Network Creation Mechanisms in Business Incubators and Clusters and The Implications on New ventures in Lagos Technology Ecosystem.

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Dedication

This worked is dedicated to my late Grandmother, Mama ABA. Mama, thank you for demonstrating to me and us what perfect faith and trust in God looks like. You will remain forever in my heart; till we will meet and part no more.

Acknowledgment

In Igbo, we will say "ihe nwere mbido, nwere njedebe", this translates to whatever has a beginning also has an end, this journey has finally come to an end and I return all glory and honour to God.

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Abstract

Purpose: The purpose of this study is to explore and analyse the role of entrepreneurs in the network creation process. A great deal of attention has been paid to the relational and structural characteristics of networks to understand the impact of networks on new ventures. Even though these properties provide insight into understanding network impact, they do not cover the whole story since they neglect those who are network beneficiaries or brokers. Additionally, the role of context in stimulating network activities and the relationships that make up those networks has received limited attention. According to researchers like Vissa (2014) and Hallen and Eisenhardt (2012), entrepreneurs should not be viewed as passive actors constrained by network structure, but rather as reflective agents who can shape their network endeavours over time. This study examines the roles of agency, cognition, and context in explaining how entrepreneurs trigger, regulate, and pursue network relationships. By contributing to this knowledge, researchers can better understand network actors' perceptions of network impact. As the context is essential to understanding entrepreneurship, the Lagos Technology Ecosystem, comprised of different incubator models and clusters, is examined. By doing so, knowledge is gained regarding the way entrepreneurial networks are shaped.

Study design/methodology/approach: Multiple case studies are used in this study to allow for comparisons between different cases and exploration of the phenomenon. Two contexts are involved in this study: the incubator and the cluster. By comparing multiple case studies, we can gain a more nuanced understanding of networking mechanisms within them. In addition, they facilitate perceptions of the impact on actors who are involved in networking activities.

Findings: Findings from this study showed that context is essential for building relationships and improving access to critical ingredients for building networks. However, the entrepreneur, who is crucial to creating networks, is influenced by the interaction between contextual factors and sense-making outputs, which enables us to find out what they perceive as network quality and impact. Furthermore, this study provides a framework that can be used to gauge entrepreneurial actors' involvement. The framework can be used to identify properties of networks that can be utilized to design network activities.

Implication: Based on what is learned in this research; we can create network activities for entrepreneurs in various contexts. This could also be used to benchmark the effectiveness of network activities.

Originality: In this study, a conceptual framework for understanding entrepreneurial actors' involvement in network creation is presented. The research explores motivation, brokerage, and contextual interaction in the creation of networks. Unlike conventional models of networking, this takes into account motivation, brokerage, and interaction to understand network impact

Key words: Social Network, Network Agency, Network Motivation, Network Brokerage, Context

Chapter 1

1.0 Research Background

The social network is a complex, multi-faceted phenomenon that is described in different ways (Klyver and Hindle, 2007). According to Freeman (2004, p.12), a social network is "a collection of more or less precise analytic and methodological concepts and procedures that facilitate the collection of data and the systematic patterning of such data". Marine and Wellman (2009) present a relational perspective on social networks, describing a social network as a relationship between nodes that are related in some way and are connected by at least one relation. Social networks are also viewed as a theoretical perspective that explains how interactions between individuals and autonomous actors create social structures (Dempwolf and Lyles, 2011)

The complexity and divergence in definition have triggered the emergence of different network theories like Granovetters' (1973) strength of weak ties; Burts' (1992) structural holes theory; Travers and Milgrams' (1969) small-world theory and Callon and Latours' (1981) actor-network theory. Borgatti (2003) further adds that there has been a shift from the individualist, essentialist and atomistic orientations towards a more relational, contextual and systematic approach to networks, thus creating what Burt, Kidluff, and Tasselli (2013) describe as "anti-categorical", a situation where actors' identities, agencies and history are ignored.

Following the popularity of network and network studies, Hoang and Antoncic (2003) reveal that a new era of entrepreneurship study emerged to address a widely held view about entrepreneurs, previously viewed as isolated economic actors, to be individuals who are intimately tied through social relationships to a broader network of actors. This thought shift paved the way for entrepreneurship scholars to explore the causes and consequences of networks within the entrepreneurial process (ibid). The outcome of Hoang and Antoncic's 2003 review also revealed that revealed that entrepreneurial networks research emphasises the role of network content (the nature of relationships and the resource access they provide), network governance (how networks and resource flows are coordinated) and network structure (the patterns of relationships within the network). Similarly, Witt (2007) reveals that extant network studies have also hypothesized a positive relationship between networking and start-ups.

However, start-ups' lack of history and experience makes them unattractive exchange partners, and the access to useful networks problematic (Suchman, 1995). To address this challenge, studies have identified the importance of locational proximity for creating and accessing useful networks. For example, Welter (2010) identifies that locational proximity facilitates the emergence of social networks by elaborating on the links between social, institutional and geographical contexts (Welter, 2010). A location that allows for this kind of interaction is enterprise clusters. Clusters present a relational space that helps to facilitate social interactions, interpersonal synergies and social collective actions, which are instrumental in determining the innovative capability and success of firms (Camagni, 1991; Rosenfeld, 2002). Other studies have indicated that more supportive interventionist climates like business incubators aid new firms to draw quickly on incubator networks, saving them the time and search costs attributed to building new relationships (Sherman, 1999; Hughes Ireland and Morgan, 2007). Equally, Tsai et al. (2009) view incubators as a platform for multi-directional coupling used to achieve collective interest and excellence.

Although entrepreneurship, entrepreneurial networking and start-up activity within clusters and incubators have been explored in literature, there has been less effort to bring these together. Additionally, many of the studies examined have been from developed economies perspectives, whereas entrepreneurship is equally important for developing economies. This will be one of the contributions of this study, as an attempt is made to understand how the context created by clusters and incubators affects the network creation mechanism. It also creates an opportunity to explore peculiar identities and agencies that Burt, Kidluff, and Tasselli's (2013) study identified as ignored aspects within network studies.

To this end, the introductory chapter of this thesis aims to achieve the following goals:
- examine the background of the study by seeking to understand the role of entrepreneurship and entrepreneurial networking in a developing country, with a specific interest in Nigeria (1.1)
- discuss the place of founding conditions in new venture creation (1.2.1)
- examine the influence of networks and the environment in entrepreneurship (1.2.2)
- highlight research gaps, aims and objectives (1.3)
- give an overview of research methodology (1.4)
- provide a thesis outline (1.5)

1.1 Overview of Entrepreneurship and Entrepreneurial Networking in Nigeria.

This section begins by exploring the research background within network studies. According to Parkhe et al. (2006), networks are architectures of global business. Therefore, to effectively capture network nuances and the relevance to entrepreneurial success, this study begins by first examining the role of the entrepreneur and entrepreneurship in the economy, then reviews entrepreneurship and entrepreneurial networking within Nigeria.

The entrepreneur's role in economic development is constantly echoed in academic debates. Ikebuaku and Dinbabo (2018), Okafor et al. (2015), Acs et al. (2009), Wright and Stigliani (2013) and Nijkamp (2003) all assert that most countries' binding constraints are channelled through entrepreneurship and, if the entrepreneurial talent is matched with productive technologies, unique opportunities will be created. This view is also echoed in Atherton and Hannon (2006) early study, their study notes that the economy benefits from the birth of new ventures in substantial numbers as they aid job and wealth creation. Equally, Acs and Audretsch's (1988) and Acs et al.'s (2009) studies both agree that entrepreneurship contributes to a nation's competitiveness through innovation, an output of knowledge spill overs created by incumbent firms. Consequently, Hormiga, Canino, and Medina (2011) recommend entrepreneurship for economies confronted with instability and change, as new ventures are identified to be critical to the dynamism and economic prosperity of a region. Sriram and Mersha (2010) add to the argument by saying that entrepreneurs in developing countries will act as replacements for collapsing state-owned enterprises and also act as critical generators of employment within regions that struggle to employ the teeming populace.

A critical look at the state of new venture creation in Sub Saharan Africa (SSA) lends credence to the point stated above. Okafor et al.'s (2015) study identified that this region's population growth has exceeded employment growth. Data from several World Bank reports reinforces this view. One World Bank report published in 2017 puts the region's population at 1,033,106,135 and the region is predicted to account for the majority share of world population growth which is likely to be around 3.2 billion of the projected 4 billion increase in the global population by 2100 (Drummond, Thakoor, and Yu, 2014). However, a critical examination of the employment ratio within the region reaffirms the notion that enough jobs have still not been created or that the jobs created do not match up with the skills available. Another World Bank report published on SSA

in 2018 reported 7.3% regional unemployment, of which 72.2% fell under the vulnerable unemployment category and 34.7% were in extreme working poverty. Presently, Nigeria's unemployment rate is above the regional average at 33.3%, with youth unemployment at 42.5% (NBS, 2020). Therefore, to provide jobs for this teeming population, entrepreneurship is advocated for as a remedy for more job creation and as an instrument for improving living standards in the region (McCormick, 1999; Kauda, 2014; Edoho, 2015; Ikebuaku and Dinbabo, 2018).

In exploring the state of entrepreneurship in SSA, the prospects appear promising, albeit potential constraints. A report published by GEM in 2013 identified that a large percentage of entrepreneurs (58%-78%) in Sub-Saharan Africa created between 1-5 jobs. Entrepreneurship's impact in Nigeria could equally be assessed using job creation, as Sheriff and Muffatto (2015) and Edoho (2015) identified a dearth in entrepreneurship studies, suggesting the need for more enriched and extended research. Nigeria's private sector comprises of small and medium enterprises providing diverse employment opportunities for 50 percent of the country's population and 50 percent of the industrial output (Oyelola et al. 2011; Ariyo, 2005). Equally, an estimated 45-60% of the urban labour force work for small private enterprises, or what are otherwise called small businesses (Chu, Kara and Benzing, 2010). Additionally, Ihugba, Odii and Njoku (2013) also note that Nigeria's rich natural resource deposits present more entrepreneurial opportunities that can be leveraged by new ventures. This study does not delve into the complexities of entrepreneurial impact, as it is a research stream of its own, but the prevailing view in research is positive concerning economic development.

Despite these glowing accolades, the reality is that many new businesses fail relative to their older counterparts, and this has been frequently documented in strategy and organizational literature (Baum, Calabrese and Silverman, 2000). For Nigeria, a similar trend is observed, as it is estimated that 80% of start-ups fail within the first five years of business creation (Guardian, 2016). This high failure rate is attributed to what Stinchcombe (1965) refers to as the 'liability of newness', interpreted as a lack of resources firms need to survive and grow.

As noted earlier, the success of entrepreneurship and entrepreneurs is hinged on engagement to a broader network of actors to survive and grow (Hoang and Antoncic, 2003; Drakopoulou, Jack and Anderson, 2006; Klyver and Hindle, 2007; Hanlon and Saunders, 2007; Slotte-Kock and Coviello, 2010), as they are not isolated heroes that change the economy on their own (Stam, 2009). Equally, an early study by Birely (1985)

adds that the entrepreneur's interactions with external agents are critical for information gathering, because it exposes them to find external support and services, to access external resources, advertise the new company and look for business advice. Studies like Ajayi (2016) and Aladejebi (2020) allude to a positive relationship between networking and entrepreneurial firm performance in Nigeria, but their studies have failed to elaborate on how these networks emerge, the type of network ties leveraged, and type of impact enjoyed by firms. Conversely, Bukki, Oguntimehin and Bello's (2020) study in southwest Nigeria reveals a different stance. Their study identifies a negative relationship between the exploitation of networking capabilities and entrepreneurial initiative. They suggest that the reason for this negative relationship might be credited to a firm's limited resources, abilities, and knowledge of networking.

Therefore, Anderson and Jack (2014) explain that to successfully connect with networks and network actors, the entrepreneur has to be socially embedded to understand the prevailing social structure they need to leverage to achieve entrepreneurial outcomes. Their study adds that the purpose of embeddedness, especially for the entrepreneur, is to understand the specifics of the entrepreneurial context relevant to achieve the entrepreneurial outcome.

However, Kuada (2015) suggests that to adequately understand reasons for business failure, attention should be paid to the idiosyncrasies, social factors and entrepreneurial intentions, as well as their determinants within a given a context. For this to be done effectively, attention is drawn to the relationship between networks, the environment and entrepreneurship. This discussion is useful for understanding how firms are embedded within social contexts and the importance of networks to entrepreneurial success, all are discussed in the next section below.

1.2.1 Networks, Environment and Entrepreneurship

Shane (2000) views that entrepreneurship requires the awareness of unique opportunities and resources. To access these, founders require the combination of territorial embeddedness, human capital and membership into different network bodies (Newbert et al. 2008; Rizzo, 2014). Additionally, networks and the business context where new businesses are domiciled offer the opportunity to access varied resources and capital.

Networks also enable start-ups to obtain information and resources from the market, making them better equipped to face business uncertainty. However, a crucial point worthy of discussion is that network tie interplay, opportunity recognition and entrepreneurial activities do not occur in isolation; a common connector between the three is the context or environment. According to Gartner (1988), entrepreneurship occurs as a contextual event by taking into account the individual and the environment from which the business is drawn or becomes a part. These events do not occur by accident or in isolation but are conditioned by existing structures of social relations embedded within a context (Young, 1998). Since entrepreneurship is embedded within a particular social context, Jack and Anderson (2002) argue that what would be of value or identified as an opportunity is determined by resource availability and opportunity perception, which again is embedded in an individual's social context, usually the product of an existing environment. Therefore, their study notes, the nature of the entrepreneurial process or entrepreneurial event is determined by the extent to which an individual is socially embedded within a network structure and how the individual is embedded, as this would impact how they draw on resources and the actual entrepreneurial action taken.

Entrepreneurship and networking studies such Johannisson (1988), Halien and Tornroos (1997), Batjargal (2003), Fischer and Nijkamp (2009), Acs, Desai and Hessels (2009), Kuada (2015) and Ayatse et al. (2017), all recognise the relevance of the environment in driving entrepreneurial action and forming network structures, although both variables have not been examined together to ascertain how they impact each other. This study advocates that a study of entrepreneurship, network and the context will offer a better examination of network impact on entrepreneurs. It will also improve understanding of the perceptions of network impact by examining relationships available in a specific context and identify the facilitators or activities that are responsible for entrepreneurial network success. Kuada's (2015) suggestion of understanding the idiosyncrasies, social factors and entrepreneurial intentions, as well as enterprise determinants within a context.

This study acknowledges that the concept of environment or context differs and, like Aldrich (1979) and Gartner (1985) identified, different social, cultural and situational variables further complicate context definition and study. Welter (2010) adds that the concept of context is a multiplex phenomenon that cuts across levels of analysis and can influence entrepreneurship and entrepreneurial activity directly or indirectly. As such, Welter (2010, p.167) views context as "circumstances, conditions, situations, or

environments that are external". A more entrepreneurial focused view of context given by Gnywali and Fogel (1994) describes the context as the combination of factors that are instrumental to entrepreneurial development. These include, but are not limited to, the economic, sociocultural and political factors that influence people's willingness and ability to undertake entrepreneurial activities. Another study by Desai (2011) describes context as the relationship between institutions, entrepreneurial activities and economic development.

Within this research, some focus is placed on understanding how the entrepreneurial context shapes the networks created. To effectively understand this, the interactions between institutions, entrepreneurs and entrepreneurial networking activity must be adequately captured. Consequently, this study adapts Desai's description to define context as the relationships between institutions and entrepreneurial activities influenced by social and spatial conditions, which can either enhance or constrain behaviour and relationships.

However, Harrison et al. (2004) opine that limited work has been done to understand the long-term impact of the environment or context in attracting and developing entrepreneurial talent. Therefore, to explore interactions between networks, context and entrepreneurship, this study explores Lagos State, Nigeria. This study examines how the context of intervention, which in this case refers to business incubators and the place of locational proximity in this case clusters influences entrepreneurial networking and entrepreneurial action. To this end, different incubators and a cluster sites in Lagos State, Nigeria is explored, first to understand the network creation mechanism, secondly how firms access these networks and thirdly, the impact of networks on firms embedded in them.

Lagos has been chosen because of the ease of accessing incubators and cluster sites. At the moment, Lagos is home to 6 out of 26 incubator sites, 34 of the 44 co-working spaces, and 2 of the 8 accelerators in the country (NINE, 2018). Lagos also currently has around 11 free and enterprise zones (Nigerian Export Processing zone, 2017), and is home to the famous Otigba Computer Village, an ICT cluster. Lagos is also identified as Africa's eighth fastest-growing city (World Population Review, 2017) and a significant contributor to Nigeria's GDP (PWC, 2015). Finally, Lagos presents a vibrant entrepreneurial ecosystem and is argued to have the highest number of SMEs in Nigeria (Lagos state government, 2012), a promising space for ICT start-ups, and the economic hub of Africa (PWC, 2015).

The choice of exploring the role of business incubators and clusters in network creation is a result of the prevailing view of their benefit to entrepreneurial action. It has been argued that both play a vital role in the support of new enterprises and economic development. Business incubators influence the entrepreneurial process by making strategic input to business modelling, creating opportunities for entrepreneurial learning and advising on intellectual property to better capture value (Dee et al., 2012). Conversely, McCormick (1999) opines that start-up survival and success are often facilitated by their presence in clusters. Oyeyinka (2006) supports this view but adds that clustering also enables new firms to access face-to-face interactions, linkages and spill overs available within them. The context of business incubation and enterprise clustering allows for a detailed examination of network opportunity identification and explores how social relations and contextual conditions of entrepreneurs influence their decisions to engage with the network relationships available to them.

