334. doi: 10.1007/s10869-010-9181-6

Crook, T. R., Ketchen, D. J, Combs, J. G, and Todd, S. Y. (2008). Strategic resources and performance: a meta-analysis. *Strategic Management Journal, 29*(11), 1141-1154. doi: 10.1002/smj.703

Damoah, I. S., & Botchie, D. (2021). Do-It-Yourself (DIY) laboratories and science, technology, and innovation (STI): trends, implications and future research. *Technology Analysis & Strategic Management, 33*(10), 1267-1280. doi: 10.1080/09537325.2021.1942826

Das, T. K, & Teng, B. S. (2002). Alliance constellations: a social exchange perspective. *Academy of Management Review, 27*(3), 445-456. doi: 10.5465/amr.2002.7389937

Desa, G. (2012). Resource mobilization in international social entrepreneurship: Bricolage as a mechanism of institutional transformation. *Entrepreneurship Theory and Practice*, 36(4), 727. doi: 10.1111/j.1540-6520.2010.00430.x

Desa, G., & Basu, S. (2013). Optimization or bricolage: overcoming resource constraints in global social entrepreneurship. *Strategic Entrepreneurship Journal*, *7*(1), 26–49. doi: 10.1002/sej.1150

Dess, G. G., & Robinson, R. B. (1984). Measuring organizational performance in the absence of objective measures: The case of the privately-held firm and conglomerate business unit. *Strategic Management Journal, 5*, 265–273. doi: 10.1002/smj.4250050306

Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, *18*(3), 301-331. doi: 10.1016/S0883-9026(02)00097-6De Klerk, S. (2015). The creative industries: An entrepreneurial bricolage perspective. *Management Decision*, 53(4), 828-842. Doi: 10.1108/MD-03-2014-0169

Delmar, F., & Shane, S. (2006). Does experience matter? The effect of founding team experience on the survival and sales of newly founded ventures. *Strategic Organization, 4*(3), 215-247. doi: https://www.jstor.org/stable/23727583&site=jstor

Drummond, C., McGrath, H., & O'Toole, T. (2018). The impact of social media on resource mobilization in entrepreneurial firms. *Industrial Marketing Management, 70*, 68-89. doi: 10.1016/j.indmarman.2017.05.009Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of management review*, 23(4), 660-679.doi: https://www.jstor.org/stable/259056

Eisenhardt, K. M., & Bourgeois III, L. J. (1988). Politics of strategic decision making in high-velocity environments: Toward a midrange theory. *Academy of management Journal*, *31*(4), 737-770. doi: https://www.jstor.org/stable/256337

Elumelu, T. O. (2016). Africapitalism and Africa's Sustainable Development. *Horizons: Journal of International Relations and Sustainable Development*, *6*, 128-135. Doi: https://www.jstor.org/stable/10.2307/48573618

FAO - Food and Agricultural Organization of the United Nations, (2023). FAO in Nigeria: Nigeria at a glance. Available at: https://www.fao.org/nigeria/fao-in-nigeria/nigeria-at-a-glance/en/. [Accessed 22 July, 2023].

Field, A. (2013). *Discovering statistics using SPSS* (4th Ed). London: SAGE. Retrieved from http://search.ebscohost.com/login.aspx?direct=trueanddb=cat00164aandAN=cran.541589andsite=eds-live [Accessed 17th July, 2021]

Fisher, G. (2012). Effectuation, causation, and bricolage: a behavioral comparison of emerging theories in entrepreneurship research. *Entrepreneurship Theory and Practice, 36*(5), 1019-1051. doi: 10.1111/j.1540-6520.2012.00537.

Foo, M. D., Vissa, B., & Wu, B. (2020). Entrepreneurship in emerging economies. *Strategic Entrepreneurship Journal*, *14*(3), 289-301. doi: 10.1002/sej.1363

Food and Agriculture Organization of the United Nation Statistics (2017). FAO in Nigeria. Available: http://www.fao.org/nigeria/en , PwC Analysis [Accessed 25th July, 2017]

Garud, R., & Karnoe, P. (2003). "Bricolage versus breakthrough: Distributed and embedded agency in technology entrepreneurship." *Research Policy, 32*, 277-300. doi: 10.1016/S0048-7333(02)00100-2

George, G., Corbishley, C., Khayesi, J. N. O., Haas, M. R., & Tihanyi, L. (2016a). Bringing Africa in: Promising directions for management research. *Academy of Management Journal*, *59*(2), 377–393. doi: 10.5465/amj.2016.4002

Goerzen, A., & Beamish, P. W. (2005). The effect of alliance network diversity on multinational enterprise performance. *Strategic Management Journal, 26*(4), 333-354. doi: 10.1002/smj.447

Grant R. M. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. *California Management Review, 33*(3), 114-135.

Grossman, E. B., Yli-Renko, H., & Janakiraman, R. (2012). Resource search, interpersonal similarity, and network tie valuation in nascent entrepreneurs' emerging networks. *Journal of Management*, *38*(6), 1760-1787. doi: 10.1177/0149206310383693

Gulati R. (1999). Network location and learning: the influence of network resources and firm capabilities on alliance formation. *Strategic Management Journal* 20(5): 397-420

Gulati, R., Nohria, N. & Zaheer, A. (2000). Strategic networks. *Strategic Management Journal*, *21*(3), 203–215. doi: 10.1002/(SICI)1097-0266(200003)21:3<203::AID-SMJ102>3.0.CO;2-KGundry, L.K., Kickul, J.R., Griffiths, M.D.,& Bacq, S.C., (2015). Creating social change out of nothing: the role of entrepreneurial bricolage in social entrepreneurs' catalytic innovations. In: Lumpkin, G.T., Katz, J.A. (Eds.), Social and Sustainable Entrepreneurship

(Advances in Entrepreneurship, Firm Emergence and Growth). Emerald Group Publishing, Bingley, UK, pp. 1–24. Doi: 10.1108/S1074-7540(2011)0000013005.

Hair, J. F, Black, W. C, Babin, B. J, Anderson, R., & Tathum, R. (2006). *Multivariate data analysis*. 6th ed. Upper Saddle River: Prentice Hall.Hallen, B.L, & Eisenhardt, K.M. (2012). Catalyzing strategies and efficient tie formation: how entrepreneurial firms obtain investment ties. *Academy of Management Journal* 55(1): 35-70. Doi: 10.5465/amj.2009.0620

Hamel, G., & Prahalad, C. K. (1993). Strategy as stretch and leverage. *Harvard business Review*, *71*(2), 75-84.

Helfat C.E. & Peteraf MA. (2003). The dynamic resource-based view: capability lifecycles. *Strategic Management Journal, 24*(10), 997– 1010. doi: 10.1002/smj.332

Hitt, M. A., Ireland, R. D., Sirmon, D. G, & Trahms, C.A. (2011). Strategic entrepreneurship: creating value for individuals, organizations, and society. *The Academy of Management Perspectives*, *25*(2), 57-75. doi: 10.5465/amp.25.2.57

Hoang, H., & Antoncic, B. (2003). Network-based research in entrepreneurship: a critical review. *Journal of Business Venturing*, *18*(2), 165-187. Doi: 10.1016/S0883-9026(02)00081-2

Holcomb, T. R., Holmes Jr, R. M., & Connelly, B. L. (2009). Making the most of what you have: Managerial ability as a source of resource value creation. *Strategic management Journal*, *30*(5), 457-485. doi: 10.1002/smj.747

Hoskisson, R. E., Eden, L., Lau, C. & Wright, M. (2000). Strategy in emerging economies. *Academy of Management Journal*, *43*(3), 249–267. doi: 10.5465/1556394

Ihua, U. B. (2009). SMEs key failure-factors: a comparison between the United Kingdom and Nigeria. *Journal of Social Sciences*, *18*(3), 199-207. doi: 10.1080/09718923.2009.11892682

Jack, S. L, & Anderson, A. R. 2002. The effects of embeddedness on the entrepreneurial process. *Journal of Business Venturing*, *17*(5), 467-487. doi: 10.1016/S0883-9026(01)00076-3

Jayawarna, D., Jones, O., & Macpherson, A. (2020). Resourcing social enterprises: the role of socially oriented bootstrapping. *British Journal of Management*, *31*(1), 56-79. doi: 10.1111/1467-8551.12334

Jonsson, S., & Lindbergh, J. (2013). The development of social capital and financing of entrepreneurial firms: From financial bootstrapping to bank funding. *Entrepreneurship Theory and Practice*, *37*(4), 661-686. doi: 10.1111/j.1540-6520.2011.00485.x

Katz, J., & Gartner, W. B. (1988). Properties of emerging organizations. *Academy of Management Review*, *13*(3), 429-441. doi: 10.5465/amr.1988.4306967

Kessler, E. H. & Bierly, P. E. (2002). Is faster really better? An empirical test of the implications of innovation speed. *IEEE Transactions on Engineering Management*, *49*(1), 2-12. doi: 10.1109/17.985742

Ketchen, D.J., JR., Wowak, K.D. & Craighead, C.W. (2014), Resource Gaps and Resource Orchestration Shortfalls in Supply Chain Management: The Case of Product Recalls. *Journal of Supply Chain Management*, *50*, 6-15. doi: 10.1111/jscm.12047

Khavul, S., & Bruton, G. D. (2013). Harnessing innovation for change: Sustainability and poverty in developing countries. *Journal of management studies*, *50*(2), 285-306. Doi: 10.1111/j.1467-6486.2012.01067.x

Khayesi, J. N., George, G., & Antonakis, J. (2014). Kinship in entrepreneur networks: performance effects of resource assembly in Africa. *Entrepreneurship Theory and Practice*, *38*(6), 1323-1342. doi: 10.1111/etap.12127

Kickul, J., Griffiths, M., Bacq, S., & Garud, N. (2018). Catalyzing social innovation: is entrepreneurial bricolage always good? *Entrepreneurship and Regional Development*, *30*(3-4), 407-420. doi: 10.1080/08985626.2017.1413771

Kiggundu, M. N. (2002). Entrepreneurs and entrepreneurship in Africa: What is known and what needs to be done. *Journal of developmental entrepreneurship*, *7*(3), 239.

Kistruck, G. M., Webb, J. W., Sutter, C. J. & Ireland, R. D. (2011). Micro-franchising in base-of-the-pyramid markets: institutional challenges and adaptations to the franchise model. *Entrepreneurship Theory and Practice, 35*(3), 503–531. doi: 10.1111/j.1540-6520.2011.00446.x

Klantschnig, G., & Huang, C. (2019). Fake drugs: health, wealth and regulation in Nigeria. *Review of African Political Economy*, *46*(161), 442–458. Doi: 10.1080/03056244.2018.1536975

Kumar, N., Stern, L. W., & Anderson, J. C. (1993). Conducting interorganizational research using key informants. *Academy of Management Journal, 36*(6), 1633-1651. doi: 10.5465/256824

Kuratko, D. F., Ireland, R. D., Covin, J. G, & Hornsby, J. S. (2005). A Model of Middle–Level Managers' Entrepreneurial Behavior. *Entrepreneurship Theory and Practice, 29*(6), 699-716. doi: 10.1111/j.1540-6520.2005.00104.