Furthermore, as networks are products of social ties embedded in the environment, it is important to highlight that previous studies have examined network impacts on entrepreneurs by examining the structural and relational elements of networks (Reese and Aldrich 1995; Ostgaard and Birley 1996; Brüderl and Preisendörfer 1998; Galunic and Moran 1999; Chell and Baines 2000; Batjargal 2003; Elfring and Hulsink 2003; Watson 2007; Raz and Gloor 2007).The relational attributes of a network are used to analyse the meanings behind set network structures (Emirbayer, 1997), and claims have been made that the structural attributes of a network aid in assessing the collective dynamics and behaviour of members within a particular network structure (Watts, 2005). The impact from a structural perspective explores properties like density, centrality, reachability and size (Mitchell, 1969; Aldrich and Zimmer, 1989; O'Donnell et al. 2001; Hoang and Antoncic, 2003; Burt 2009; Jack 2010), while the relational impact is measured using trust, content, intensity, relational closeness and openness (Hoang and Antoncic, 2003; McAdam, 2004; Moran, 2005, Adams, Makramalla and Miron, 2011). These network impact studies are largely influenced by social network theories of embeddedness (Polanyi, 1944; Granovetter, 1985); structural holes (Burt, 1992), and tie theory (Granovetter, 1973).

Studies that pay attention to structural properties of network and impact are influenced by Granovetter's (1973) strength of weak tie theory and Burt's (1992) structural holes theory. Kidluff and Brass (2010) explain that structural-hole theory compares two network types that surround the focal actor: one involving holes, that brings the central actor as a broker between contacts who are themselves not connected, hence the

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'holes', and one involving closure a situation where a central actor is an integral member of a densely connected team, hence the 'closure'. Moran (2005) asserts that Burt's structural hole builds on Granovetter's (1973) seminal work on weak ties theory. Granovetter explains that weak ties are more likely than strong ties to act as bridges to novel or more timely information. Therefore, the value of weak ties, Burt (1992) argues, stems not from their lack of strength per se but from their ability to bridge unconnected groups which will act as conduits for information that is likely to be unique and more valuable.

Wellman (1988) notes that the structuralist network school believes that beneath the complexity of social relations, there exist enduring patterns of 'connectivity and cleavage'. The study adds that structuralists believe that once the connectivity and cleavage factors are revealed, this will explain network outcomes at different levels. Therefore, there is a consensus that structural analysis reveals patterns that are useful in explaining the presence and absence of network ties (Kidluff and Brass, 2010). The structuralist school also advocates for structural diversity, which emphasizes the range of people contained in a network and the degree to which their characteristics are heterogeneous (Cummings 2004). Attributes like gender, age, knowledge and so on are some characteristics of a structurally diverse network (Moran, 2005; Klyver and Hindle, 2007). However, Klyver and Hindle (2007) also note that a well-diversified network depends on the specific situation. Within entrepreneurship, an effective structural diversity is argued to provide entrepreneurs access to nonredundant business information: business advice, access to finance, emotional support and knowledge about start-up processes (Klyver and Hindle, 2007).

A contrasting perspective on structure, popularised by the works of Coleman (1988, 1990), emphasizes structural equivalence or network closure. Here focus moves from the individual actor to group collectivity and attention is paid to how actors collectively build relationships that provide benefits to the group (Coleman, 1990). Network closure explains how connections are strengthened to gain an advantage by getting better at what the group is already known for (Burt, Kidluff and Taselli, 2013). Additionally, Coleman (ibid) argues that social capital comes from closed networks of personal relations that engender robust individual and collective action. This is because all of a network actor's contacts in closed networks know and interact with each other, and as such are more likely to convey and reinforce norms of exchange and easily monitor observance and enforce sanctions on erring members. Moreover, Coleman adds that the ability to observe group norms reduces the challenges of uncertainty surrounding

exchange, facilitates the accrual of obligations or favours that can be drawn upon as needed, and then replenishes by sustaining the network and adding to the value of its underlying capital (Coleman, 1988). However, Kidluff and Brass (2010) view that in order to access the social capital domiciled in a closed network, a cognitive awareness of others is paramount.

The debate between both structuralist perspectives has yielded conflicting findings, as attempts have been made to validate the impact of structural holes and closure (see studies like Kidluff and Oh (2006); Van den Bulte & Joshi (2007); Eisingerich, Bell, and Tracey (2010); Redlich et al. (2013) and Kreiser (2011)). Consequently, Kidluff and Brass (2010) note that the argument should no longer be over which perspective is right or wrong, but which measure is most appropriate given the particular context being studied. Adding to the argument, Moran (2005) asserts that a network is more than just the structural configuration of one's network, as the relational properties are equally important. In other words, when considering how one's network of contacts affects performance, the configuration of that network is not all that matters; the quality of one's relationships matters too (Moran, 2005). The quality of social relations will influence the type of resources to be accessed and the extent of access (Moran, 2005).

The degree of access and the type of resource accessed is dependent on the degree of embeddedness. Jack and Anderson (2006) describe embeddedness as a process of developing credibility and acquiring knowledge of how business is conducted. Although there exist various dimensions of embeddedness, relational embeddedness explores the extent to which economic actions are affected by the quality of an actor's personal relations (Granovetter, 1990). Relational embeddedness also refers to the quality of dyadic exchanges, including the degree to which parties consider one another's needs and goals, as well as the behaviors such as trust, norms, reputation, sanctions and obligations, that they exhibit toward one another (Coleman, 1990; Simsek, 2003; Elfring and Wouter 2009). The key facets of relational embeddedness include trust and overlapping identities, and feelings of closeness or interpersonal solidarity (Moran, 2005).

This study argues that in other to fully understand network impact in its entirety a multilevel study is needed, because relying on just structural and relational attributes or on both, only gives access to one side of the puzzle. Consequently, Klyver and Hindle (2007) and Nahapiet and Ghoshal (1998) include a third lens for understanding network impact. They refer to this as the cognitive dimension, viewed as shared representations,

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interpretations, and a system of meaning among actors within the network. Their study advocates the need to examine all three network properties (structural, relational, and cognitive), as they believe that social networks can be described and examined in a wide variety of ways depending upon the emphasis given to different dimensions and the variables comprising the phenomenon.

Adding to the emphasis of exploring the three network dimensions, Kidluff and Brass (2010) identify other oversights in extant network studies. The first is the failure to account for human agency, the second is the neglect of cognition, that is subjective meanings inherent in networks, and the third is neglecting the context within which networks emerge and constrain action.

Following these research oversights, Kidluff and Brass (2010) join other studies, like Halinen and Tornroos (1998) and Hoang and Antoncic (2003), who have advocated for more progressive research within social network studies. Halinen and Törnroos (1998) note that there is a need to develop more network concepts and methodologies in network research and thoroughly examine some concepts that remain theoretically undefined and empirically unexplored. Equally, Mckveer, Anderson, and Jack (2014) and Slotte-Kock and Coviello (2010) identify that there is also a need to explain why individuals and groups enact certain networks, how and why the structure and processes of embeddedness affect entrepreneurs, and how this contributes to variations in the form of entrepreneurship generated. To answer some of these calls, several research gaps have been identified and this study initiates discussions that can be improved on. The next section captures these gaps in detail.

1.3 Research Gaps

Following earlier observations on the need for more network progressive research, Kidluff and Brass (2010) view that progressive research requires the combination of leading ideas and that the articulation of these ideas will result in new theories, measures and analytical techniques. These leading ideas are hinged on embeddedness, structural patterning, social utility and the impact of different social relations (ibid). Their study adds that an interpretation and articulation of these ideas can generate new theories or create new research directions that will form a critical part of the social network community and theory.

Whilst attempting to interpret these leading ideas, several research gaps were noted. The first gap identified is an explanation of how firm founding conditions influence how networks are embedded within a particular context. Emirbayer and Mische (1998) argue that social network research ignores the context within which networks emerge and constrain action. Additionally, Blackburn et al. (1990) assert that the nature of the network environment will determine the level of network support available to start-ups and also influence the network behaviour and motivation of firms in said environment. This expressed view is in line with Oliver's (1990) study, which views that organizations enter into relationships, but the relationships enacted are within the constraints of a variety of conditions that could limit or influence their choice. As such, an entrepreneur's motivation or the ability to enact interactions within the environment must be recognized (Johannisson, 1988). This is because changes within an entrepreneurial environment will likely influence the exit and entry of members of a network, or adjust the action of network actors (Venkataraman and Van de Ven, 1998).

Therefore, as Mckveer, Anderson, and Jack (2014) note, in seeking to understand how entrepreneurs identify network opportunities and realise their potential, the entrepreneur needs to know and understand the context. The closest attempt at exploring founding context relationships with networks is a study by Howard, Aldrich and Carter (2003), which concludes that the mechanisms that connect individual founders in a particular environment have not been adequately captured in literature. However, their study did not address it either. As a result, this study examines the context of business incubation and enterprise clustering in Lagos, Nigeria. The incubators and clusters environment in this study are used to access the network creation mechanisms, networking activities that take place, actors' reactions to network activities available, and how the environment facilitates the composition of relational ties.

The second gap identified is the need to pay attention to human agency (Burt, Kidluff and Taselli, 2013). According to Burt, Kidluff, and Taselli (2013) study, discussions on network advantage currently assume that achievement springs directly from a network. They note that people instead of networks act as, although networks can facilitate or inhibit action, people are the source of action. Similarly, an early study by Salancik (1995) viewed this as a frequent criticism of social network research. Additionally, Emirbayer and Goodwin (1994) note that network research has also failed to show individuals' actions as creative and intentional actions that produce those very same social networks that can either constrain or favour's network actors. Westaby (2012)

adds that social network theories remain largely quiet on how human goals and social support 'mechanisms actually initiate network relation. However, attempts have been made to show how individual action can shape and reproduces social structures of constraint (see Barley, 1990), or how some philanthropic individuals can choose not to reap the profits derived from their network (Burt, 1992), but empirical network research still largely favours structural determinism (Gulati and Srivastava, 2012).

Consequently, Homans (1964: 818) posits that "If a serious effort is made to construct theories that even begin to explain social phenomena, it turns out that their general propositions are not about the equilibrium of societies but the behaviour of men". However, Gulati and Srivastava (2012) assert that researchers have treated network structures as given, and have paid less attention to how actors create, perpetuate and modify structure through their actions. Consequently, network research continues to generate numerous calls to better account for the role of human agency (Gulati and Srivastava, 2012). These include studies such as Emirbayer, (1997), Emirbayer and Goodwin (1994), Kilduff and Krackhardt (1994), Baum and Rowley (2008) and Kilduff and Brass (2010). In response to these calls, this study examines the role of agency in understanding existing network behaviour and motivations resident in the context of incubation and cluster in Lagos, Nigeria.

The third gap identified is based on the paucity of entrepreneurial research and the need for a more extended study of entrepreneurship, especially within developing countries and specifically with Sub Saharan Africa (SSA). According to Naude and Havenga (2005), the area with the highest research interest in SSA includes: education, management, and skills issues; determinants, constraints and opportunities of entrepreneurship; the role or contribution to entrepreneurship. Consequently, their study suggests extended research in entrepreneurial studies. This study adds to entrepreneurial research in Africa and more specifically Nigeria, by seeking to offer answers to how and why networks are created, and the kind of network patterns present within the Lagos technology ecosystem.

Finally, this study is a departure from existing studies that often explore the relational and structural elements of networks to ascertain network impact. This study observes that while both are useful in understanding network impact, they are not sufficient as they only tell one side of the story. What is required is network cognition, as it explains how network actors perceive network impact. Brand (2013) notes that cognition is useful in describing the patterns of interactions perceived by individuals and the

subjective experiences of their social worlds. This is useful in cataloguing how individuals' perceptions of social worlds differ from the actual configuration of ties surrounding them. Cognition in the social network has led to the view of networks as 'prisms' through which others' reputations and potentials are viewed, as well as 'pipes' through which resources flow (Podolny, 2001). Additionally, cognition assesses the awareness of network opportunities and individual assessment of those network opportunities (Burt, Kidluff, and Taselli, 2013).

Taking note of these views, this study explores network actors' different perceptions of network impact, and the patterns/types of networks that emerge in both contexts. To adequately address these views, the next section discusses the objectives of this research.

1.3.1 Research Aims and Objectives

Based on the observations of the research background and gaps in the study, there seems to be an imminent opportunity to explore and understand network nuances and their influence on entrepreneurial and new venture performance. Therefore, the central aim of this research is to:

Examine the mechanisms for entrepreneurial network creation in business incubators and clusters.

To meet this aim, this research has the following objectives:

- first, explore the role of the incubation and cluster context in Lagos in facilitating entrepreneurial networking
- examine the influence of network agency in determining network behaviour and motivation of network brokers and new firms, especially in enacting or partaking in networking activities
- finally, discuss the perception of network impact, and challenges of networking experienced by brokers and entrepreneurs

1.4 Overview of Methodology

To effectively capture underlying perceptions and opinions, this research adopts an interpretivist stance and a multiple embedded case study. Shaw (2006) notes that designing studies within an interpretivist paradigm contributes new insights and understanding about the contents of small firm networks and the actual motivation for engaging in networks. A qualitative approach was chosen for this research in response

to calls for deviations from quantitative research. For example, Huggins (2000) observes that quantitative methodological approaches to the study of inter-firm networks have been criticised because they explain little about the actual content of inter-firm relations and connections. Similarly, Jack (2005) states that a qualitative approach aids in examining in-depth networking activities which allows for a richer analysis of network relationships and thus improve understanding of the meaning behind network actions taken. Additionally, because networks constantly change, Shaw (2006) identifies the case study approach as a useful way for investigating network interactions and resultant change over time. Case studies also allow researchers the opportunity to get close to participants and get perspective on not just the view of the actors but, in addition, other relevant groups and the interactions within them (Maykut and Morehouse, 1994; Halinen and Tornroos, 2005 Shaw, 2006).

This research commenced with incubation and cluster mapping to identify incubation and cluster locations, sectors of focus and the incubation model in preponderance. A list of incubation locations and cluster sites were compiled using information from incubator websites like the NINE network and the NG CLUSTER mapping site. Following this, Lagos was chosen, and introductory emails were sent to incubator and accelerator managers to discuss incubation access and ascertain interest in the study. The secretary of CAPDAN, the union that oversees the activities within the Otigba Computer Village Cluster was also contacted via the telephone. Data was collected using semi-structured interviews. Collection commenced in the first quarter of 2019 and ended by the second quarter of 2019. A total of 36 interviews was collected, and this was split between business owners in clusters and start-ups in the incubator, incubator managers, and the secretary of the Capdan union. The interviews details, results and findings are outlined in the discussions and findings chapter. Data were analysed thematically, using the Nvivo Software.

1.5 Thesis Outline

The remainder of this thesis is structured as follows:
Chapter 2: The literature review commences, with attention first drawn to the concept of networks and network development within entrepreneurship studies. Next, the concept of network brokerage is reviewed to understand how network behaviour is formed and how the various types of network behaviours are documented in the literature. Thereafter, the chapter examines network motivation studies, with a particular focus on the contingency approach. The chapter also examines the place of

context within entrepreneurship studies and the different dimensions of the entrepreneurial context. At this point, specific attention is paid to the social-spatial dimension which, in this study, covers business incubators and enterprise clusters. In addition, network support mechanisms and the patterns of networks identified in the incubator and the clusters are reviewed. Finally, the chapter reviews leading ideas within network study and produces an extended conceptual framework.

Chapter 3: This chapter covers the methodology used in this thesis and outlines the research paradigm and the research approach that influence this study. The research questions, units and level of analysis utilised within the study are also discussed. Finally, the process of data collection, instruments utilised, and the process of data analysis are examined.

Chapter 4: Chapter 4 analyses the findings and the modified conceptual model. It begins by detailing the sample profile of the participants, then gives an overview of the individual case profile and results.

Chapter 5: To consolidate the objectives of the research, this chapter synthesises the overall findings, then discusses the research implications for researchers and practitioners. Thereafter, it provides details on the contributions to theory and the body of knowledge. As directed by the present research findings and background, several future research directions are suggested. Finally, the limitations of this research are addressed

1.6 Research Contribution

This study will aid incubator managers in understanding how best to apportion network resources and design networking activities to meet the varying needs of entrepreneurs. To do this, rapt attention is given to the role of network agency in the emergence and creation of networks and network activities. Network motivation and behaviour act as instruments for sense-making that will determine how individuals (broker or engage) in network activities.

It equally shines a light on relational patterns and stakeholders that are obtainable in both contexts, information that is instrumental in aiding the government to develop policies that are a good fit for start-up support.

Finally, it explores how the actor network cognition is used to gauge impact and challenge, which will serve as useful indicators necessary for benchmarking network success and areas that can be improved to harness development at the regional level.

Chapter 2

In the previous chapter, studies such as Gartner (1988) and Jack and Anderson (2002) described entrepreneurship as a contextual event that takes into account the individual's role within the environment and where a business is drawn from or becomes part of. Additionally, Stam (2009) notes that entrepreneurs also utilise social ties, likely to be localized in the context that they are embedded in, to reproduce conditions or coevolve to transform conditions or adapt to them. It is this process of coevolution or adaption that births entrepreneurial action (Stam, 2009).

However, Welter (2010) and Zahra and Wright (2011) have alluded to the fact that the entrepreneurial environment exists as a multi-level context, and to fully understand how entrepreneurial activities or opportunities are activated, the various dimensions of the entrepreneurial context need to be adequately accounted for. A review of entrepreneurial contextual dimensions provides an opportunity for delving deeper to explain the role of social-spatial elements like business incubators and clusters in network creation. In this thesis, the focus is on the network creation mechanisms that exist in both entrepreneurial contexts, and particular attention is drawn to how networks and networking activities are enacted in the two contexts and the influence of these networks on start-ups.

To capture this effectively, the chapter begins by exploring extant discussions that explore network concept and entrepreneurial networking, then examines the discussion around network impact on start-ups. The idea is to capture existing opinions of the network concept and review previous discussions on entrepreneurial networking and network impact on start-ups. Additionally, the chapter explores how networks are brokered for start-ups and the behaviour entrepreneurs exhibit towards the networks created. To understand why ventures or other network actors decide to pursue or engage in brokered relationships, this study examines the place of network motivation. Network motivation draws attention to the reasons firms decide to network and explains the varied outputs of the relationships enacted. Both network behaviour and motivation are sense-making tools used to understand the role of human agency in the network creation process.

The relationship between the context and the entrepreneurial process is also explored. This provides an opportunity to review arguments that have advocated for more context-focus studies of entrepreneurship. Consequently, the dimensions of the

entrepreneurial context are examined, but with a particular focus on the social-spatial dimension. The socio-spatial dimension of the entrepreneurial context accounts for network and network relations between actors and institutions that promote and support entrepreneurial action. Here, the context of incubation and cluster in Nigeria is examined to understand the contextual nuances that exist in them. Then the role of network cognition is reviewed, as this helps explore the different perceptions of brokered networks on the actors that utilise them.

This chapter concludes by presenting network patterns identified in the literature in both incubators and clusters, as well as a summary of the views on the network theories covered in previous studies. The existing literature is replete with social network theories like, embeddedness theory, structural hole theory and tie theory, and a summary of extant views on them are documented. Kidluff and Brass (2010) identify these theories as ideas that have thrust organizational social network research into popularity. They note that they overlap and interweave with each other but can stand alone as separate research traditions. The insights documented in the literature review will guide the theoretical framework design.

To achieve these aims, this chapter is structured as follows:
- Section (2.1) starts with discussions on network concepts, conceptual variations identified across studies, and network development within entrepreneurship studies.
- In the succeeding section (2.2), the role of agency in the network creation mechanism is reviewed. Discussions on how and why networks are enacted are also explored. To effectively do this, this section will explore network brokerage studies to understand how networks are brokered, resulting network behaviour. To, understand why network relationships are pursued, prior studies on network motivation are reviewed. This aids the understanding of the goal/motive of pursuing brokered relationships, as well as the output of the exchange from these relationships. Both network brokerage and motivation are used in this study as sense-making tools for understanding human agency in the network creation process.
- Following from the previous section, section 2.3, the penultimate section, summarizes arguments on contextual relevance within entrepreneurship and the dimensions of the entrepreneurial context, with a specific focus on the socio-spatial context. Here, the social-spatial elements, which in this case are incubators and clusters, are discussed. A review of incubation and cluster role in

supporting and brokering relationships for start-ups and how networks are facilitated in both contexts are also discussed. This provides the opportunity to present an overview of incubation and cluster network support in Africa, specifically in Nigeria.

- The final section (2.4) consolidates and synthesizes a review of network core ideas (theories) and shortcomings of these theories.

2.1 Reviewing the Network concept

Borgatti et al. (2009) note that networks provide explanations for the variations present in social phenomena. A similar view on networks is highlighted in an earlier study by Wellman (1997), but this study adds that an examination of networks provides an opportunity to understand simultaneous views of the social system as a whole, and also the overall parts that make up the system. Utilising this information, network researchers can trace information flows, identify sources and targets, and detect structural constraints operating on resource flows (Wellman, 1997).

From an entrepreneurial perspective, the relevance of networking is also accounted for. Bruderl and Preisendorfer (1998, p.213) describe this line of study as the "network approach to entrepreneurship". This network approach is described by O'Donnell et al. (2000) as a popular stream of study that examines the creation of small firms and how organisations form and grow. The network approach is lauded for describing the entrepreneurial process as a value-gathering process that cannot be treated as a purely isolated economic activity (Jack and Anderson, 2002). This is because it is through social relations, social interaction, and social networks that entrepreneurship is carried out (Jack and Anderson, 2002). Consequently, entrepreneurs need to be anchored and sustained in their social context to recognise and realise opportunities that could give them a competitive advantage (Jack and Anderson, 2002). Other early studies like Johannisson (1987) and Aldrich and Zimmer (1986) affirm this but add that the information that entrepreneurs need to start their businesses is often accessed from business owners, who are either friends or acquaintances who are part of an existing social network.

A later study by Witt (2007) identifies two approaches within network study; the strategic management and the sociological approach. The strategic management approach captures long-term relationships within corporate settings, whilst the sociological approach, which is the more mature approach, investigates relationships between a specific individual and the content of relationships with other parties (ibid).

Within the sociological approach, also described as the ego network, is a collection of an ego (individual), the alters (pattern of the network created or other actors that an ego connects to) and ties (the type of relations that connects the individual with others (Borgatti and Foster, 2003). Both approaches provide an insightful overview of the perspectives of network study and are a fruitful intersection with entrepreneurship research, which has a long tradition of studying entrepreneurial networks and their benefits to start-ups success. (Birley, 1985; Aldrich and Zimmer, 1986; Johannisson, 1988).

In this study, the specific individual network, also described as the ego network by Burt, Kilduff, and Tasselli (2012) and Borgatti and Foster (2003), is the main focus. An examination of the ego network provides an opportunity to explore the entrepreneurial networks and other incorporated network ties (Greve and Salaff, 2003; Jack, Dodd and Anderson, 2008). Equally, Hite and Hesterly (2001) add that examining the ego network provides the opportunity to monitor network changes that occur as firms grow.

However, before further discussion on network and network relevance within entrepreneurship is reviewed, it is imperative to review the concept of networks broadly. Quatman and Chelladurai (2010) explain that the network concept invokes rich, robust meanings and functions because the practice and findings of the discipline are often tied to social network theory, which comes together under an umbrella approach called the network perspective or network paradigm. Borgatti et al. (2009) affirm this but point out that network studies are viewed as a 'hot topic' today, as the number of articles in the Web of Science database on the topic of social networks has tripled in the past decade. Additionally, Borgatti and Halgin (2011) also identify that publications referencing social networks have increased astronomically, with interest across different disciplines and schools including social sciences, physics, biology and management consulting.

However, Kilduff and Brass (2010) note that the perception of networks as a concept has extended both in micro and macro directions, challenging the coherence of the overall research tradition. This change has resulted in the fragmentation of network literature and the network concept to be viewed as a loosely applied concept with disparate findings (Shaw, 1997; Kadushin, 2012). Furthermore, Hoang and Antoncic (2003) identified the absence of core theory and influence from anthropology, sociology and other theories of exchange as another potential problem with network research. This crossover leads to what Burt (1980) describes as 'a loose federation of approaches', creating problems for researchers attempting to operationalise the network concept.

Taking note of this, an attempt at exploring the different concepts of networks is provided in the table below.

Table 2-1: Summary of network definitions

The structural emphasis of networking
Network viewed as "a set of actors connected by ties". "Where actors are also viewed as nodes (can be individuals, teams, organizations, etc) and ties (viewed as relationships) connect different actors" (Borgatti and Foster, 2003, p.992).
Network viewed as "the web of relationships in which entities are embedded" (Quatman and Chelladurai, 2010, p.3390).
Networks are viewed as the collections of points linked through different types of relationships or associations (McCulloh, Armstrong, and Johnson, 2013).
The evolutionary emphasis of networking
"Networks viewed as structures of inter-firm relationships that emerge and evolve through continuous interactive processes" (Halinen and Tornroos, 1998, p.187)
"A network represents a dynamic process of using select, persistent, and a structured set of autonomous relationships to create solutions based on implicit and open-ended contracts adapted to fit environmental contingencies that coordinate and safeguard exchange" (Simsek, Lubatkin and Floyd, 2003, p.427).
Networking is a dynamic process, in which latent ties become manifest, and manifest ties become dormant, depending on the situation in which the firm finds itself and the urgency of action (Hite, 2003; Hulsink, Elfring and Stam, 2008).
The relational emphasis of networking
"Networks are constructed when individuals, whether organizations or humans, interact. When many individuals are involved, the resulting structure can be analysed to derive many facts about the individuals or the network" (Salancik, 1995, p.345)
"Networks can be defined as a specific set of linkages between a defined set of actors with the characteristic that the linkages as a whole may be used to interpret the social behaviour of the actors involved" (Lechner, Dowling and Welpe, 2006, p.516).
The goal emphasis of networking
".... when the term network is used, we are referring to collaborative inter-organizational networks where three or more organizations are working together toward a common purpose" (Popp et al., 2013, p.15).

Networking is the involvement of different participants with the sole aim of achieving common goals or vision (Sprenger, 2001).
The motivation emphasis of networking
Networking is represented as "behaviours that are aimed at building, maintaining, and using informal relationships, that possess the (potential) benefit of facilitating work-related activities of individuals by voluntarily granting access to resources and maximizing common advantage" (Wolfe and Moser, 2009, p.197).

The definitions presented above are drawn from a small sample of network literature. However, what is observed across these studies is an underlying theme that emphasizes the value of relationships established using degrees of connections or bonds and, in some cases, a degree of commonality. Additionally, networks have been viewed from multiple perspectives and, they include an organization that aligns together to form inter-organizational relationships, a specifically designed network structure, or just as a means of accessing resource flows by leveraging relationships.

Based on the definitions presented above, it is deduced that networks, like every other concept, have varied meanings, and even though literature definitions of networks vary in their degree of simplicity or complexity, most definitions of networks acknowledge them as relationships connected or bound together through some form of sustained interaction, within which there is a reasonable degree of commonality (Huggins, 2000).

Taking this into account, this study adapts Simsek, Lubatkin and Floyd's (2003) definition, because it takes into account the evolutionary nature of networks, the presence of relationships and the results of utilizing extant relationships to access resources. Therefore, this study views network as a dynamic process of using a set of select relationships adapted to fit within specific environmental contingencies. In other to mitigate peculiar business conditions, access embedded knowledge, and safeguard exchange.

However, as noted earlier in chapter 1, the effectiveness of networks is dependent on the quality of networks, as new firms use different types of networks to realize growth and to survive (Szarka, 1990; Macchi, Rizzo and Ramaciotti, 2014). Network quality, also described by Moran (2005) as relational diversity, is facilitated by social and institutional proximity and improved by trust. Trust, in turn, triggers the transfer of tacit

knowledge (Johannisson et al., 2002). The quality of the relationship between network members also enables the true and full realization of network goals (Kale et al., 2000).

As mentioned earlier, the network approach presents an opportunity to understand the entrepreneurial process and deviates from the image of the entrepreneur as an isolated or autonomous decision-maker, but rather as a special actor involved in the micro-context (Brüderl and Preisendörfer, 1997). Therefore, to understand the entrepreneur's nature and quality of relations with other firms, it is worthwhile reviewing network development in entrepreneurship to understand how networks influence the new venture creation process. Taking note of this, it is also worthwhile reviewing network development in entrepreneurship to see how networks influence the new venture creation process. This is examined in the next section.

2.1.2 Network Development in Entrepreneurship

This section begins by drawing attention to Hoang and Antoncic's (2003) review of entrepreneurial network studies. Their study opines that network prominence within the entrepreneurship discipline is a fairly recent engagement. However, O'Donnell et al. (2001) argue that work on networking and entrepreneurship dates back to the transaction cost era, an era that emphasised market mechanisms and hierarchy. Their work cites a study by Coase in 1937 as the first to question transaction conditions within markets (O'Donnell et al., 2001). In Coase's study an attempt is made to explain production and transaction processes, which he argued was too focused on price. Coase (1937) explains that when monitoring external production functions, production is controlled by price through a series of exchange transactions within the market. However, within a particular firm, these exchange transactions are eliminated and substituted by the coordinator (entrepreneur) who directs the production. The entrepreneur's role is viewed as an alternative method for coordinating production because the entrepreneur is expected to carry out their functions and subsidise the cost by introducing different types of products in different places (ibid).

However, what Coase's study fails to mention is the actual process the entrepreneur takes in subsidizing prices, or the resources utilised in coordinating the exchange, or even how this exchange is done. Granovetter (1985) criticizes Coase's view for failing to acknowledge the influence of economic behaviour and the over-socialised and under-socialised explanation of social exchange. Granovetter's study stressed the role of embeddedness in building concrete personal relations and structures, and how such relations are important for creating trust, discouraging malfeasance and inhibiting or

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improving the performance of institutions and individuals. Similarly, Ulrich (1999) observes that competitive pressures from the market have increased the need for firms to be more efficient and effective. As a result, firms are pressured to quickly respond to market needs, competitors' innovations and also monitor the price and cost of business (Ulrich, 1999). This push from the market has necessitated the demand for firms to do more with less, and also look outwards as well as inwards for solutions to combat the competitive challenge. To effectively regulate all these, the place of network and networking cannot be overlooked (Ulrich, 1999).

Following this proposition, O'Donnell et al. (2001) identify networks as the third element in the organizational arrangement and an alternative force for regulating the market and production. Equally, Greve and Salaff (2003) point out the need for entrepreneurs to be embedded in their social structures, where they can test their ideas and competence, access knowledge and make decisions required to run their business.

Reacting to the attention of the importance of networks in market processes, studies have deviated from the view that entrepreneurs are isolated figures who overcome obstacles and fend off dangers alone, to be individuals who are intimately tied to a broader network of actors, and who must engage with these actors to survive and grow (Aldrich and Zimmer, 1986; Chell and Baines, 2000; Drakopoulou, Jack and Anderson, 2006; Klyver and Hindle, 2007; Hanlon and Saunders, 2007; Slotte-Kock and Coviello, 2010). Furthermore, network relevance within entrepreneurship is prompted by the realization that the environmental context where new ventures are domiciled impacts their businesses. This is because the start-up phase is usually a complex process that requires the combination of territorial embeddedness, human capital, and membership of different bodies (Armstrong and Taylor, 1985; O'Donnell et al., 2001).

Moreover, because the entrepreneurial processes consist of unique activities like opportunity identification and resource mobilization, Shane (2000) explains the need for entrepreneurs to establish connections to resources and niches to benefit from a diverse pool of information flow. Equally, new venture creation and growth thrive on activities that occur within the relational spaces; as such, new ventures need to leverage network relationships to stay competitive in the marketplace (Schutjens and Stam, 2003). However, Elfring and Hulsink (2007) point out that the network needs of entrepreneurs tend to vary. As a result, network utilisation will evolve as the new ventures engage to fulfil one or more of these entrepreneurial processes of seeking opportunities, acquiring resources, and gaining legitimacy. Similarly, Hite (2003; 2005)

notes that entrepreneurial networking of new ventures will differ based on the different characteristics of social relationships or due to an entrepreneur's proactiveness.

Conversely, Huggins et al. (2000) suggest that the nature of networks that a firm can access is dependent on the size of the company and the 'vintage of network partners'. However, Huggins failed to offer further detailed insight as to how this would impact entrepreneurial networking or who these vintage network partners are. An alternative study by Lechner and Dowling (2003) and Huggins et al. (2015) attempts to explain this further. According to Lechner and Dowling (2003), small firms share knowledge with other established firms to increase their credibility and possibly access other relationships that they ordinarily would not have been given access to. However, accessing these network opportunities can likely be dependent on the prestige of the firm or the size because, as the firm grows, their focus could shift to more intentionally managed networks based on reputation and access to relevant resources and partners (Huggins et al., 2015). This evolution shift can also be from pre-existing interpersonal networks to more intentionally managed networks based on reputation (Hite and Hesterly, 2001).

In reviewing studies to get insights into the changing nature of entrepreneurial networks, a range of studies have critically explored network evolution and, in some cases, have affirmed overlapping or entirely different propositions (Birley et al., 1991; Hansen and Butler, 1991; Larson and Starr, 1993; Hitte and Hesterly, 2001 Greve and Salaff, 2003, Schutjens and Stam, 2003; Lechner and Dowling, 2003; Elfring and Hulsink, 2007; Kleever and Hindle, 2007; Jack, Dodd and Anderson, 2008; Huggins et al., 2015). As a result, varied typologies on network evolution have been created. For detailed coverage please see Larson and Starr (1993), Hitte and Hesterly (2001) and Jack et al. (2010).

Network evolution studies reinforce the notion that new venture networks exist as diverse dynamic relationships that could induce various changes within the creation process (Anderson and Jack, 2002; Jack et al., 2010). Moreover, network changes also present opportunities to investigate the different nature of networks (Jack et al., 2010; Jack et al., 2015). For example, some evolution studies have examined the relationship between the stages of new venture growth and the networks are replete at each stage. Studies like Birley and Cromie (1988), Butler and Hansen (1991), Larson and Starr (1993) and Greve and Salaff (2003) all identify that firms at the start-up phase utilise their personal networks to exploit opportunities and then include other types of

networks over time. A different take to this approach is identified in Lechner and Dowling (2003), whose study advocates for a 'relational mix', which implies the need for firms to take advantage of a mixture of tie, the personal and reputation networks at the start-up phase. Their study notes that both types of ties would enhance the opportunity for new ventures to gain credibility and also survive founding conditions replete in their specific entrepreneurial context.

The final observation noted within evolution studies is the place of time and space. According to Zahra, Wright and Abdelgawad (2014), time plays a formidable role in entrepreneurial learning as it helps entrepreneurs reflect their experiences and integrate strategic lessons learned over time. Conversely, space represents a relational space for key stakeholders to interact and exchange resources (Zahra and Wright, 2011).