Lee, C., Lee, K., & Pennings, J. M. (2001). Internal capabilities, external networks, and performance: a study on technology-based ventures. *Strategic Management Journal, 22*(6-7), 615-640. doi: 10.1002/smj.181

Li, H. & Zhang, Y. (2007). The role of managers' political networking and functional experience in new venture performance: evidence from China's transition economy. *Strategic Management Journal, 28*(8), pp.791-804. doi: 10.1002/smj.605

Liedong, T. A., & Frynas, J. G. (2018). Investment Climate Constraints as Determinants of Political Tie Intensity in Emerging Countries: Evidence from Foreign Firms in Ghana. *Management International Review*, *58*(5), 675–703. doi: 10.1007/s11575-018-0354-2

Liedong, T. A., Rajwani, T., & Mellahi, K. (2017). Reality or Illusion? The Efficacy of Non-market Strategy in Institutional Risk Reduction. *British Journal of Management*, *28*(4), 609–628. doi: 10.1111/1467-8551.12229

Linna, P. (2013). Bricolage as a means of innovating in a resource-scarce environment: a study of innovator-entrepreneurs at the BOP, *Journal of Developmental Entrepreneurship*, 18(3), doi: 10.1142/S1084946713500155

MacCallum, R. C., Widaman, K. F., Zhang, S. & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods, 4*(1), 84–99. doi: 10.1037/1082-989X.4.1.84

Mair, J., & Marti, I. (2009). Entrepreneurship in and around institutional voids: a case study from Bangladesh. *Journal of Business Venturing*, *24*(5), 419-435. doi: 10.1016/j.jbusvent.2008.04.006

Martens, M. L., Jennings, J. E, & Jennings, P. D. (2007). Do the stories they tell get them the money they need? The role of entrepreneurial narratives in resource acquisition. *Academy of Management Journal, 50*(5), 1107-1132. doi: 10.5465/amj.2007.27169488

McCarthy J. D & Wolfson M. (1996). Resource mobilization by local social movement organizations: agency, strategy, and organization in the movement against drinking and driving. *American Sociological Review*, *61*(6), 1070– 1088. doi: https://www.jstor.org/stable/2096309

McDougall P.P, & Oviatt B.M. (2000). International entrepreneurship: the intersection of two research paths. *Academy of Management Journal, 43*(5), 902– 906. doi: 10.5465/1556418

Mgbenka, R. N, Mbah, E. N, & Ezeano, C. I. (2015). A review of small holder farming in Nigeria: Need for transformation. *Agricultural Engineering Research Journal*, *5*(2), 19-26. doi: 0.5829/idosi.aerj.2015.5.2.1134

Michaelis, T. L., Carr, J. C., Scheaf, D. J., & Pollack, J. M. (2020). The frugal entrepreneur: a self-regulatory perspective of resourceful entrepreneurial behavior. *Journal of Business Venturing*, 35(4), 105969. doi: 10.1016/j.jbusvent.2019.105969

Monye, F. (2018). An Overview of Consumer Law in Nigeria and Relationship with Laws of Other Countries and Organisations. *Journal of Consumer Policy*, *41*(4), 373–393. doi: 10.1007/s10603-018-9385-0

Naqshbandi, M. M. (2016). Managerial ties and open innovation: examining the role of absorptive capacity. *Management Decision*, *54*(9), 2256–2276. doi: 10.1108/MD-03-2016-0161

Nason, R. S., Wiklund, J., McKelvie, A., Hitt, M., & Yu, W. (2019). Orchestrating boundaries: The effect of R&D boundary permeability on new venture growth. *Journal of Business Venturing*, *34*(1), 63-79. doi: 10.1016/j.jbusvent.2018.05.003

Ndofor, H. A., Sirmon, D. G. & He, X. (2011). Firm resources, competitive actions and performance: investigating a mediated model with evidence from the in-vitro diagnostics industry. *Strategic Management Journal*, *32*(6), 640-657. doi: 10.1002/smj.901Ngoasong, M. Z. (2018). Digital Entrepreneurship in a Resource-Scarce Context: a focus on entrepreneurial digital competencies. *Journal of Small Business and Enterprise Development*, 25(3): 483-500. DOI 10.1108/JSBED-01-2017-0014

Nilsson, S., Samuelsson, M., & Meyer, C. (2022). Social entrepreneurs' use of spatial bricolage to create frugal innovation in a divided urban setting. *Africa Journal of Management*, 8(3), 298-323. doi: 10.1080/23322373.2022.2071578

Nnadozie, E., Munthali, T., Nantchouang, R., & Diawara, B. (2017). Domestic resource mobilization in Africa: state, capacity imperatives and policy actions. *Africa Journal of Management*, *3*(2), 184-212. doi: 10.1080/23322373.2017.1335110

Oriaifo, J., Torres de Oliveira, R., & Ellis, K. M. (2020). Going above and beyond: How intermediaries enhance change in emerging economy institutions to facilitate small to medium enterprise development. *Strategic Entrepreneurship Journal*, *14*(3), 501-531. Doi: 10.1002/sej.1349