Following the influence of both on network evolution, Schujens and Stam (2003) suggest that time and location are critical for accessing relevant network ties. However, their study fails to capture how long it would take to be temporally embedded, the content of spatially embedded relations, or the interrelations between both. A similar problem is observed in Jack, Dodd, and Anderson (2010), who note that the influence of temporal factors on the start-up networking process over time also failed to capture how this occurs, how long it would take, the facilitators and the channels of these network exchanges. Instead, their study focused on discussing the influence of spatial factors on networking. They identify that spatial forces act as a trigger for firms to co-create networks, which would be built on trust, shared values and affection.

Taking note of these observations, it can be deduced that entrepreneurial networking is a dynamic process that enhances start-up opportunities to successfully mobilize critical resources, generate revenue, and induce growth (Larson and Starr, 1992; Hulsink, Elfring and Stam, 2008; Huggins et al., 2015). Networks also act as stimulants to the entrepreneurial process, as it allows start-ups to obtain information and resources, making them better equipped to face uncertainties (Chell and Baines, 2000). Additionally, McAdam and Marlow (2007) identify four important roles networks play within the new venture formation. These include:
· access to new ideas and resources
· network credibility through alliances established with reputable network partners
· knowledge exchange and collective learning
· connections that enable firms to achieve entrepreneurial goals and growth

Baum and Oliver (1991) add that networks also act as buffers for mitigating environmental changes by conferring legitimacy and resources to organizations and stabilising resource flows. This is made possible through exposure to a variety of resources not already in their possession (Klyver and Hindle, 2007).

However, some studies have challenged the impact of network benefits. For example, an early study by Yoon (1991) on Korean immigrants in Chicago found out that networks were only useful during the inception and start-up phase but became redundant much later. A similar narrative is observed in Sub-Saharan Africa. Studies by Fafchamps (1999) and Barr (1999) argue that networks in Africa are parochial and somewhat redistributive and, as a result, do not enhance growth but impede contract enforcement and inhibit economic growth. Additionally, Bayart et al. (1999) add that networks in Africa are vehicles of opportunism and institutional subversion, and therefore can produce a detrimental impact on the region. Despite these negative assertions, Brautigam (2003) ascribes network failures within Sub-Saharan African to the differences in geography, policies adopted by the countries in the region, and the network models adopted by the initiator country of the network.

To fully appreciate network impact in its entirety, Zahra and Wright (2011) advocate for a multilevel study, as impact measured solely using structural or relational attributes (or both) only gives access to one side of the network impact story. Moreover, studies that have assessed network impact on start-up performance using relational and structural attributes have provided inconclusive results (Semrau and Werner, 2013). For example, studies like Reese and Aldrich (1995), Raz and Gloor (2007) and Stam and Elfring (2008), which investigated the role of size or more diverse networks on new venture performance found no positive impact on start-ups. However, others like Ostgaard and Birley (1996), Sedaitis (1998) and Batjargal (2003) observed positive effects on start-ups. Similarly, relational properties like weak versus stronger ties or open versus closed have produced varied findings as well (Elfring and Hulsink, 2003; Kingsley and Malecki, 2004; Raz and Gloor, 2007; Eisingerich, Bell and Tracey, 2010; Redlich et al., 2013).

Moreover, Hughes et al. (2011) note that it is often presumed that start-ups are equipped with all the network skills needed to strike network relations and evolve from one network stage to another. Horminga et al. (2011) add that studies often ignore the fact that a new venture will not yet have had time to establish relations with its environment, and as such cannot call on its history or past to provide it with the

experiences needed to face the networking difficulties that arise. This lack of history and experience was earlier identified in chapter 1 as the liability of 'newness'. These are factors that make new ventures susceptible to environmental pressures and are triggered by their limited influence and endorsement leading to unstable exchange relationships with important partners (Baum and Calabrese, 2000). This result is what Mackenzie, Makramalla and Walter (2014) describe as 'pay to play' where a new business is forced to unfavourable exchange conditions because of their size or age. Additionally, Kirkels and Duysters (2010) note that new ventures not only face the challenge of finding the right network partners, but often lack the required knowledge base to absorb knowledge exchanged with the network.

To mitigate these identified challenges, Holschuh and Segal (2002) advocate for leveraging multiplex ties, or ties with whom an individual had previously engaged in the past. However, this study fails to acknowledge the limited relational access that new entrepreneurs can access. Aldrich (2000) and Tang and Tang (2012) add that even when such relationships are leveraged, power imbalances may emerge, leading to potential abuse of power during negotiations and further barriers to financial resources. This dilemma faced by new ventures demonstrates new ventures' need for intermediaries to deal effectively with the complex entrepreneurial environment (Kirkels and Duysters, 2010). A similar stance is noted in various studies like Huggins (2000)' Sapsed et al. (2007) and Locket, Jack and Larty (2012). Hence, Huggins (2000) explains that network brokers will develop projects that facilitate relationships between participants. In connecting parties, brokers also connect groups by engaging in what Carlile (2004) calls "transferring, translating, and transforming". Kellogg (2014) summarises this as the ability to transfer information across groups using work practices, specifications and repositories to support communications across different network boundaries. The transforming role played by brokers harnesses the localised knowledge to be transformed into jointly produced knowledge that transcends community interest (Carlile 2002, 2004; Kellogg, 2014). In sum, network brokers are viewed by Huggins (2000) as catalysts for accessing initiatives and facilitators of relationships between participants, making start-ups more valuable.

This study argues that an understanding of network brokerage is also critical in reviewing the role of human agency in networking. As Kidluff and Brass (2010) note, few attempts have been made to account for behavioural strategies and the preferences or orientations of an actor within a network structure. Their study notes that network actors demonstrate multi behaviours when they try to connect to gain structural-hole

advantages, maintain disconnections among other actors or form an alliance to resist the manipulations of the focal actor. Although studies like DiMaggio (1988) and Greenwood and Suddaby (2006) document the role of institutional entrepreneurs in breaking rules and rejecting practices associated with a dominant logic, to the best of the researcher's knowledge, a review of how entrepreneurial actors broker relationships for start-ups or the behaviour demonstrated when the brokerage process is ongoing remains lacking. However, before discussions on entrepreneurial behaviours or brokerage methods are discussed, a review of the prevailing discussion on network brokerage and behaviour is examined to understand the role of network brokers in facilitating network access for the start-ups to resolve their network challenges.

2.2 Network Brokerage

In discussing the benefit of network brokerage to the entrepreneurial networking process, the perception of brokerage influence is twofold. The first identifies it as a public good needed for identifying opportunities or constraints; where the activity of one network member can generate positive or negative externalities for other individuals in the same social group (Fukuyama, 1995; Leana and Van Buren, 2017; Clement, Shipilov and Galunic, 2017). The other perception, presented in Stovel and Shaw (2012), recognises that brokerage can also breed exploitation, encourage the pursuit of personal interest and corruption and intensify existing inequalities.

Taking into account these views, different accounts have been presented to explain the brokerage concept. The earliest discussion of brokerage is captured in a work by Simmel published in 1950 (Stovel and Shaw, 2012). Reporting on the contributions of Simmel's work, Stovel and Shaw (2012) captured the idea of the third element, also known as the third who enjoys. The third element represents an individual who benefits from an ongoing conflict between parties by pitting them against each other and seizing opportunities that both parties have ignored (Stovel and Shaw, 2012). With a broker in this position, Stovel and Shaw (2012) explain that a strategic benefit begins to accrue to broker which creates an opportunity to deliberately instigate conflict to gain a dominating position; this situation is identified as a "divide and conquer" position.

Simmel's (1950) study inspired different studies to explore network brokerage mostly from a structural perspective. As a result, divergent views discussing brokerage have emerged with their own impression of how network brokerage works (Spiro, Acton and Butts, 2013). An example is first seen with Marsden (1982), who views network

brokerage as the opportunity for an intermediary to facilitate transactions between and amongst actors who are unable to access them, or who do not trust themselves enough. A similar view presented by Fernandez and Gould (1994, p.1457) describes network brokerage as a "relationship in which one actor mediates the flow of resources or information between two other actors who are not directly linked". Their study adds that the interest of actors influences the brokerage opportunities seized.

In comparing Marsden and Fernandez and Gould's definitions above, some notable differences are observed. With Marsden and Fernandez, the broker actively seeks opportunities, which might imply that the brokerage opportunity does not happen often, as the occasions mentioned are either when trust is lacking or when actors are unable to access resources, and that actors within this network structure have ties that are not sufficient or strong enough (Obstfeld, Borgatti and Davis, 2014). However, Fernandez and Gould's notion of a broker is indicative of an ongoing relationship motivated by broker goals or interests.

Aside being a mediator, a network broker can also act as a bridge connecting individuals to different network structures. This view of brokerage is noted in Ottani (2016), whose study identifies a network broker as a critical node that bridges relationships between people or groups who ordinarily will not interact. A more detailed view of the broker as a bridge is presented by Stovel and Shaw (2012). Their study describes network brokerage as a mechanism that brings together 'unconnected others', which essentially means bringing together disconnected or isolated individuals or groups for economic and political exchange.

Another perspective of network brokerage highlighted in a recent work by Halvey, Halali, and Zlatev (2018) describe the network broker as an intermediary where the broker connects (either directly or indirectly) two disconnected alters. As an intermediary, the broker is a dynamic coordinator responsible for creating the value of knowledge and information transfer, a role that aids in addressing market imperfections by linking actors who would not necessarily have connected (Quintane et al. 2012).

However, Obstfeld, Borgatti and Davis (2014) assert that brokerage is not just about bringing parties together; it is also an opportunity for exploring how networks between intra and inter-organizational entities evolve and expand. This opportunity enables the facilitation of resource flows to occur within a network by utilising expertise and

knowledge created externally through discussions and dialogue (Haga, 2007; Ottani, 2016).

Despite the perceived relevance of network brokerage, studies have not extensively reviewed the role within network studies (Gould and Fernandez, 1989; Stovel and Shaw, 2012; Sgourev, 2015; Grosser et al., 2019). This opinion, echoed in a recent study by Grosser et al. (2019), argues that although network brokerage has gained momentum in recent years, few studies have attempted to critically explore what the phenomenon is. Equally, Stovel and Shaw's (2012) study agrees with Sgourev (2015) that brokerage studies remain under-developed and are in need for of more substantive contributions.

Taking note of this, this section attempts to summarise discussions from previous literature by reviewing some notable contributions to the brokerage literature. According to Soda, Tortoriello and Alorio (2018), a growing debate within network studies has tried to explain how network relationships are brokered. As a result, the use of the terms 'brokers' and 'brokerage' is often utilised to explain how relationships are facilitated within groups of interactions (Stovel and Shaw, 2012). A sizeable body of research typically describes network brokerage from a structural perspective by reviewing the pattern of ties in an individual's social network to assess successful job searches (Granovetter, 1973); salaries, faster promotions and higher bonuses (Burt 1992); career development (Xiao and Tsui, 2007); common attitude formation (Erickson, 1988); and organizational similarities (DiMaggio, 1986). These discussions around structural network brokerage are influenced by two social network theories: Granovetter's (1973) 'Strength of Weak Ties' and Burt's (1992) 'Structural Hole Theory'.

Discussing ties, the strength of interpersonal ties is viewed as the combination of the amount of time, emotional intensity, intimacy and reciprocal service that the ties benefit from (Granovetter, 1973). Granovetter (1973) explains that weak affective ties are more appropriate for bridging resource gaps and providing access to new information. Weak ties also act as substitutes for strong ties when individuals are seeking new and valuable information, as opposed to redundant information provided by strong ties (ibid). Conversely, structural holes described by Burt (1992, p.18) is a "separation between non-redundant contacts". To explain further, Burt describes this separation as the opportunity for the focal actor in a bridge position to connect to otherwise unconnected network alters, access diverse resources and reap the benefits from brokering resource flows within the network. Several studies by Burt (1992, 2004, 2010) conclude that a broker who occupies this position is often rent-seeking and can easily

obtain economic value from disconnected network actors by regulating information exchanged between contacts and utilising the information obtained to maintain structural autonomy. Since structural holes allow a focal actor to access diverse resources and reap the benefits from brokering resource flows from diverse networks, Effing and Hulsink (2007) note that individuals in this position leverage social capital to access a wider and richer network of people, also identified as multiplex ties. As a result, Quintane and Carnabuci (2016) view that social capital of individuals in structural hole positions are utilised as links to access information between disconnected colleagues and groups.

However, Quintane et al. (2012) observe that it is unlikely that such individuals will have a sustained structural hole over a long period or the ability to keep contacts apart. Their study argues that structural holes in a network tend towards closure in the long term because brokerage is a fast-paced activity that requires temporary interactions. Additionally, Ridder (2009) notes that the perception of a broker maintaining a position for a long period in the network process undermines the fact that the position occupied by brokers in market structures are outcomes of a negotiated process. Ridder explains that where the broker fails to negotiate an exchange, the broker incurs cost and generates no offsetting fees which, potentially, can constrain their control with the network structure and network position.

In contrast to this traditional view of brokerage as a purely structural phenomenon, Grosser et al. (2019) observe that an emerging research stream has argued that operationalizing brokerage by solely measuring the structure of an individual's social network will fail to capture the processual dimension of brokerage. A similar stance is noted in the study by Soda, Tortoriello, and Alorio (2018), which notes that that network research continues to overlook the possibility that individuals occupying brokerage positions may have a different strategic orientation towards brokering, and these varied orientations can influence the relationship between structure and performance of the brokered relationship. Another study by Obstfeld, Borgatti and Davis (2014) asserts that even though social network structure affects the ways that brokers facilitate relationships, it does not define it. Equally, studies like Spiro, Acton and Butts (2013); Soda, Tortoriello and Iorio (2018) and Grosser et al. (2019), argue that while network structure can explain the prevalence of opportunities, individuals have to engage in the networking process. The role of the individuals is overlooked in the first place, along with the resulting behaviors that prompt exchange. As such, Spiro, Acton and Butts

(2013) criticise current studies for measuring and characterising static structural networks, instead of the process or the behaviours that prompt brokerage.

Consequently, Grosser et al. (2019) advocate for the examination of brokerage behaviour and processes, as they believe that it is a more direct way for operationalizing brokerage. They note that network brokerage actions, as opposed to network structure, are largely responsible for the beneficial outcomes often associated with brokerage, because network behaviour of individuals will likely predict the advantage above and beyond the structural effects that have been demonstrated in prior studies. Obstfeld, Borgatti and Davis (2014) also describe broker behaviour as brokerage intensity, explained as the varied behaviour demonstrated by a network actor when enacting networking activities.

As mentioned earlier, network actors demonstrate multi-actor behaviors to seek out advantages. Therefore, to understand the varied network behaviours and the implications on entrepreneurial networking, the next section discusses the different behaviours covered in previous studies.

2.2.1 Network Brokerage Behaviours

Reacting to the criticisms of structural brokerage, an emerging research stream focused on network brokerage behaviour offered a different insight for explaining how an individual engages with alters. According to Grosser et al. (2019) the possibility of an individual to adopt or demonstrate a certain brokerage behaviour is referred to as 'brokerage orientation', whereby a broker can exhibit a mix of behaviours from time to time. Taking note of this, Hughes et al. (2011) describe network behaviour as the different behavioural strategies adopted by firms to manage their interaction with other firms. Network behaviours can also be associated with the patterns of knowledge exposure that firms leverage or are able to access (McEvily and Zaheer, 1999).

Individuals who occupy a network position will likely have different brokerage orientations (Soda, Tortoriello and Iorio, 2018). Therefore, an understanding of brokerage behaviours within a network structure helps explain different network experiences. Consequently, several studies (Obstfeld, 2005; Obstfeld, Borgatti and Davis, 2014; Spiro, Acton and Butts, 2013; Quintane and Carnabuci, 2016; Obstfeld, 2017; Grosser et al. 2019) all capture varied insights of brokerage behaviour and have explained how the behaviours identified enhance the mobilization of resources and opportunities. The different brokerage behaviours captured in studies are discussed in

the next section. They are: 'Tertius Iungens', 'Tertius Gaudens', 'Conduit Brokerage' and 'Separation Brokerage' behaviour.

Tertius Iungens Broker (YUNG-gains):

According to Ebbers (2014), that an often often-forgotten entrepreneurial action occurs when entrepreneurs identify opportunities that they cannot easily or directly exploit and, so may inform other entrepreneurs with whom they are acquainted with or who are better equipped to access the opportunity. This decision to share valuable information with other entrepreneurs, instead of ignoring it entirely, is identified as selfless or 'Tertius Iungens' behaviour (ibid). 'Tertius Iungens', also known in this study as (TIO), is derived from a Latin verb 'iungo' meaning to join, unite or connect (Obstfeld, 2005). A 'Tertius Iungens' broker facilitates introductions between two other parties within an individual's social network (Obstfeld, 2005; Obstfeld, Borgatti and Davis, 2014). This introduction facilitated by the TIO broker, brings together individuals to foster collaborations and ease coordination between different networks (Ottani, 2016).

A different explanation offered by Obstfeld (2005) identifies the TIO broker as an individual who connects people in different networks, either by introducing them to reach each other or coordinating interaction between them to create innovations. This view draws attention to the different types of TIO, first noted in Obstfeld, Borgatti and Davis (2014). Their study identified this as the presence or absence of ties. However, their study failed to explain how this variation affects the brokerage process. A later study by Grosser et al. (2019) describes the different TIO behaviour that a broker exhibits. The first is a brief Iungens behaviour, explained as a scenario that facilitates or introduces pre-existing ties such that the benefits of the Iungens begin to recede. Then, the sustained Iungens interactions are when a broker plays a continuous coordinative role between parties by maintaining their relationships over a period of time

Tertius Gaudens Broker

Building further on the concept of network behaviour, Kent, Sommerfeldt, and Saffer (2016) describe the 'Tertius Gaudens' broker as the 'third who benefits'. The 'Tertius Gaudens' broker exhibits a network behaviour that encourages disunity. This broker is self-seeking and thrives on unfamiliarity, competition and conflict between parties for their own gain (Baker and Obstfeld, 1999; Obstfeld, Borgatti and Davis, 2014). This brokerage orientation was initially proposed by Simmel (1950) but further developed by Burt (1992) to explain the Structural-holes theory.

In this orientation, the broker intends to benefit from disunity between two parties by manipulating or exploiting actors for their own benefit (Obstfeld, 2005). In Simmel's discussion about the 'Tertius Gaudens' broker, the study identified enabling conditions that would facilitate the effectiveness of this brokerage behaviour, including a situation where competing actors in the network structure are equal, allowing the broker to choose between the two interests (Obstfeld, 2005).

The second scenario is where the broker in the absence of equal actors leverages or preserves them both to take advantage of the unfamiliarity between the two, creating a situation identified as 'Divide et Impera' or 'Divide and Conquer' (Burt, 2004). This situation is described as a situation when the broker recombines ideas and resources gained from both parties to create innovations, by limiting the knowledge communicated to both parties (Obstfeld, 2005). At the same time, Obstfeld notes that the broker's coordination between the actors can lead to incomplete interpersonal knowledge, as the broker only communicates information to parties for their own advantage.

However, because brokers also act as gatekeepers, boundary spanners and mediators (Adler and Kwon, 2002), 'Gaudens' behaviour will not always be useful to access new network parties. Consequently, the conduit broker behaviour, discussed next, is needed to access novel information between network actors (Obstfeld, Borgatti and Davis, 2014).

Conduit Broker

The 'Conduit broker' is also identified as a mediator who attempts to pass information between network groups without the intention of changing the relationships between alters (Obstfeld, Borgatti and Davis, 2014: Grosser et al., 2019). Equally, Grosser et al. (2019) explain that this broker acts as an intermediary between parties who do not interact at all or whose interactions are limited. Their study adds that this lack of interaction between parties might be as a result of a strained relationship, no pre-existing relationship, or a barrier like physical separation or diverse cultures, which prevent parties from effectively interacting.

The broker mediates between parties by taking on the role of an intermediary between the parties who are completely disconnected or who are connected only by a negative tie (Grosser et al., 2019). However, to facilitate this exchange, Obstfeld, Borgatti and Davis (2014) explain that they could request a reward for information exchanged,

especially if the information or service provided is unique or difficult to pass on. This reward motivates the broker to facilitate other interactions. Equally, Owen-Smith and Powell (2003) add that with 'Conduit brokerage', the broker is not very invested in managing relationships because some of the interactions can occur spontaneously. A contrasting brokerage relationship to the conduit brokerage is the separation brokerage.

Separation Broker

This brokerage behaviour was discussed only in Grosser et al. (2019). According to their study, the 'Separation broker' takes advantage of disconnected alters by seeking to maintain separation between alters in a certain network. Their study adds that this brokerage behaviour is similar to the 'Gaudens broker'. However, the significant difference with this two-brokerage behaviour is that the 'Separation broker' is motivated by power.

The 'Separation broker seeks to separate alters when they are at the risk of losing their position as a middleman in a network, and thus will prevent alters from getting to know each other just so that they can secure control in a network (Grosser et al., 2019). Their study adds that brokers who exhibit separation behaviour charge rents or gain status by conveying information between two parties who are unknown to each other or prevent a coalition from forming against him or her. In summary, separation brokerage entails the agentic manipulation of alter-to-alter separation (Grosser et al., 2019).

These insights into brokerage behaviours and structural brokerage are useful in understanding how networks are facilitated and the potential output of such relationships. However, what is unclear, especially with studies that examined brokerage behaviour, is the actual process of brokerage that takes place to facilitate network access. Some of these studies (see for example Obstfeld, 2005; Spiro, Acton and Butts, 2013; Soda, Tortoriello and Iorio, 2018) all explain the process and behaviour as the same; this conflated thinking makes it difficult to differentiate between network behaviour or a process.

Equally, from both structural and behavioural perspectives, the human agency role is completely ignored. Some studies hint at the importance (see for example Soda, Tortoriello and Iorio, 2018; and Grosser et al., 2019), but they do not explore how this influences the network brokerage process. Given that the focus of this study is on exploring entrepreneurial networking mechanisms in the social-spatial entrepreneurial

context, attention in the next section turns to network brokerage in the interventionist incubator context. The next section explains the network support incubators provide to start ups, the brokerage process and the network behaviour replete in this interventionist context.

2.3 Reviewing Network Support in Business incubators

To understand the influence of incubation support within entrepreneurial networking, this section begins by discussing the business incubator concept. Hausberg and Korreck (2020) observe that there is no scarcity in definitions of incubators, as academics and practitioners have presented a plethora of definitions from various incubation typologies. Please see Appendix 3 for incubation typologies documented across studies. For a detailed review of the business incubation concept see Appendix 2.

Following these variations in conceptualization, Allahar and Brathwaite (2016) note that the conceptual variations of business incubation are an indication that no one model can fit all business environments, economic conditions or cultural contexts. Similarly, Von and Grimaldi (2006) advocate the need to consider the context in incubation model design, as current studies have many similarities side-lining the contextual criterion that needs to be explored. Acknowledging these opinions, this study defines business incubation as an environment responsible for supporting start-ups by providing tailored support to address local problems, access to advanced competencies, networks, finance and technology to improve innovation, encourage cooperation and complementarity in a specific context. Notwithstanding, the focus of this study is the entrepreneurial networking mechanism, attention in the next section turns to how incubators brokers networks for new ventures.

Shih and Aaboen (2019) view that start-ups are often assumed to be involved in interactions that take place in the incubator by leveraging access to the incubator's network structure. They add that incubators allow new ventures the opportunity to seek and share resources, as well as provide access and opportunities to build social capital. However, to build this social capital, Hansen et al. (2000) note that business incubators provide new ventures with the necessary tools and mechanisms that will propel network creation. These tools, Hughes, Ireland and Morgan (2007, p.156) observe, are "facilitated by the incubator team, who then designs the 'constructs and frames of networking and makes it available to the incubating firms". These created networks could be internal or external (Lyon, 2002).

To broker networks internally, Duff (1994) suggests that the colocation of entrepreneurial firms is a more likely facilitator needed to generate a symbiotic environment, where entrepreneurs share resources and experiences, learn from one another, exchange business contacts and establish collaborative business relationships. Additionally, Lyon (2002) notes that internal networks aid resource pooling by removing barriers of affordability, through collaborations from multiple enterprises and through the distribution of resources. This creates an opportunity to build stronger social capital (ibid). However, Totterman and Sten (2005) point out that without the assistance of incubator personnel, an entrepreneur might experience difficulties in locating the right individuals from the often-complex network structure. Thus, incubator personnel add value to incubatees by assisting and supporting the creation and development of value-adding network relations (Hansen et al., 2000; Rice, 2002).

Conversely, Scillitoe and Chakrabarti (2010) note that the incubator assumes the position of an intermediary because they assist start-ups to access incubator-external actors in order to gain access to their resources and knowledge. These external actors, Scillitoe and Chakrabarti (2010) add, include potential customers and suppliers, a wide network of specialized service providers (e.g., lawyers, tax accountants), financial institutions (e.g., banks, venture capitalists), public and private research facilities and political institutions (e.g., local development agencies, funding agencies). All these external partners, Bøllingtoft and Ulhøi (2005) argue, provide tremendous value-added opportunities to the start-ups, as they provide opportunities to create partnerships, recruit talented people and obtain advice from outside experts.

Taking note that networks can be brokered internally or externally, Lavie (2006) and McAdam and Marlow (2007) explain that new ventures' options to explore new connections beyond their existing connections allow them to acquire information and resources beyond their existing network scope. Moreover, network opportunities provided by the incubator are argued to be embedded in social capital, which is important for cultivating trust, reducing time to market, and the cost involved with accessing mutually beneficial information (Sa and Lee, 2012). Additionally, networks brokered by the incubator allow for the creation of a clustering effect, which spurs the interest of internal or external foreign investors (McAdam and McAdam, 2006). This clustering effect also facilitates access to knowledge resources, which attracts financers and improves the incubator image and credibility start-ups require to access knowledge (Hannon, 2005; Rotschild and Darr, 2005; McAdam and McAdam, 2005). Additionally,

because start-ups do not exist in a vacuum, they require information, which serves as a lifeline for sustaining and growing their business (Pettersen et al, 2016).

Despite the perceived benefits of business incubators brokering these networks, negative results of networking have also been captured. These negative perceptions are captured in McAdam and Marlow (2007) and Warren et al. (2009). However, the studies attribute network disadvantage in the incubator to the degree of suspicion that exists when firms network, especially with fellow entrepreneurs. These studies were unable to explain the reasons for the suspicion, although they did identify lack of trust over intellectual property considerations, limited time and synergy between parties as possible reasons. Another concern about networking within the incubators is provided from the perspective of objectives. According to a study by Chau and Lau (2005), networking is believed to be the least favourable success factor of incubators in their study of Asian incubators. This is because the firms believe that if they do not share the same objectives there is no benefit in partnering with co-incubatees. A similar view was noted in Warren et al. (2009), who explain that the diversity of target industries in the incubator can potentially result in network disadvantage in the incubator because of limited commonality in experience and interaction.

Regardless of the potential negative outcomes, the perception of networking within the incubator creates a network image for incubators as internal or external connectors, hubs and brokers to various actors that play a role in the entrepreneurial process (Hansen et al., 2000; Bruneel et al., 2012; Shih and Aaboen, 2019). However, studies by Schwartz and Hornych (2010) and Cantú (2017) point out that to successfully maintain these relationships, it is important that incubators constantly and continuously build their network of relationships with actors who can contribute to the development of incubator firms and reduce redundancies (Burt, 2009). Additionally, Eflring and Hulsink (2007) explain that a tie mixture with network actors also helps incubating firms develop innovative solutions and growth, which becomes increasingly useful as these businesses evolve through the stages of growth and adjust to meet their changing needs. Similarly, Sa and Lee (2012) note that different network relations in the incubators create an opportunity for incubating firms to access divergent network patterns, which might not all be useful to new ventures. As such, incubator organizations act as mediators that create relevant network capabilities needed to facilitate and enable firm development done by leveraging the incubator network (Sa and Lee, 2012; Shih and Aaboen, 2019). These network capabilities are important because new venture

presence alone in the incubator is unlikely to be sufficient in making them viable businesses (Shih and Aaboen, 2019).

Based on the discussion above, it is suggested that business incubators' brokerage mechanisms allow new ventures to enjoy the benefits of being connected to actors using an incubator's network or space provided (Rijnsoever, Van Weele and Eveleens, 2017). The brokerage process can occur through direct or indirect mediation with actors in the micro-net, macro-net and meso-net (Halinen and Tornroos, 1998; Pettersen et al., 2015; Cantu, 2017; Shih and Aaboben, 2019). The micro-net actors are internal to the incubator, these are individuals with who the business incubator has developed relations overtime. The meso-net includes actors in the incubator's local network, while the macro-net represents national and international actors who are within the incubator's network but do not necessarily have interactions with (Cantu, 2017). Direct mediation requires the active participation of incubator management in building relations with network partners (Cantu, 2017; Shih and Aaboben, 2019). In this case, the incubator puts in place network activities like conferences, workshops, pitch competitions and face-to-face meetings, or offers referrals to incubating firms (Sa and Lee, 2012; Cantu, 2017; Shih and Aaboben, 2019). Equally, the incubator management might trade resources with actors, this is particularly the case when pursuing network relations with international actors (Shih and Aaboben, 2019). Conversely, indirect mediation does not require the active participation of the incubator management, but is instead facilitated through proximity to network partners, the brand name of the incubator, or previous relationship with network actors (Sa and Lee, 2012; Pettersen et al., 2015; Shih and Aaboben, 2019).

However, it is important to mention that this brokerage process is not coincidental but facilitated by trust and substantial time investment, which yields embedded relationships that can be internal or external (McAdam and McAdam, 2008; Sa and Lee, 2012; Baraldi and Havenvid, 2016; Cantu, 2017; Shih and Aaboben, 2019). The reviewed literature on brokerage support is indicative that business incubators display a sustained TIO behaviour, as the incubator management tries to link entrepreneurs with potential resource and network partners (Ebbers, 2017). As earlier stated, a brokerage method adopted by an individual is a reflection of network behaviour, as it explains how network ties are formed (Ebbers, 2017). As a result, Ebbers notes, the TIO behaviour within the incubator fosters the formation of business relations, as it creates firms that develop a TIO behaviour, which prompts incubating firms to actively link up with each other. This fosters the creation of new knowledge and exchange relationships both internally and externally.

Despite the increasing popularity of networking practice and the attention paid to networking in business incubators, very few studies have examined the network patterns created between incubating firms, incubators and actors (Sa and Lee, 2012; McAdam and McAdam, 2006; Cantu, 2015). A review of this is particularly important because, as noted earlier, different network ties provide different opportunities to incubating firms. So far, to the author's knowledge, only three studies have explicitly captured the incubation network patterns, and this is discussed in the next section.

2.3.1 Incubator network patterns

The discussion of brokerage within an incubator aids understanding of the role of incubator managers in facilitating network access for tenant firms and the role they play in framing network behaviour of the tenant firms within the space. However, an understanding of the network patterns present within the incubator explains the relational ties tenant firms leverage.

As noted earlier, three studies captured the incubation network patterns, namely: Sa and Lee (2012), Pettersen et al. (2015) and Fernandez, Jimenez and Roura (2015). Two of these studies had reasons for categorization network patterns identified and one did not, the earliest study is examined first. The first study that explicitly identified network patterns in an incubator was a study on Canadian technology incubators conducted by Sa and Lee in 2012. Their study categorised these patterns using the goals and strategies of interviewees. These patterns include:

Advisory networks: these are channels through which individuals sought professional services (e.g., accounting, legal, auditing and business consultancy) used for managing and growing their businesses. They identified that during the interviews, the start-ups acknowledged help received from consultants and that the incubators were instrumental in organising these networks. These networks were facilitated through referrals.

Spin-off networks: these are networks provided by the parent companies or universities the businesses spun off from. These networks provide their start-ups with access to corporate licenses and intellectual property. There are also opportunities to access expertise and resources useful for start-up growth. San and Lee note that these networks were previous relationships developed with academic and industrial laboratories and were critical sources of information and resources.

Strategic networks: this network is based on intentional alliances among incubated firms, government, hospitals, research institutes and venture capitalists to share

information, financial assets and other resources to reduce risks and enhance competitive positions. However, these kinds of networks are only facilitated by the incubation administration.

The next pattern discussed is drawn from Pettersen et al (2015). No justification for categorisation was used, although a similar sentiment noted in Sa and Lee (2012) was observed. This study identified three patterns as well. They are:

Incubator firms' 'private' external network resources: these are networks acquired from the entrepreneur's diverse networks, through education or previous work experience that have become critical in the start-up phase. From these networks pilot customers also emerge. These customers are instrumental in providing feedback, as well as defining target markets and workability of the product/service. Some pilot customers have also provided a financial contribution and act as reputational agents for validating start-up legitimacy.

Network resources developed internally among start-ups in the incubator: these are collaborations between incubatees. The incubatees exchange knowledge, ideas and experiences relating to the various phases of their businesses. In addition to the knowledge exchange, they learn from each other and provide mutual moral support for themselves. The collaboration is facilitated by the similarity in phases that the firms have to go through, regardless of the business area.

External network resources provided by the incubator: this network is similar to the advisory network identified in Sa and Lee (2012). The external network is a managed incubator network that gives incubatees access to research and development institutions, public bodies, legal counsellors, investor groups and regional network organizations. These networks provide a range of support from legal counselling to organizing events that enable incubatees to interface with industry and other entrepreneurs. However, this study notes that the network access given is tailored to match incubatees' needs and complement the services provided.

The final study that captured network patterns was by Fernandez, Jimenez and Roura (2015), and this study's categorisation is based on the strategic network model. The strategic network model, as discussed in Jackson (2008), explores the cost and benefits that arise from pursuing various networks and how individual motivations translate into network outcomes. Although a detailed explanation of the content of these networks or

the influence of the strategic network in this categorisation is lacking, this research still acknowledges the effort made in recognising specific network patterns. Taking note of this, the categories covered were the incubator-intra network responsible for sharing market intelligence in the incubator and the social networks which are personal links with employees and managers in different organizations. Other network ties identified are the business network and the marketing and sales network (Fernandez, Jimenez and Roura, 2015).

Based on these studies, it is deduced that links to different networks create various network outputs (Christakis, Fowler and Imbens, 2010). From an incubation perspective, McAdam and McAdam (2008) identify four kinds of outputs using networks brokered by the incubator. These include access to new ideas and resources, new venture credibility and reputation, knowledge exchange through collective learning and entrepreneurial growth. All the benefits identified are sourced and are not resident in one network tie, but several relationships created by the incubator management (McAdam and McAdam, 2008).