Ostgaard, T. A., & Birley, S. (1994). Personal networks and firm competitive strategy—a strategic or coincidental match? *Journal of Business Venturing*, *9*(4), 281-305. doi: 10.1016/0883-9026(94)90009-4

Otoo, M., Ibro, G., Fulton, J., & Lowenberg-Deboer, J. (2012). Micro-entrepreneurship in Niger: Factors affecting the success of women street food vendors. *Journal of African Business*, *13*(1), 16-28. doi: 10.1080/15228916.2012.657937

Ozdemir, S. Z., Moran, P., Zhong, X. & Bliemel, M. J. (2016). Reaching and acquiring valuable resources: The entrepreneur's use of brokerage, cohesion, and embeddedness. *Entrepreneurship Theory and Practice*, *40*(1), 49-79. doi: 10.1111/etap.12

Penrose (1959) The theory of the growth of the firm. Wiley: New York.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y. & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879-903. doi: 10.1037/0021-9010.88.5.879

Powell E.E. (2011). Weathering the gale: Toward a theory of entrepreneurial resourcefulness and resilence. Unppublished Dissertation. North Carolina State University Raleigh, NC

Powell, E.E., & Baker T. (2014). It's what you make of it: Founder identity and enacting strategic responses to adversity. *Academy of Management Journal*, 57(5): 1406-1433. URL: https://www.jstor.org/stable/43589313

Powell, E. E., & Baker, T. (2011). Beyond making do: Toward a theory of entrepreneurial resourcefulness. *Frontiers of Entrepreneurship Research*, 31(12), 2.

Prashantham, S. (2011). Social capital and Indian micro-multinationals. *British Journal of Management*, *22*(1), 4-20. doi: 10.1111/j.1467-8551.2010.00720.x

PWC, (2020). Current State of Nigeria Agriculture and Agribusiness Sector. Availabe at: https://www.pwc.com/ng/en/assets/pdf/afcfta-agribusiness-current-state-nigeria-agriculture-sector.pdf. [Accessed 28th July, 2023].

Reypens, L., Bacq, S., & Milanov, H. (2021). Beyond bricolage: Early-stage technology venture resource mobilization in resource-scarce contexts. *Journal of Business Venturing*, *36*(4), 1061. doi: 10.1016/j.jbusvent.2021.106110Rodan S, & Galunic D.C. (2004). More than network structure: how knowledge heterogeneity influences managerial performance and innovativeness. *Strategic Management Journal* 25(6): 541-562. DOI: 10.1002/smj.398

Rowley T, Behrens D, & Krackhardt D. (2000). Redundant governance structures: An analysis of structural and relational embeddedness in the steel and semiconductor industries. *Strategic Management Journal* 21: 369-386.

Salunke, S., Weerawardena, J., & McColl-Kennedy, J. R. (2013). Competing through service innovation: The role of bricolage and entrepreneurship in project-oriented firms. Journal of Business Research, *66*(8), 1085-1097. doi: 10.1016/j.jbusres.2012.03.005

Sarasvathy, S. D., & Venkataraman, S. (2011). Entrepreneurship as method: Open questions for an entrepreneurial future. *Entrepreneurship Theory and Practice*, *35*(1), 113-135. doi: 10.1111/j.1540-6520.2010.00425.

Seelos, C., & Mair, J. (2005). Social entrepreneurship: Creating new business models to serve the poor. *Business Horizons, 48*(3), 241-246. doi: 10.1016/j.bushor.2004.11.006

Semrau, T., & Werner, A. (2014). How exactly do network relationships pay off? The effects of network size and relationship quality on access to start-up resources. *Entrepreneurship Theory and Practice,* 38(3), 501-525. doi: 10.1111/etap.12011

Senyard, J. M., Baker, T. & Steffens, P. R. (2010). Entrepreneurial bricolage and firm performance: moderating effects of firm change and innovativeness. In: 2010 Annual Meeting of the Academy of Management - Dare to Care: Passion and Compassion in Management Practice and Research, Montreal: Canada.

Senyard, J., Baker, T., Steffens, P. & Davidsson, P. (2014). Bricolage as a path to innovativeness for resource-constrained new firms. *Journal of Product Innovation Management*, *31*(2), 211-230. doi: 10.1111/jpim.12091Shane, S., & Cable, D., (2002). Network ties, reputation, and the financing of new ventures. *Management Science*, 48, 364–381. Doi: 10.1287/mnsc.48.3.364.7731.

Shane S. & Eckhardt J. (2005). *The individual-opportunity nexus*. In Handbook of Entrepreneurship Research, Acs ZJ, Audretsch DB (eds). Kluwer Academic Publishers: Great Britain; 161-191.

Shane, S. & Stuart, T. (2002). Organizational endowments and the performance of university start-ups. *Management Science, 48*(1), 154-170. doi: 10.1287/mnsc.48.1.154.14280

Shane, S. A. & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, *25*(1), 217–226. doi: 10.5465/amr.2000.2791611

Shepherd, D. A., Parida, V., & Wincent, J. (2020). Entrepreneurship and poverty alleviation: the importance of health and children's education for slum entrepreneurs. *Entrepreneurship Theory and Practice*, 45(2), 350-385. doi: https://doi.org/10.1177/1042258719900774

Shirokova, G., Osiyevskyy, O., Laskovaia, A., & MahdaviMazdeh, H. (2020). Navigating the emerging market context: Performance implications of effectuation and causation for small and medium enterprises during adverse economic conditions in Russia. *Strategic Entrepreneurship Journal*, *14*(3), 470-500. doi: 10.1002/sej.1353

Sorenson, O., & Audia, P. G. (2000). The social structure of entrepreneurial activity: Geographic concentration of footwear production in the United States, 1940–1989. *American Journal of Sociology*, 106(2), 424-462. Doi: 0002-9602/2000/10602-0005$02.50

Stam, W. & Elfring, T. (2008). Entrepreneurial orientation and new venture performance: the moderating role of intra-and extra-industry social capital. *Academy of Management Journal, 51*(1), 97-111. doi: 10.5465/amj.2008.30744031

Starr, J.A., & MacMillan, I., (1990). Resource cooptation via social contracting: resource acquisition strategies for new ventures. *Strategic Management Journal*, 11, 79–92. https://doi.org/10.1007/s00424-011-0996-4.