Additionally, McAdam and McAdam (ibid) note that these ties can be created or leveraged internally through relationships between incubating firms, or externally through relations with local and international actors. Having reviewed the entrepreneurial networking process and resulting network patterns within the incubator an interventionist support system, attention is now drawn to the cluster context in the next section

2.3.2 Network Creation Mechanisms Within Clustered Locations

To understand how networks emerge within cluster location, an attempt is made to understand the cluster concept. According to Rocha (2004), varied interest in clustering across various disciplines has created an opportunity to examine clustering from different perspectives. These include a form of geographic proximate industries producing the same product or services, and a group of interrelated industries either located in close geographic proximity or a network of firms using the same technology. However, Uzor (2011) views clusters as a group of small firms located in a specific location and producing the same product or services, who co-operate and compete but also learn from each other in order to overcome internal and external challenges of reaching distant markets through developed networks. Another definition of clustering, which focuses keenly on geography and technology, is proposed by Navickas and

Malakauskaite (2009 p.256). Their study describes clusters as "geographically integrated companies and associated organisations that share technology know-how, knowledge, skills, competencies and resources". While their study is focused on technology and geography, Porter (2000, p.5) makes note of the role of actors and describes clusters as "as the geographic concentration of interconnected companies, specialized suppliers, services providers, firms in related industries and associated institutions in a particular field that compete but also cooperate".

Another different definition of clustering which focuses on the network attributes of clusters describes a cluster as a progressive business network with strong objectives of improving sales and profit (SEEDA, 2003). The challenge with this definition is that it fails to adequately explain the origin of the objectives pursued, that is, are they from firms, the government or individuals? In addition, this definition seems to be so focused on profit-taking and sales that it does not account for other attributes of enterprise clustering. This study adopts Uzor's definition to describe clusters as the geographic agglomeration of similar firms that interact through the production of homogeneous goods, shared competencies, competition, knowledge and insights used in overcoming common challenges and contributing to regional growth.

Within cluster studies, locational proximity is often viewed as an instrument for promoting information exchange (Cooper and Park, 2008). This is because of the 'localised effects' witnessed, and these effects prompt outputs that will facilitate industry growth, innovative activities and profit characteristics over time (Sternberg, 1996). Additionally, McEvily and Zaheer (1999) note that firms in clustered locations are more likely to achieve face-to-face interactions, leading to frequent interaction and an increase in the value of relationships formed over time. Locational proximity also provides opportunities for entrepreneurs to identify and meet changing customer, market, supplier and input needs (McCormick 1999). Furthermore, Patrucco (2005) opines that locational proximity also stimulates the diffusion and accumulation of knowledge and information between local firms using technical externalities that are generated under peculiar industrial conditions. The knowledge dispersed within cluster location is tacit knowledge, that is knowledge that is not easily transferable or codified and perceived to be personal and context-dependent (Polanyi, 1967; Morgan, 2004; Bell and Zaheer, 2007).

However, geographic proximity alone does not guarantee firm collaboration, exchange or external economies. Other forms of proximity like the cognitive, social and cultural

are also vital (Saxenian, 1991; Oyeyinka and McCormick, 2007). Similarly, Saxenian (1991) observes that prior research tends to overlook inter-industry and inter-firm relationships and the changing nature of these relationships. Consequently, Cooper and Park (2008) advocate the need to activate proximate connectivity using available networks to promote economic efficiency and effectiveness within clusters. To understand how networks are activated within clusters, attention is drawn to Eisingerich, Bell and Tracey's (2008) argument that cluster performance is rooted in networks which bind the co-location of firms. To elaborate further on this view, Storper (1997) advocated for the need to expand the perception of clustering beyond the input-output model or as a tool for gaining economies of scale, to be viewed instead as multi-level social interactions that will prompt knowledge exchange. Additionally, Camagni (1991) notes that clusters present a relational space that facilitates the social interactions, interpersonal synergies and collective exchange needed for creating successful ventures and empowering local areas.

To understand how networks within clusters are enacted, Patrucco's (2005) study of the Emilian plastic cluster in Italy provides a useful starting point. This study emphasised the relationship between localised technological knowledge and geographic factors. Patrucco notes that the localised technology knowledge that emerged within this cluster was outputs of collective learning and behaviour replete in the cluster. This did not occur randomly but through deliberate formal and informal interactions and spontaneous networking among firms. The nature of these relationships influenced how new firms were able to create, access and share knowledge (ibid).

Another proposition that attempts to explain the network creation process within clusters is captured in Eisingerich, Bell and Tracey (2008). As noted earlier, their study observes that cluster performance is rooted in social networks that bind co-located firms. To explain how social networks are enacted in clusters, their study reviewed the role of strong ties and network openness. According to Eisingerich, Bell and Tracey (ibid), strong ties are a key feature of high performing clusters. Strong ties also provide access to locational resources that are not easily accessible to a firm (ibid). To corroborate this view, other studies that have examined the role of strong ties affirm that they are effective and useful in assessing a variety of specific resources and information that is often tacit in nature (Bruderl and Preisendorfer, 1992; Larson and Starr, 1993; Hansen, 1995; Elfring and Hulsink, 2003; Kingsley and Malecki, 2004). Additionally, strong ties require repeated face-to-face interactions between firms in the cluster, and these repeated interactions are critical for unmasking complementarities,

thereby increasing the possibility of firms meeting resource partners or forming synergies with them (Gulati, 1995; Eisingerich, Bell and Tracey, 2008). Furthermore, when firms engage in repeated interactions, trust is created and this prompts mutual obligations and increases the capacity for engaging in inter-firm interaction, thereby preventing the likelihood for opportunism (Mesquita, 2007; Eisingerich, Bell and Tracey, 2008; Eisingerich et al., 2009). In sum, strong ties create site-specific investments that also facilitate information exchange and facilitate speed to market (Eisingerich, Bell and Tracey, 2008).

With regard to network openness, Eisingerich, Bell and Tracey (2008) argue that there is a positive relationship between network openness and cluster performance, especially in the face of environmental certainty. Their study notes that where environments are uncertain, resident firms will continuously modify their offering to maintain competitive advantage, meet new market preferences and respond to technological changes. Cluster openness serves as a coping strategy required for adjusting to changes within a location, hence creating opportunities for new firms to emerge or form stable exchange partners (ibid). Additionally, their study notes that network openness within a cluster creates new sources of information and diversity to exchange actors with diverse skills. In sum, market uncertainty creates two network alternatives. The first scenario is that firms to seek out network relationships utilised in the past and reinvest in them (Podolny, 1994; Gulati, 1995), or they diversify network partnerships to gather new diverse information and reduce reliance on a single partner, in order to make better decisions (Haunschild and Phillips, 2004).

The discussion presented so far reveals how network emerges within clusters. Factors like locational proximity, localised knowledge, network openness and trust have been cited as instruments that can facilitate the emergence of networks. However, what is yet to be captured is how these networks are brokered.

According to Stuart and Sorenson (2003), firms cluster to leverage the right social ties critical for assembling the resources they need to thrive. These network ties are what enable clustered firms to access and mobilize resources for the entrepreneurial process using social capital (Shane and Stuart, 2002; Stuart and Sorenson, 2003). An individual's social capital is a combination of the network size, strength and other potential resources possessed by individuals within a particular network (Flap,1995). Lin (1999) notes that the social capital of an individual enables them to leverage resources as well as all the corresponding relationships resident within them. Social

capital also acts as social credentials that reassure organizations and their agents that a firm can provide additional resources beyond their individual capital (Lin, 1999). Within the cluster, Sorenson and Audia (2000) explain that social capital is activated through the geographic distribution of resources and relationships anchored in a location. These spatial relationships aid entrepreneurial action because firms can utilise the resident social, employment and interorganizational relationships they need to start a business (Sorenson and Audia, 2000).

Specific studies like Markusen (1996), Gordon and McCann (2000), St John and Pouder (2006) and Robinson, Rip and Mangematin (2007) all capture how networks are organized within different cluster types and discussion begins with Markusen's study. Markusen's (1996) study discussed how network activities are fostered across four clusters types in the Silicon Valley region. The typologies covered include the Marshallian, the Hub and Spoke, the Satellite and the State-anchored districts. More detailed discussions of these typologies are provided below.

Marshallian: this is made up of small, indigenous businesses who make production and investment decisions locally. Actors in this location do not intentionally interact. However, spontaneous routine and intensive exchange occurs between suppliers, customers and competitors, resulting in external economies. When firms' interactions occur, this is done to accommodate shared risks, stabilise markets and share innovations. Networking is facilitated by a trade association, government at the local and regional level and trust between members.

Hub and Spoke: here the agglomeration of firms is triggered by the presence of one or several big corporations in one or a few industries. Networking in this location is usually between small firms and an anchor large organization, and anchor firms and external suppliers. The smaller firms can also enjoy agglomerative externalities from these organizations without necessarily interacting with these big corporates. External interaction between suppliers and hub firms are facilitated using long-term contracts and commitments to either upgrade quality of goods, improve timeliness or manage inventory better. However, the terms of the relations with external suppliers are usually defined by hub firms.

Satellite District: in this type of cluster, conurbation policies by the government triggers the agglomeration of the branches of multinational co-operations. This kind of policy is usually designed to stimulate regional development in remote areas. Markusen notes that because of the heterogeneous nature of firms within this space, no-place

embeddedness exists. This implies that very minimal or no interaction exists between firms and, where present, it is between the parent corporation and the branch plant.

State-Anchored District: in this type of cluster a public or non-profit entity is the hub firm that attracts firms to the location. Networking in this location is very minimal as firms located here are not concerned with stabilising markets or preventing risks. Additionally, network activities in this location are facilitated and regulated by government activities and are tailored to match government involvement.

Turning to Gordon and McCann, their (2000) study adopts a similar approach to Markusen, although in their study they identified three cluster types: the pure agglomeration, the industrial-complex and the network cluster. A detailed discussion of how networking is enacted within them is provided below.

Pure Agglomeration: discussions on what triggers firm agglomeration in the model of cluster is unclear. However, Gordon and McCann (2000) liken this model to Marshal's (1920) view of clustering where firms enjoy economies of agglomeration; the ability for firms to access localized traded dependencies. Their study describes this cluster model as an "ecology of activities" benefitting from proximity (Gordon and McCann, 2000, p.517). Networking between actors in this cluster is driven by interest, chance and the probability that firms will leverage spatial factors to find the right network partners. As such, relations between firms within this type of cluster are not static, as firms constantly need to change network partners to respond to current locational advantages or address their specific needs.

Industrial-Complex Model: in contrast to the pure agglomeration model, this cluster thrives on stable relations among firms. Again, enough context was not provided to understand how this cluster emerges, although it is stated that firms establish trade links with other firms, which acts as a governing principle that guides relations between businesses in the location. Networking within this cluster is predictable and fostered to minimize cost and is often dominated by firms who are seeking to maintain monopoly.

Social-Network Model: like the industrial complex model, a limited explanation is provided about this cluster type, although emphasis is placed on interfirm interactions that might not essentially be spatially focused. However, it is noted that co-location of firms still enhances networking and the ability for actors to access opportunities. These interfirm relations are facilitated by trust, informality and the willingness to participate within a group network to achieve mutually beneficial goals. In this model of clustering

past relationships are also important because they aid in granting legitimacy and access to certain network actors and groups.

Another study that reviews how network activities are enacted within clusters is by St John and Pouder (2006). Their study identifies two cluster types: the technology and the industry clusters. They explain that the technology cluster is triggered by technology production-based learning that occurs between dynamic technology firms located in designated regions. Conversely, the industry cluster model is triggered by the agglomeration of firms operating within the same sector, with firms occupying a relatively small geographic area (ibid). In the two cluster models, the proximity connectivity facilitated through networks plays an important role but is harnessed differently. Within the industry cluster, the study observes that the organized networks are formal, tightly joined and linked to well-specified network actors like suppliers, bankers and attorneys. However, in technology clusters, a combination of strong and weak ties is utilised to access knowledge and reach the network actors present in the location. Network activities like referrals and entrepreneurial networking events are avenues for disseminating information about resource availability and new technologies.

The final study that reviews how networks or networking activity is facilitated is by Robinson, Rip and Mangematin (2007). In this study, two nanotechnology clusters in France and the Netherlands were examined. In both cases, technology platforms were used to facilitate relationships between firms. A technology platform, as described by Economides and Katsamakas (2006), is a hub of the value chains triggered by an anchor firm such as, Microsoft's Windows operating system or Sony's PlayStation (a game console). Technology platforms trigger technology agglomeration, which occurs when firms use and expand on the value created by the hub firm (Robinson, Rip and Mangematin, 2007). This is done in two ways. The first is through the co-location of facilities and scientific and technological competencies. In this case, the technology platform becomes an extension of the created facilities. The second is by exploiting the value and opportunities created by a hub of firms and assembling and developing these processes to be used in a different location. Whichever approach is adopted, this hub of firms will need to be located near a research centre or a university and commit high investment in monetary and human capital.

The cluster studies reviewed above are not exhaustive. However, they are useful for understanding network subtleties across different cluster models. Additionally, they provide some guidance for understanding how different cluster context networking can

impact entrepreneurial action and evolve through the different stages of business. However, a critique noted in these studies is that they were mostly quantitative studies. Gordon and McCann (2000) recognised this as a limitation and advocated for a qualitative approach to adequately measure co-operative behaviour among firms, especially if the goals pursued by the network actors are mutually beneficially.

Similarly, other studies (Baptista and Swan, 1998; Rocha, 2004; Saxenian, 2007; Acs et al., 2009) argue that new entrepreneurs are often excluded from the networking creation process, even though they are critical to cluster advancement and specialization. Aggrawal et al. (2007) add that without new venture interaction and activity, knowledge might not be tapped into, leading to knowledge dormancy and a possible slowdown in cluster performance.

Like the incubators, cluster firms also leverage multiplex ties to access multiple resources. In view of this, it is worthwhile exploring the patterns of relationships that emerge across clustered firms, as this is identified as a key differentiating factor of clustered economic action (Cohen and Fields, 1992; Eisingerich, Bell and Tracey, 2008). It is also useful in explaining how contextual variations influence the way relationships are created spatially. To do this, the next section explores the extant literature on network patterns.

2.3.2 Network Patterns in Clusters

Since emphasis is placed on the need for start-ups to access varied networks types because different networks carry peculiar informational content and will impact performance differently (Rodan and Galunic, 2004; Giuliani, 2008; Casanueva, Castro and Galan, 2013). In this section, the resulting network types leveraged by these firms within cluster are discussed.

To understand the types of relationships anchored within a clustered space, different studies have examined network types within clusters. However academic discuss on this is still very limited. Some studies like Casanueva, Castro and Galan, (2013), Engel and Del-Palacio (2009), Aharasona, Baum and Plunket (2008) and Bell (2005) were able to clearly articulate network types in their studies.

Discussion on network types begins with the earliest study examined by Bell (2005). In this study, the influence of network centrality on firm innovation amongst firms within the Canadian mutual funds' cluster was investigated and two network types were

identified; the managerial network and the institutional network. Both are outlined below;

Managerial network: this is an informal relationship that exists between firm executives. This network is a highly trust-based relationship that allows executives to obtain and share tacit information between themselves. Bell notes that for this relationship to be successful, managers will need to occupy a central position, as this aids them in establishing informal friendships that will provide access to novel information required for boosting firm innovation.

Institutional network: this network is also created among firm executives to facilitate the dissemination of industry news and market information. For example, news like 'new products have been approved', provides an early warning for other members of the association about potential competitive actions. However, Bell notes that there is no meaningful relation between institutional networks, centrality or innovativeness because network ties are solely used for transmitting information, and what is communicated is not deep or novel enough to enhance innovation.

A similar approach to network classification was adopted by Engel and Del-Palacio (2009). However, this study reviews the impact of intra- and inter-firm mobility of resources on the innovation of firms in Silicon Valley, identified as a cluster of innovation. For this study, three network types were identified to be present in this location, namely: weak ties, covalent bonds and durable bonds. These are discussed in detail below.

Weak ties: these are relationships that are frequent and more face-to-face. This connection exists with individuals in the same or related industry who engage in business together and can share information and communicate often. This kind of network is facilitated by entrepreneurship events like trade fairs, conventions and other professional gatherings from businesses around the globe. These networks are made stronger by frequent interactions and the ability of partner firms to informally share not only information but also technology, resources and information. Over time, these weak ties become durable bonds when constant conversation and relationship has been established.

Durable bonds: this is a dynamic and fluid relationship that that exists between communities, entities, businesses and individuals in the cluster. This network is strengthened in the presence of a dense mass of weak ties and entrepreneurs with a

born global mind-set, identified as 'mobile assets'. When durable bonds and weak ties are harnessed, a multidimensional network structure is created, leading to the emergence of covalent bonds.

Covalent bonds: covalent relationships are created when relationships between network partners become permanent. This embeds systems and processes with single actors performing vital roles with multiple businesses and in multiple locations. With covalent bonds clustered firms benefit from bidirectional flow of information, capital and commodities. This network is reinforced by continuously adding new relations with multiple firms in two or more geographically dispersed clusters. In addition, it is facilitated and sustained by respect, the ability to share resources and knowledge, processes and the ability to align and meet with group goals. Their study notes that when firms can operate in this fashion, they become 'super innovation clusters'. However, this study failed to identify how these networks types are mobilised to facilitate intra- and inter-firm mobility. This study was not empirically tested either, hence making it difficult to ascertain the presence of these ties in the reviewed location.

Another study that discusses network types displayed by firms with clusters was by Aharonsona, Baum and Plunket (2008). This study examined the factors that affect productivity in cluster locations. In their study, three biotechnology locations in Canada were examined. Within these locations, they identified that some had inventive and others had uninventive clusters. The inventive clusters were locations with more university spinoffs, large management teams and more upstream investment in research and development and collaborations. Conversely, the uninventive location did not have these characteristics identified, and were identified in the study as 'disadvantaged areas'. Networking in inventive clusters saw more alliances and collaborations between firms, universities and university spin-offs facilitated by professional and social networks. These relationships were facilitated by shared technology, the concentration of diverse businesses and age. In explaining the role of age, their study adds that while new firms benefitted from the supportive alliance between local actors, firms and universities, mature and old firms were seeking to either exploit local advantages or reach technological scale. Therefore, firms leverage reputation networks to attract investors and create partnerships.