Stevens, R., Moray, N., Bruneel, J., & Clarysse, B. (2015). Attention allocation to multiple goals: the case of for-profit social enterprises. *Strategic Management Journal, 36*(7), 1006 - 1016. doi: 10.1002/smj.2265

Stinchcombe, A. L, & March, J. G. (1965). Social structure and organizations. *Handbook of Organizations, 7*, 142-193.

Stinchfield, B. T., Nelson, R. E., & Wood, M. S. (2013). Learning from Levi–Strauss' legacy: Art, craft, engineering, bricolage, and brokerage in entrepreneurship. *Entrepreneurship theory and practice*, *37*(4), 889-921. doi: 10.1111/j.1540-6520.2012.00523.x

Stuart, T. E., & Sorenson, O. (2003a). Liquidity events and the geographic distribution of entrepreneurial activity. *Administrative Science Quarterly*, *48*(2), 175-201. doi: 10.2307/3556656

Stuart, T. E. & Sorenson, O. (2005). *Social networks and entrepreneurship*. In Handbook of entrepreneurship research: 233-252. Springer, Boston, MA.

Stuart, T. E., & Sorenson, O. (2007). Strategic networks and entrepreneurial ventures. *Strategic Entrepreneurship Journal*, *1*(3-4), 211-227. doi: 10.1002/sej.18

Suire, R. (2019). Innovating by bricolage: how do firms diversify through knowledge interactions with FabLabs?. *Regional Studies*, *53*(7), 939-950. Doi: 10.1080/00343404.2018.1522431

Sun, P., Mellahi, K., & Wright, M. (2012). The Contingent Value of Corporate Political Ties. *Academy of Management Perspectives*, *26*(3), 68–82. doi: 10.5465/amp.2011.0164

Sunduramurthy, C., Zheng, C., Musteen, M., Francis, J., & Rhyne, L. (2016). Doing more with less, systematically? Bricolage and ingenieuring in successful social ventures. *Journal of World Business*, *51*(5), 855-870. doi: 10.1016/j.jwb.2016.06.005

Sutter, C., Bruton, G. D., & Chen, J. (2019). Entrepreneurship as a solution to extreme poverty: A review and future research directions. *Journal of Business Venturing*, *34*(1), 197-214. doi: 10.1016/j.jbusvent.2018.06.003

Sydow, A., Cannatelli, B. L., Giudici, A., & Molteni, M. (2020). Entrepreneurial workaround practices in severe institutional voids: Evidence from Kenya. *Entrepreneurship Theory and Practice*, 46(2), 331-367. doi: 10.1177/1042258720929891 1042258720929891.

Tabachnick, B. G., & Fidell, L. S. (2014). *Using multivariate statistics* (6th ed.). Harlow, Essex: Pearson. Retrieved from

http://search.ebscohost.com/login.aspx?direct=trueanddb=cat00164aandAN=cran.654658andsite=eds-live [Accessed 17th July, 2021]

The World Bank, (2020). Agriculture, forestry and fishing value added (% of GDP) – Nigeria. Available at: https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?locations=NG. [Accessed 17 June 2022)

Thornton, P.H., Ribeiro-Soriano, D. & Urbano, D. (2011). Socio-cultural factors and entrepreneurial activity: An overview, *International Small Business Journal*, *29*, 105-118. doi: 10.1177/02662426103919Uzzi B, & Spiro J. (2005). Collaboration and creativity: the small world Problem. *American Journal of Sociology* 111(2): 447-504.

Uzzi B. and Spiro J. (2005). Collaboration and creativity: the small world Problem. *American Journal of Sociology*, **111**(2), pp. 447-504. doi: https://doi.org/10.1086/432782

Vasconcelos, S.V., Andreassi, T., Ribeiro Serra, F.A. & Guerrazzi, L. (2020), "Expanding knowledge frontiers in entrepreneurship: examining bricolage and effectuation", *International Journal of Entrepreneurial Behavior and Research*, *26*(5), 1043-1065. doi: 10.1108/IJEBR-11-2019-0638

Villanueva J., Van de Ven A.H., & Sapienza H.J. (2012). Resource mobilization in entrepreneurial firms. *Journal of Business Venturing*, *27*(1), 19–30. doi: 10.1016/j.jbusvent.2010.09.001

Webb, J. W., Khoury, T. A., & Hitt, M. A. (2019). The Influence of formal and informal institutional voids on entrepreneurship. *Entrepreneurship Theory and Practice*, *44*(3), 504–526. doi: 10.1177/104225871983031

Welter, F., Baker, T., & Wirsching, K. (2019). Three waves and counting: the rising tide of contextualization in entrepreneurship research. *Small Business Economics, 52*(2), 319–330. doi: 10.1007/s11187-018-0094-5

Welter, C., Mauer, R., & Wuebker, R. J. (2016). Bridging behavioral models and theoretical concepts: effectuation and bricolage in the opportunity creation framework. *Strategic Entrepreneurship Journal, 10*(1), 5–20. Doi: 10.1002/sej.1215

Welter, F., Xheneti, M., & Smallbone, D. (2018). Entrepreneurial resourcefulness in unstable institutional contexts: The example of European Union borderlands. *Strategic Entrepreneurship Journal*, *12*(1), 23-53. doi: 10.1002/sej.1274Wernerfelt, B., (1984). A resource-based view of the firm. *Strategic Management Journal*, 5, 171–180. Doi: 10.1177/1056492611436225.

Wiklund, J. & Shepherd, D. (2005). Entrepreneurial orientation and small business performance. *Journal of Business Venturing, 20*(1), 71–91. doi: 10.1016/j.jbusvent.2004.01.001

Williams, T. A., Zhao, E. Y., Sonenshein, S., Ucbasaran, D., & George, G. (2021). Breaking boundaries to creatively generate value: The role of resourcefulness in entrepreneurship. *Journal of Business Venturing*, *36*(5), 106141. doi: 10.1016/j.jbusvent.2021.106141

Winborg, J. & Landstrom, H. (2001). Financial bootstrapping in small businesses: examining small business managers' resource acquisition behaviors. *Journal of Business Venturing, 16*(3), 235–254. doi: 10.1016/S0883-9026(99)00055-5

Witell, L., Gebauer, H., Jaakkola, E., Hammedi, W., Patricio, L., & Perks, H. (2017). A bricolage perspective on service innovation. *Journal of Business Research, 79*, 290–298. Doi:10.1016/j.jbusres.2017.03.021

Whitfield, L. (2012). Developing technological capabilities in agro-industry: Ghana's experience with fresh pineapple exports. *Journal of Development Studies*, *48*(3), 308-321. Doi: 10.1080/00220388.2011.635198Wu, L., Liu, H., & Zhang, J., (2017). Bricolage effects on

new-product development speed and creativity: the moderating role of technological turbulence. *Journal of Business Research* 70, 127–135. Doi: 10.1016/j.jbusres.2016.08.027.

Xin, K. K. & Pearce, J. L. (1996). 'Guanxi: Connections as Substitutes for Formal Institutional Support'. *Academy of Management Journal*, *39*, 1641–1658. doi: 10.5465/257072

Zahra, S.A., Rawhouser, H.N., Bhawe, N, Neubaum D.O. & Hayton, J.C. (2008). Globalization of social entrepreneurship opportunities. *Strategic Entrepreneurship Journal*, *2*(2), 117-131. doi: 10.1002/sej.43Zane, L.J., & DeCarolis, D.M., (2016). Social networks and the acquisition of resources by technology-based new ventures. *Journal of Small Business Entrepreneurship*, 28, 203–221. https://doi. org/10.1080/08276331.2016.1162048.

Zhang, J., Souitaris, V., Soh, P., & Wong, P., (2008). A contingent model of network utilization in early financing of technology ventures. *Entrepreneurship, Theory and Practice*, 32, 593–613. https://doi.org/10.1111/j.1540-6520.2008.00244.x.

Zhang, J., Soh, P., & Wong, P., (2010). Entrepreneurial resource acquisition through indirect ties: compensatory effects of prior knowledge. *Journal of Management*. 36, 511–536. https://doi.org/10.1177/0149206308329963.

Zoogah, D. B, & Nkomo, S. (2013). *Management Research in Africa: Macro and micro perspectives*, Lituchy TR, Punnett BJ, Puplampu BB (eds). Routledge 53: 9.

Zoogah, D. B., Peng, M. W., & Woldu, H. (2015). Institutions, resources, and organizational effectiveness in Africa. *Academy of Management Perspectives*, *29*(1), 7–31. Doi: 10.5465/amp.2012.0033

Table 1: Sample composition

	Sample (n = 153) %
Venture age	
3 – 5	56.2
6 – 10	43.8
Venture size	
< 5	78.4
6 – 10	19.6
11 – 15	2.0
Founding source	
Personal	73.2
External	26.8
Founders years of education	
< 12	13.1
13 – 16	42.5
> 16	44.4
Founders managerial experience	
No	31.4
Yes	68.6
Founders industry experience	
No	30.7
Yes	69.6

Table 2: Measurement scales

Mean/SD				
Bricolage *('Strongly disagree' [1] to 'strongly agree' [7])*				
Material bricolage 1) I used cheap materials when starting my business 2) I collected unused and discarded items when starting my business 3) I reused old materials by repurposing it for new use when starting my business	α = 0.72	CR = 0.73	AVE = 0.47	3.29/2.250 2.53/2.071 3.26/2.145
Labour bricolage 1. I used friends and colleagues to provide free work when starting my business 2. I used volunteers to provide free work when starting my business 3. I used students interns/apprentice to provide free work when starting my business	α = 0.74	CR = 0.75	AVE = 0.50	3.50/2.404 3.38/2.334 3.07/2.233
Skills bricolage 1. I used less qualified personnel when starting my business 2. I used people with little or no prior professional experience when starting my business 3. I used people with little or no formal education when starting my business	α = 0.76	CR = 0.76	AVE = 0.52	3.20/2.233 3.58/2.273 2.93/2.114
OPTIMISATION *('Strongly disagree' [1] to 'strongly agree' [7])*				
Material optimisation *1.* I used high quality materials/products when starting my business *2.* I used specifically designed technology when starting my business *3.* I purchased IT materials that fit together readily when starting my business	α = 0.68	CR = 0.71	AVE = 0.47	5.36/1.859 4.05/2.238 4.35/2.278
Labour optimisation *1.* I employed paid workers to fill specific roles when starting my business *2.* I used paid managers with suitable skills when starting my business *3.* I used paid employees when starting my business	α = 0.77	CR = 0.78	AVE = 0.54	4.61/2.335 3.48/2.368 4.67/2.308
Skill optimisation 1. I employed qualified people with specific related training when starting my business 2. I employed people with prior related professional experience when starting my business 3. I employed people with adequate formal training when starting my business	α = 0.83	CR = 0.83	AVE = 0.62	4.03/2.303 4.20/2.266 4.47/2.097
Network diversity No of network contacts across 18 social occupations				