A major pitfall of this study is that it completely ignored how networking is enacted in uninventive locations or even identify network types firms seek to leverage. Additionally, the definition provided for uninventive clusters is vague, understanding the exact

characteristics of firms in uninventive clusters will help to differentiate their peculiarities.

The final study reviewed that examines network types present in clusters is by Casanueva, Castro and Galan (2013), and took place in a footwear cluster in the region of Valverde (Southern Spain). This study investigated the network type utilised for transferring tacit and explicit knowledge and the use of commercial and cooperative networks for knowledge transfer within this cluster. Commercial networks are viewed in this study as standard trading relations that exist between firms, and the study notes that they are critical for the transfer of explicit knowledge. On the other hand, the cooperative network is identified in their study as relationships between businesses within the sector. This could be cooperation between firms to carry out product purchase, the joint production of goods or access to distribution channels. In contrast to the commercial network, this network is critical for transferring tacit knowledge among firms in the cluster.

A criticism of this study is that very limited explanation is provided for commercial networks. In addition, more detail about how these networks initiate the transfer of the types of knowledge identified is also required. This study again reinforces the need to carry out a qualitative study to investigate this.

Having reviewed these studies that have captured how network activities are enacted and the different network types clustered firms are likely to leverage, an important observation made is that the network type or the network activity prevalent in a cluster location is determined by what the study is investigating, the sector in question, the context and the model of clustering. Therefore, these indicators should be considered when studies of cluster networking are carried out. This view is echoed in Brass (2004), who explains that the type of interactions displayed between firms in clusters is an output of socially shared attributes and contextual realities, making the relationships established more institutionalised. Urban (2011) affirms this but suggests that the usefulness of relationship established can be context dependent as well.

While the studies reviewed successfully captured network types resident in the different cluster, what is yet to be accounted for is the role of individuals and their reaction to networking opportunities available within the cluster. Equally, new firms identified to be critical agents within the cluster are also ignored. Discussions fail to show how new ventures explore and react to network opportunities, why they will leverage certain network ties and ignore others, how they are able to assess network partners and the

challenges they face in assessing them. With the exception of Aharonsona, Baum and Plunket (2008), who identify that support is provided to start-up firms to access networks, the general assumption is that space will equate access. To the best of the researcher's knowledge, this is yet to be reviewed, thus creating an opportunity to make contributions to cluster network studies.

Aside the fact that new firms, who are critical actors in the cluster evolution process, are ignored, the literature treats networking and networks as spontaneous action that just emerges. While previous sections have summarised, the network brokering process in both the interventionist and location induced entrepreneurial context of cluster, what is yet to be examined is the role of the role of individuals in creating these interactions. Burt (2012) views that there is often a significant disparity in the way individuals benefit from network brokerage, and this is because of the different motives that propel networking. Equally, Soda, Tortoriello and Iorio (2018) add that because networks are outcomes of interdependent actions of multiple agents, it is critical to explore the influence of motivations and to understand how they influence an actor who is embedded within a particular network.

Understanding network motivation also presents an opportunity to understand why certain behaviours are demonstrated, or why a brokerage method adopted is utilised in the first place. This study argues that it provides an opportunity for 'sense making', where the role of agency in network processes is explored. Borrowing from Weick (1995), 'sense making' explores how individuals within a social process understand their experiences and how these experiences guide their behaviour. The sense-making process also creates psychological contracts, a set of non-verbalised expectations and obligations that exist between two parties (Ring and Van de Ver, 1994). Additionally, Burt, Kidluff and Tasselli (2013), explain that even though networks can facilitate or inhibit actions, people are the source of actions, and as such it is important to review the reasons behind their actions. Moreover, Huggins (2000) notes that the attitudes or preconceptions that a broker uses to harness or facilitate interests are rooted in their motivations, and thus individual motivation must be examined to understand how valid interactions and exchange can take place. Given these propositions, the next section explores the motivations that inspire the pursuit of network relations.

2.4 Network Motivation

Following discussions on the need explore motivation in entrepreneurial networking, Grimaldi and Grandi (2003) propose that a critical ingredient needed for birthing

successful ventures is a clear intention by founders on the purpose of building relationships. A similar notion proposed by Westaby (2012) describes motivation as the glue that holds social networks. This is because it allows individual players within a specific social network to strive towards achieving a set goal. The need to actualise a goal creates a network trigger within individuals to either create or maintain networks, or seek returns for participating (Galaskiewiez, 1979; Burt, 1992; Westlund and Nilsson, 2005). Moreover, entrepreneurs are identified as reflective agents that are intentional about the thoughtful creation of relationships (Hallen and Eisenhardt, 2012). Therefore, research focused on improving the networking must take into account the needs and expectations of entrepreneurs and intermediaries to understand their motivations for engaging in networks in the first place (Lockett, Jack and Larty, 2013).

Despite these observations, studies that examine network impact often treat motivation in passing, or do not acknowledge motivation at all (O'Donnell et al., 2000; Parkhe et al., 2006; Shaw, 2006; Cooper, Hamel and Connaughton, 2010). Other studies such as Adler and Kwon (2002), Argote, McEvily and Reagans (2003) and Hansen and Nohria (2004) have all identified motivation as a precursor to knowledge sharing. However, they all fail to explain how network motivation triggers the knowledge sharing process. Similarly, Reinholt, Pedersen and Foss (2011) add that extant network research that explicitly includes motivation within network study provides a limited description of network motivation and treats it as a unitary concept. Taking note of the views expressed, different studies have called for a deeper investigation of network motivation of participants, because it is useful for adequately explaining how network behaviours are enacted and the perceptions of impact from the actors who engage in them (Curran et al., 1993; O'Donnell et al., 2000; Shaw, 2006; Westaby, 2012; Zahra, Wright and Abdelgawad, 2014).

However, whilst reviewing network motivation studies, very few of the studies have examined the role of motivation in the networking process (Lockett and Larty, 2012; Westaby, 2012). The earliest comprehensive study that explored the influence of motivation in networks was Oliver's (1990) critical contingence proposition. According to Oliver (ibid), critical contingence provides a summary of the reasons and conditions that increase the likelihood of inter-organizational relationship across industries. Oliver's study proposed six conditions as generalizable determinants of inter-organizational relationship formation and include necessity, asymmetry, reciprocity, efficiency, stability and legitimacy. Later studies have adopted some of the critical incident determiners to explore network motivation in different scenarios. An example is noted

in studies by Curran and Blackburn (1994), Joyce et al. (1995) and Chell and Bains (2005), who all used it to explore network motivations of business owners. Other studies that explored network motivation, particularly from an entrepreneurial standpoint, drew inferences to one or two conditions from the critical contingence approach. These include Cooper, Hamel and Connaughton (2010) who examined the role of legitimacy and reciprocity but identified it as information sharing, capability building and shared experience and Shaw (2006), who identified bartering and exchange, similar to reciprocity, as a network motivation condition.

In the same vein, Huggins (2000) notes that the critical contingency approach offers an opportunity to explore the emergence of multi-actor network structures, as well as understand and interpret the characteristics and organization of alters within a network structure. However, Huggins' criticism of this approach is that there is an assumption that decision-making by network participants only happens during a crisis and the role of the network broker is not acknowledged. Another criticism of the contingency approach is that it ignores process which is critical in understanding networking actions (Ring and Van de Ven, 1994). The network process, Ring and Van de Ven explain, explores how brokers negotiate, execute and modify inter-organizational relationships.

A different approach proposed for explaining network motivation was influenced by the work of social exchange theorists (Cooper, Hamel and Connaughton, 2010). Cropanzano and Mitchell's (2005) review of the social exchange theory contributions traces the origins back to the 1920s, and since then development and contributions from disciplines like sociology, anthropology and psychology have been witnessed. Studies like Blau (1964) and Emerson (1976) describe social exchange as how individual interactions trigger exchange obligation within a particular network. A more insightful view of social exchange, provided by Meeker (1971, pp.487-488), describes the social exchange process as "undefined terms: persons (the participants in the exchange), acts (items of behaviour performed by the persons), and values of acts (the reward or reinforcement a person receives from an act)". This is similar to Blau and Emerson's (1976) definitions that anticipate the obligation of exchange to occur when interactions are initiated. A more recent study by Fehrl and Ginits (2007) adds that social exchange involves the mutual exchange of benefits like ideas, goods, aid or social approval's unspecified obligations. An earlier study by Foa and Foa (1980) extends the list of resources exchanged to include information, status, love, money, goods and services. Homas (1958) adds approval and prestige as resources exchanged.

However, Cropanzano and Mitchell (2005) explain that an underlying component of social exchange theory is the notion of reciprocity and negotiated agreement. In their paper, they explain that negotiated agreement is usually a part of economic exchange and that the duties and obligations that guide exchange are fairly detailed and understood, therefore may be bound by a contract or sanction. Conversely, reciprocity viewed as a folk belief, a transactional pattern and a moral norm are believed to work better than negotiations, as they act as a trigger for building better working relationships, trust and commitment (Cropanzano and Mitchell, 2005).

Although reciprocity and negotiated agreements have been identified to propel social exchange, Meeker (1971) identifies factors like rationality, altruism, group-gain and competition as other factors that prompt social exchange. However, Cropanzano and Mitchell (2005) suggest that these other factors are often ignored, and hence advocate for a more detailed exploration of the concept.

Following these discussions of social exchange, identified as interactions influenced by self- interest (Galaskiewiez, 1979), preceded by returns (Burt, 1992) like favour and future obligations (Blau, 1963), it can be difficult to identify the relationship between social exchange and network motivation. As such, Fehrl and Ginits (2007) opine that research is yet to establish a relationship between exchange and human motivation or even motivational driving forces that prompt social exchange. Equally, Cropanzano and Mitchell (2005) observe that some exchange theorists describe exchange as transactions rather than a type of relationship, creating room for definitional ambiguity.

Taking note of the criticisms highlighted above, this study argues that social exchange theory can be used side by side with the contingency approach. The contingency approach identifies conditions that will prompt an individual's decision to engage in inter-organizational relationships (networking), whist social exchange theory explores factors that guide exchange and the output of the exchange. The key denominator from both schools of thought is the presence of the individual who will engage in networking activities for exchange outcomes (tangible or intangible). The individual plays the role of the broker or receiver, who attempts to make sense of these interactions by retrospectively exploring the implications of the varied individual actions (Weick, Sutcliffe and Obstfeld, 2005). However, to explore these different conditions that motivate individuals to engage in networking activities, this study reviews Oliver's (1990) contingency approach. This study argues that it provides a holistic image of how network motivation is prompted, and, in addition, they have been used in other

entrepreneurial studies, discussed earlier. This contingency approach is reviewed in the next section.

2.4.1 Discussing Network Motivators using the Contingency Approach.

The first motivator to be discussed is necessity. Oliver (1990) explains that necessity facilitates relationships or exchange for specific requirements that are either policy or regulatory induced. Necessity creates a sense of urgency by fostering relationships that ordinarily would not have happened in the first place (ibid). Additionally, the study notes that these kinds of relationships are mandatory and require participants to conform to authorities or stipulated regulations, as non-compliance by the individual could result in punishment, loss of resources or expulsion.

A good example of how necessity enacts network relationships is captured in studies which have examined innovation systems at the either the national, regional or cluster level (Spielkamp and Vopel, 1999; Roelandt and Hertog, 1999; Edquist, 2006; Lundvall, 2007; Godin, 2009). Although the interactions noted are not mandatory, active engagement creates an opportunity for knowledge and innovation exchange. Lundvall (2007) describes the innovation system as a system that shapes the innovation process and other elements that link to economic performance. These elements, Roelandt and Hertog (1999) explain, are required for facilitating interconnections between institutions in order to create, store and transfer skills needed for innovation to occur (Roelandt and Hertog, 1999). However, an innovation system cannot function without the presence of actors, particularly producers and users of goods and services, as well as institutions (Roelandt and Hertog, 1999).

Since innovation does not occur in isolation (Debresson, 1996), and a firm's ability to innovate is dependent on the capacity to organise complementary knowledge (Roelandt and Hertog, 1999), the need to organise complementary knowledge creates a necessity that can be remedied by government intervention. Government creates policies that will encourage stable exchange across the different elements identified, which will in turn stimulate knowledge creation using support entities (Roelandt and Hertog, 1999).

However, a contrasting motivator which is noted to be more voluntary is the contingency of asymmetry. Asymmetry is prompted by the need to exercise power or control over other organizations within a network, in response to resource scarcity (Oliver, 1990). In reviewing the influence of power within networks, studies make inferences to network centrality (Brass, 1984; Krackhardt, 1990; Burkhardt and Brass, 1990; Brass and

Burkhardt, 1993; O'Donnell et al., 2001; Kingsley and Malecki, 2004; Brass et al., 2004; Jack, 2010; Apa, Grandinetti and Sedita, 2017).

Furthermore, centrality viewed as the degree of power or influence in decision-making, makes it possible for an individual to access information or resources utilising direct or indirect networks (O'Donnell et al., 2001; Jack, 2010;). Equally, Apa, Grandinetti and Sedita (2017) add that actors in central network positions have greater access and control over relevant resources, such as information in a communication network. Therefore, actors who can control relevant resources increase others' dependence on them, hence acquiring power at the same time. Additionally, Wijk, Jansen and Lyles (2008) suggest that when a broker occupies a central position in a network, the individual can locate relevant information or knowledge. This is made possible using structural holes to locate actors, so as to acquire and share diverse knowledge (Burt 1992; Lin, 1999; Tsai, 2001). A centralised broker is also exposed to a wider reach of connections that allows access to non-redundant ties which carry valued resources (Burt, 1992). However, it is important to note that the benefits a broker enjoys by being in a central position are not automatic, as network maintenance of multiple multiplex networks is costly (Gulati and Sytch, 2007; Wincent, et al., 2010). As a result, Wincent et al. (2010) note that in the event that firms are unable to access resources and mobilise benefits, this can cause a detrimental impact to the broker's firms.

In addition to asymmetry and necessity, Oliver (1990) identifies reciprocity as another motive for networking. This contrasts with other contingencies focused on power and need, because this motive relies on collaboration, coordination and co-operation (Oliver, 1990). According to Simmel (1950), reciprocity is required for maintaining equilibrium and inducing interactions within networks. Additionally, studies like Powell (1990) and Uzzi (1997) note that reciprocity initiates goals and interests that are collectively or individually pursued, triggering co-operation and intentional interactions between actors in a network.

Reviewing reciprocity from an exchange perspective, Molm (2010) identifies reciprocity as a source of co-operation and solidarity. Through reciprocity, actors are obligated to give back directly or indirectly, which in turn builds trust, affective relationships and cultivates a culture of solidarity needed for mitigating risk or uncertainty that could emerge within a network (Molm, 2010). However, Wincent et al. (2010) note that for reciprocity to be effective, network participants are required to make resource commitments in order to advance their shared goals. Their study adds that sometimes,

when making these commitments, complications such as divergent goals could arise, creating an opportunity for freeriding or no reciprocity from network partners. Therefore, Inkpen and Tsang (2005) recommend establishing generalised principles to address potential risks of opportunism. Although these suggested principles do not exist spontaneously, time and effort from network partners are required for these to be created (Walter et al., 2008).

One contingency that aids in establishing principles and fostering reciprocity is efficiency. Oliver's (1990) study failed to adequately explain the efficiency contingency but did highlight that efficiency is prompted by the need to improve the input/ output ratio. Therefore, in seeking to understand efficiency better, references are made to earlier studies that examined external economies. Marshall's seminal work, published in 1890, identifies external economies as a total fall in unit costs as a result of the presence of specialised knowledge flows and access to specialised information concerning production processes. Marshall's study identified three principles that facilitate external economies and impact new venture success: access to localised skilled labour and producer services, access to infrastructure and knowledge spill overs originating from diverse or similar ideas (Audretsch, Flack and Heblich, 2007; Renski, 2011).

However, external economies do not occur accidentally or spontaneously, but are dependent on what Nadvzi and Schmitz (1997) describe as 'joint action'. Whilst reviewing their discussion on enterprise clustering, Nadvzi and Schmitz (1997) describe joint action as co-operation or interactions between firms at different stages or amongst competitors in a cluster in order to achieve economies of scale and venture success. Joint action can exist as bilateral or multi-lateral relationships but also as vertical or horizontal co-operation (Nadvzi and Schmitz, 1997). Action is bilateral when co-operation exists between two firms and multi-lateral where co-operation exists between a group of firms brought together by an association or organization (Nadvzi and Schmitz, 1997). Furthermore, Nadvzi and Schmitz explain that vertical co-operation involves the interaction of firms in different stages of the distribution chain and horizontal is when interaction /collaboration is among competitors in the distribution chain.

Additionally, Putnam (2000) argues that traditional factors like labour and knowledge will be insufficient for ensuring new venture success or economic performance and, as such, recommends networks as critical elements that will enhance performance and create trust. Putnam adds that social capital also facilitates access to 'secrets' or

knowledge spills over across firms, invariably creating opportunities for maximizing external economies. A different perspective on how networks can facilitate external economies is echoed in Hughes, Ireland and Lumpkin (2007). Their study notes that networking necessitates the formation of close linkages between a firm in need of information and a firm possessing it. Therefore, firms need to pool and draw on each other's resources through active close participation with a range of networks (Hughes, Ireland and Lumpkin, 2007).