Table 3: Descriptive statistics and correlations[a]

	Variable	Mean	S.D.	1	2	3	4	5	6	7
1	New venture performance	49.6	9.23							
2	Optimisation	4.36	1.49	0.45**						
3	Bricolage	3.19	1.33	-0.32**	-0.39**					
4	Network diversity	14.22	3.79	0.03	-0.12	-0.13				
5	Firm age [b]	0.71	0.09	-0.16	-0.19*	0.14	-0.00			
6	Firm size [b]	0.80	0.21	0.17*	-0.29**	0.23**	0.07	0.41**		
7	Work experience	4.62	0.72	0.13	0.00	0.18*	-0.13	-0.04	0.14	
8	Prior resource mobilisation experience	1.63	0.48	0.19*	-0.07	0.14	-0.12	-0.04	0.01	0.19*

[a]***n = 153*** [b]***Log transformed***

*** Correlation is significant at the 0.01 level (2-tailed).*

** Correlation is significant at the 0.05 level (2-tailed).*

Table 4: Results of hierarchical regression analysis

	New Venture Performance				
	Model 1	Model 2	Model 3	Model 4	Model 5
Control Variables					
Firm age[b]	-25.08**(8.27)	-28.65***(7.38)	-25.97***(7.30)	-29.43***(7.39)	-26.70***(7.22)
Firm size[b]	12.05**(3.85)	6.61^{+}(3.55)	5.32(3.51)	6.66^{+}(3.54)	5.10(3.47)
Work Experience	0.63(1.02)	0.18(0.92)	0.18(0.91)	0.04(0.93)	-0.08(0.90)
Prior resource mobilization experience	3.29*(1.50)	2.23(1.35)	2.23*(1.32)	2.46^{+}(1.35)	2.43(1.31)
Main Effects					
Optimization		2.33***(0.48)	2.40***(0.47)	2.32***(0.48)	2.40***(0.47)
Bricolage		-1.19*(0.54)	-1.22*(0.53)	-1.17*(0.54)	-1.20*(0.52)
Network diversity		0.16 (0.17)	0.21 (0.17)	0.14(0.17)	0.20(0.17)
Interaction Effects					
Optimization X Network diversity			0.28**(0.11)		0.34**(0.11)
Bricolage X Network diversity				0.15(0.12)	0.26*(0.12)
Constant	49.60***(7.39)	51.55***(8.10)	50.13***(7.96)	52.82***(8.15)	52.01***(7.91)
R^2	0.13	0.32	0.36	0.33	0.38
Adjusted R^2	0.10	0.29	0.32	0.29	0.34
F-stat	5.34***	9.95***	9.95***	8.93***	9.57***
N	153	153	153	153	153

Unstandardized coefficients and standard errors (in parenthesis) are reported.

$^{+}$ P < .10; * P < .05; ** P < .01; *** P < .001

Table 5: Results of the Marginal Effects of RM approaches on performance

Variables	Coefficients	t-value for marginal effect	p-value for marginal effect
Optimization	2.39	5.15	***
Bricolage	-1.20	-2.31	*

+ P < .10; * P < .05; ** P < .01; *** P < .001

Table 6: Results of the Marginal Effects of Network diversity- RM approaches on performance

Variables	Coefficients	t-value for marginal effect	p-value for marginal effect
High network diversity and Optimization	4.19	6.80	***
High network diversity and Bricolage	-1.74	-2.30	*
Low network diversity and Optimization	1.65	2.81	**
Low network diversity and Bricolage	-2.68	-3.72	***

+ P < .10; * P < .05; ** P < .01; *** P < .001

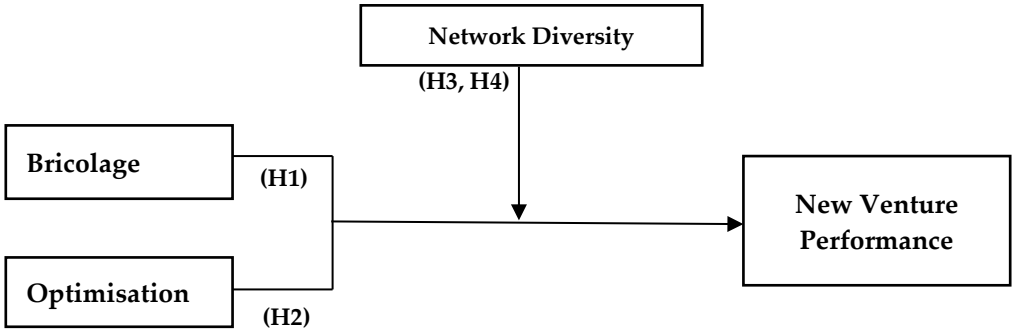

Figure 1: Research model

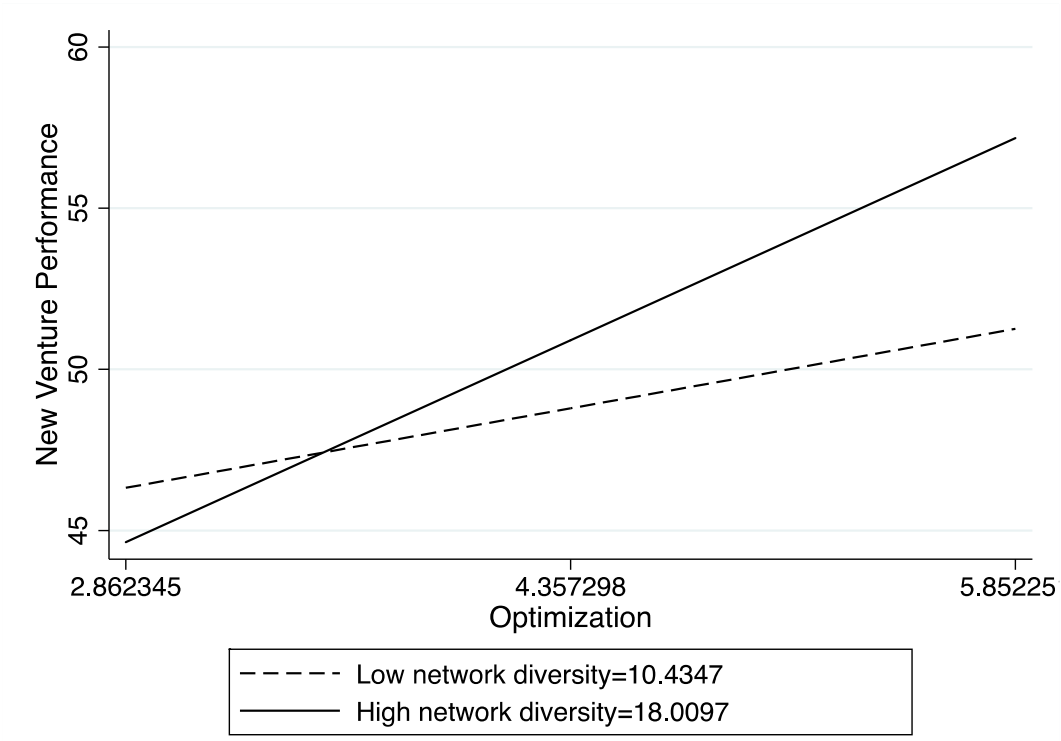

Figure 2a: The moderating effects of network diversity on the optimisation – new venture performance relationship

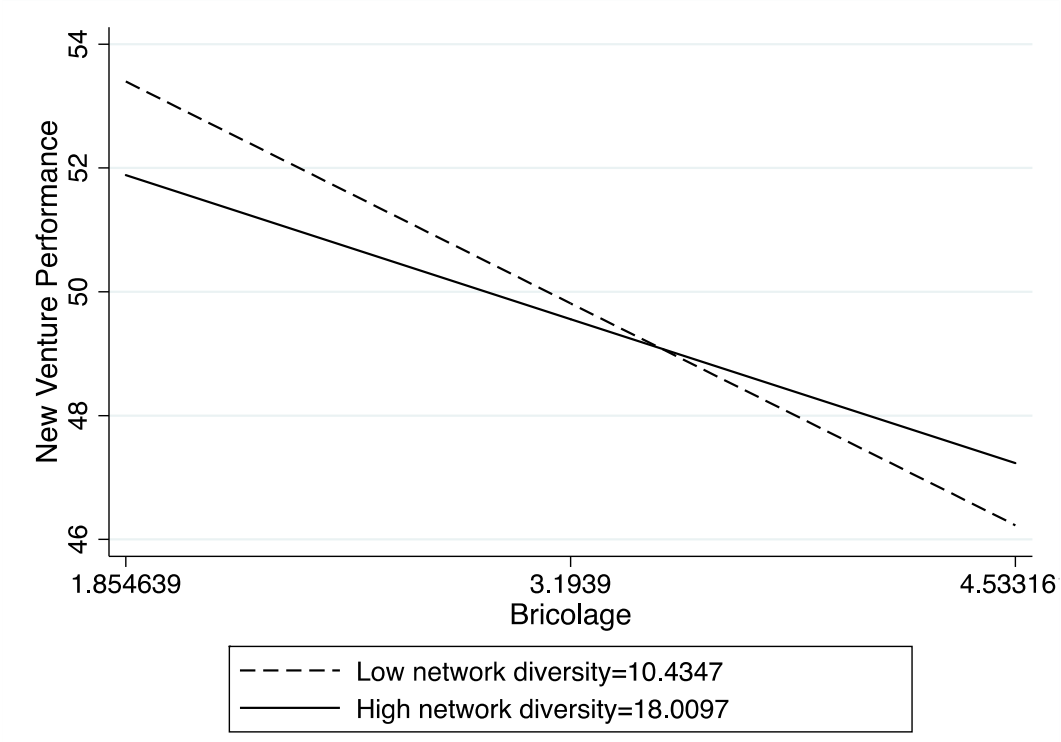

Figure 2b: The moderating effects of network diversity on the bricolage – new venture performance relationship