However, the efficiency motivator cannot preclude the role of stability in seeking to establish inter-organizational relationships. Stability contingence is described as the motivation to form relationships in response to market uncertainties, caused by resource deficits or limited knowledge of market fluctuations (Oliver, 1990). In the bid to achieve stability, Oliver explains that uncertainty prompts organizations to manage or create relationships and use them as a coping mechanism needed for either forecasting or forestalling changes or absorbing uncertainties within the market, to achieve reliable exchange and resource flow.

However, Edelman and Yli-Renko (2010) opine that opportunities also arise under conditions of uncertainty. This is because environmental jolts motivate actors to re-design institutions creating new entrepreneurial opportunities (Sine and David, 2003). Additionally, Sine and David suggest that when the environment is stable, incumbent organizations and embedded logics can create obstacles that will hinder entrepreneurial action. This again emphasises the importance of established embedded relationships that will pre-empt and advise new entrepreneurs of possible changes in the market and embedded logics also creating obstacles that will hinder entrepreneurship.

The final contingent discussed in Oliver's (1990) study is legitimacy. According to Oliver, the enhancement of organizational legitimacy has also been cited as a significant motive for pursing inter-organizational interactions or relationships. Legitimacy is also recognised to be particularly important for new entrepreneurs as new firms, as earlier identified, lack diverse influence, endorsement and stable exchange relationships with important external constituents (Hulsink, Elfring and Stam, 2008). This lack of legitimacy identified earlier in the previous chapter as the 'liability of newness', is the time taken by new ventures to set up, build trust within network partners, develop organizational routines and attract investments (Geroski, Mata and Portugal, 2003).

To address legitimacy challenges, earlier studies like Powell, Koput and Smith-Doerr (1996) and Stuart, Hoang and Hybels (1999) advocate for inter-organizational

interactions as a means of creating endorsements or as a source of innovation that will boost the reputation of new ventures. Hulsink, Elfring and Stam (2008) add that inter-organizational relationships create an outlet for new firms to collectively source information and ideas from knowledge-driven industries to widen their competencies and knowledge base, instead of relying on information buying or hiring consultants.

Moreover, as highlighted in the previous chapter, entrepreneurship requires the awareness of unique opportunities, resources and membership of different bodies to enhance legitimacy (Shane, 2000; Newbert et al., 2008 and Rizzo, 2014). This kind of legitimacy Singh, House and Tucker (1990) describe as 'external legitimacy'. In reviewing their research with voluntary social service organizations, they found that external legitimacy, which they measured as inclusion in community directories, registration with a charitable organization or board membership at the start of the organization, decreased the liability of the firms. This reinforces legitimacy as a motivator for new ventures seeking inter-organizational relationship or interaction.

The in-depth discussion on network brokerage and motivation above provides very useful insights for understanding why firms or a network broker would choose to pursue network relations. Equally, as entrepreneurial networks have been identified as flexible, fluid and ever-changing (McAdam, 2004). This study argues that network motivation triggers firms to engage with different network activity or demonstrate a particular brokerage orientation (network behaviours) at the different stages of their growth.

As mentioned earlier, extant studies have alluded to the need to explore human agency in networking (Emirbayer and Goodwin, 1994; Kilduff and Krackhardt 1994; Emirbayer, 1997; Baum and Rowley 2008; Kilduff and Brass 2010; Gulati and Srivastava, 2012; Soda, Tortoriello and Iorio, 2018; Grosser et al., 2019) but researchers still treat structure and relational properties as more or less given, and have paid less attention to how actors create, perpetuate and modify structure and relational content through their actions (Gulati and Srivastava, 2012). This study provides a different narrative to entrepreneurial networking that seems to be heavily focused on structural and relational discussions. So far, attempts have been made to answer the 'how and why' question behind networking, particularly from an entrepreneurial networking point of view. The 'how' question explores how firms create and broker firms' networks by reviewing the network brokerage process in both the incubator and the cluster. The 'why' question explores the role of motivation in the networking process and the different triggers and outputs that network actors can use in regulating network actions.

The extant entrepreneurship support studies reviewed leave the decision of understanding the brokerage behaviour adopted or the motivation that influences individuals to pursue networks at the reader's discretion. While there are discussions on how and why networks are brokered in incubators and the brokerage process within clusters inferred, very limited attempts have been made to develop this further. Some exceptions include Ebbers (2017), who identified presence of TIO behaviour in the incubator, Shaw's (2005) study of the creative incubator that cited motivators such as access to finance, information, reputation, rewards and anticipated trade and exchange bartering as the reasons why firms pursue network relationships. Equally, another study in incubation by Cooper, Hamel and Connaughton (2012) add motivators like social support, stress management, in-group membership and access to resources as motivators that influence incubating firms to pursue network relationships.

It is imperative to state that network behaviour or motivation does not exist independently from the entrepreneurial environment, as endogenous factors replete in the entrepreneurial environment can influence a founder's motives and decisions (Jack and Anderson, 2002). Similarly, Oliver (1990) explains that the conditions under which relationships are enacted are influenced by environmental and inter-organizational factors which, in turn, influence the likelihood of different inter-organizational relationships to occur. As highlighted in chapter 1, changes within an entrepreneurial environment will likely influence the exit or entry of members in a network (Venkataraman and Van de Ven, 1998). Therefore, it is important to explore the contextual settings where various networks are present and the actors embedded in them, to understand the extent to which an individual is socially embedded, the patterns of relationships present and how individuals are embedded (Pettigrew, 1992). Since ventures are perceived to be adaptive and purposeful, it is also imperative to pay special attention to the role, impact and importance of the environmental context to understand entrepreneurial networks in totality (Jack, Dodd and Anderson, 2008).

Consequently, the next section reviews discussions on the context of entrepreneurship, then briefly explores the dimensions of the entrepreneurial context before providing an overview of the socio-spatial context in general in Nigeria. This is undertaken in order to justify the earlier proposition by Batjargal (2003) and Abimbola and Agboola (2011), who note that the network structure, nature and content is influenced by the environment, which is a reflective manifestation of the functions and roles of entrepreneurship.

2.5. Understanding the Entrepreneurial Process and Contextual Relevance to Entrepreneurship

Following suggestions from studies that the environment influences entrepreneurial networking, this section begins by briefly examining the entrepreneurial process and then the relevance of the entrepreneurial context. Zahra and Wright (2011) view that the entrepreneurial process is complex and thus exhibits variations in outcomes. These variations in outcome are as a result of unique activities involved in the process, including opportunity identification and resource mobilization (Shane and Venkataraman, 2000). Hence, entrepreneurs need to establish connections to resources and niches in order to benefit from a diverse pool of information flow (Aldrich and Zimmer, 1989; Singh et al., 1999;).

However, Bamford, Dean and McDougall (2000) observe that the founding conditions of new firms are critical for their development, because the effects on firms tend to persist over a long period. Based on the nature of the environment at the founding, imprinting also can occur (Marquis and Tilcsik, 2013). Imprinting is viewed by Marquis and Tilcsik (2013, p.199), as "the process, during a brief period of susceptibility, a focal entity develops characteristics that reflect prominent features of the environment and these characteristics continue to persist despite significant environmental changes". Smith and Cao (2007) affirm this stance but add that a founding environment can also reveal how organizations evolve, adapt and change with their environment. However, their study asserts that entrepreneurs within these environments can proactively change and influence their environment. A similar view is also shared by Nelson and Winter (1982), who observe that firms at founding have the capacity to adapt in response to changes within the entrepreneurial environment. These adjustments are caused by environmental jolts which motivate actors to reformulate institutions and search for new processes, causing the destabilisation of existing institutional logics (Sine and David, 2003). Zahra (1993) adds that these continuous changes in the environment are prompted by competitive rivalry and technological improvements, which force new businesses to renew themselves.

Since entrepreneurship is embedded within a particular social context, Jack and Anderson (2002) argue that what would be valuable or identified as an opportunity is determined by resource availability and opportunity perception which, again, is embedded in the individual's social context, usually the product of an existing environment. Therefore, their study notes that the nature of the entrepreneurial process

or entrepreneurial event is determined by the extent to which an individual is socially embedded and how the individual is embedded, as this would impact how they draw on resources and the actual entrepreneurial action taken. Based on these views, the founding condition of firms can influence how new firms perceive opportunities, exploit knowledge spills, renew themselves and become socially embedded.

Consequently, a review of the entrepreneurial context provides an opportunity to further explore the extent to which an individual is socially embedded and how the individual is embedded. In addition, entrepreneurship is a multilevel phenomenon that requires a deeper appreciation of peculiar dynamic forces that shape the entrepreneurial process and the varied outcomes (Zahra and Wright, 2011). As such, a critical examination of the entrepreneurial context presents opportunities to understand the reasons for these changes, the entrepreneurial and social behaviours or other factors that might impede or encourage entrepreneurship prosperity (Low and MacMillan, 1988; Baumol, 1990; Low and Abrahamson, 1997; Sorenson, 2007).

Studies by Zahra, Wright and Abdelgawad (2014) and Zahra and Wright (2011) provide an apt explanation of the relevance of contextualisation from a research perspective. These studies note that contextualization permits novel analyses and creative explanations by situating phenomena, research questions, theories and findings in their natural setting. This is done by allowing the attributes of the setting to become an integral part of the research process. The output of this integration, they note, aids in enriching the various theoretical perspectives that have guided thinking about entrepreneurship and provides opportunities for possible integrations or the advancement of new theoretical frameworks (Zahra, Wright and Abdelgawad, 2014).

A different perspective to context relevance, identified in Alistair and Anderson (2002) proposes that entrepreneurship should not be studied in isolation or solely as an economic process, but as an entire process that draws from the social context and which will aid in shaping entrepreneurial outcomes and forms. Similarly, Welter (2010) adds that contextualization of entrepreneurship compels scholars to become more familiar with the phenomena they are studying, instead of being reporters of distant events and issues.

Equally, studies by Zahra and Wright (2011) and Nelson (2014) explain the human input aspect of contextual examination. Their studies note that examining the entrepreneurial context promotes an understanding of entrepreneurial behaviours like commercialization and innovation, which helps explain individual motivations for

engaging in entrepreneurship or explain how business owners adapt and deal with the myriads of forces that arise. This agentic call, this study argues, is also important for examining network motivation and behaviour present within an entrepreneurial context. As the entrepreneurial context is multi-level, various contextual dimension has been provided to understand it better and are explored in next section. The dimensions covered in this section were chosen because of their frequent appearance in studies.

2.5.1 Dimensions on the Entrepreneurial Context.

The entrepreneurial dimension noted in various literature includes the temporal, socio-spatial, organizational and institutional dimensions (Baumol, 1990; Whitley, 1999; Hayton et al., 2002; Smallbone and Welter, 2006; Welter, 2010; Thornton, Ribeiro-Soriano and Urbano 2011; Zahra and Wright, 2011; Autio et al., 2014; Zahra, Wright, and Abdelgawad, 2014; Letaifa and Goglio-Primard, 2016). Studies like Welter (2010), Zahra, Wright and Abdelgawad (2014) and Autio et al. (2014) provide a detailed explanation of these dimensions as well as areas of overlap. Since network creation mechanisms are the focus in this study, the specific contextual dimension investigated is the social-spatial dimension of the entrepreneurial context. Focusing on this dimension allows a closer examination of why network relationships are pursued and their emergence. Moreover, as Jack and Anderson (2002) and Jack (2005) explain, the social-spatial dimension of the entrepreneurial context presents opportunities for relational properties to be examined at both the dyad and broader network level.

The social dimension element of the entrepreneurial context explores the interactions between individuals and their respective networks studies. Thus, Aldrich and Kim (2007) and Newbert and Tornikoski (2012) recommend that closer attention be paid to this dimension, because it represents networks of micro-communities and patterns of social ties between actors (Aldrich and Kim, 2007; Newbert and Tornikoski, 2012). Similarly, Hughes et al. (2010) note that firms do not exist independently of their social context, as a particular firm in one community can influence the evolution of other firms in different communities. Therefore, through collaboration and interaction, firms can co-evolve and co-develop their social capital. Granovetter (1985) expresses a similar view, noting that even though entrepreneurs might not behave or act outside their social context or blindly adhere to the stipulated rules, entrepreneurial action is dependent on embedded concrete social systems.

Schujens and Stam (2003) explain that venture creation is not 'placeless', because a critical aspect of the creation and growth process is embedded within the local

environment of the firm, hence triggering firms to coevolve and evolve with their environment and networks. This view prompts attention to explore the spatial dimension of the entrepreneurial context. Zahra and Wright's (2011) study observe that space within the spatial dimension of the entrepreneurial context presents an argument about the value of location for new ventures' development and growth. In addition, the spatial dimension of the entrepreneurial context explores the relationships established with key stakeholders, their participation in networks, as well as where and how they assemble resources (Zahra and Wright, 2011). Spatial relevance is also recognised within studies from economic geography, and innovation systems to start-up support (Lundvall, 1992; Porter, 2000; Morgan, 2004; Audretsch and Lehmann, 2005). According to Porter (2000, the location affords companies the opportunity to gain access to resources and opportunities that are no longer obtainable internally, but still available externally where the businesses are domiciled, and this enhances a firm's competitive advantage. Welter (2010) also points out the importance of spatial proximity in entrepreneurship and the creation of networks. In this study, spatial and locational proximity are used interchangeably. Welter notes that location proximity facilitates the emergence of social networks and draws attention to the complexities surrounding the contextualization of entrepreneurship. This is done by elaborating on the links between the social, institutional and geographical contexts, as well as the possible dark sides of contexts (Welter, 2010).

In addition, since the socio-spatial context examines the geographic location of firms, networks and network relations between entrepreneurs, financiers, incumbent firms and institutions that promote and support entrepreneurial actions (Parhankangas and Autio, 2004; Welter, 2011; Zahra and Wright, 2011; Autio et al., 2014), as an examination of the relationship dynamics in them expands understanding of how network impact is perceived (Zahra and Wright, 2011). Similarly, locational proximity also facilitates access to what Schutjens and Stam (2003) identify as being 'on the spot', that is, within short physical distance, making it easier for firms to access short distance favours, exchange resources and acquire information from contacts. Johannisson (1996) affirms this but adds that informal face-to-face relationships are more beneficial to new ventures because they are more personal and flexible but can only be facilitated where there is an established long-term exchange relation facilitated by trust. Additionally, the spatial context provides an opportunity to understand how networks are engaged and how knowledge flows in an environment, which can be both local and global (Bathelt, Malmberg and Maskell, 2004; Simard and West, 2006; Andersson and Karlsson, 2007; Broekel and Boschma, 2012).

While it is important to acknowledge the relevance of spatial proximity in entrepreneurial networking, it is also imperative to state that some other studies are not in agreement with these perceived benefits. For example, Davenport (2005) identifies that studies have viewed the impact of locational proximity through a different lens and notes that many firms do not acquire their knowledge from their geographical proximate areas, especially if the firm is innovation driven. In this case, knowledge to drive innovative solutions and growth are sourced externally (ibid). Equally, Longhi and Rainelli (2010, p.90) point out that "local interactions and interdependences do not emerge spontaneously from the co-location of actors". Although entrepreneurship and innovation overlap over locational proximity, location alone does not guarantee interdependence, knowledge sharing or interaction, but can facilitate the identification of business opportunities when used with other dimensions of proximity (Letaifa and Goglio-Primard, 2016). Even though locational proximity aids interactive learning, Boschma (2005) adds that it is further strengthened by other dimensions of proximity, including social, organizational and institutional proximity as the interaction between all these dimensions of proximity facilitates effective knowledge transfer (Boschma, 2005). Drawing from Boschma's (2005) study, organizational proximity explores the interactions between actors, how knowledge is organised and the extent to which actors can access this knowledge in the same space. Institutional proximity, on the other hand, provides the governing framework that facilitates interactive learning and knowledge sharing to take place (Boschma, 2005). In addition, institutional proximity also includes macro-level societal norms and values that organizations embrace (Letaifa and Goglio-Primard, 2016).

Taking the above into consideration, this study notes that a review of both dimensions of the entrepreneurial context will aid the understanding of network impact, evaluate the perception of network impact achieved on new ventures and identify how brokers enact these networks. However, as pointed out earlier in this chapter, start-ups face network challenges caused by their inability to find the right exchange partners, limited ability to absorb the required knowledge, time restrictions and deficiencies in acquiring resources needed for exchange (Kirkels and Duysters, 2010; Hughes et al., 2011; Horminga et al., 2011). As a remedy for these challenges, supportive intermediaries like the business incubators and the spatial agglomeration of different business entities have been suggested to ameliorate these network challenges. The incubator provides a platform useful for the exchange of internal resources and external inter-organizational activities through the identification of the right network partners, external combinative capabilities and an atmosphere that allows the absorption of external knowledge

received (Tötterman and Sten, 2005). Clusters, on the other hand, are instrumental in creating wealth and supporting innovation, as well as aiding new firms to overcome growth constraints or compete with distant markets (Schmitz and Nadvi, 1999; Eisingerich, Bell and Tracey, 2010).

Earlier discussion in this thesis explored how the incubators and clusters create networks for entrepreneurs. Attention now turns to the Nigeria incubator/cluster context to understand how the prevailing context is leveraged to create useful networks for start-ups. The next section first reviews the incubator context, followed by the cluster context.

2.5.2 Overview of Business Incubator in Africa and Nigeria

Following the literature review, an opinion captured within studies is that there is limited research that captures the incubation experience from an African perspective, and that the support context is not considered when designing business incubator models. Studies like Mutambi et al. (2010) and Bayuo (2017) attribute this to the infant nature of the industry, which places limitations that restrict the potency of entrepreneurial opportunity realisation and innovation support that incubators are created to provide. Bayuo adds that most incubators in SSA are modelled after those in developed countries, typically focused on technology, and this copy and paste syndrome limits incubation performance and could be the reason for the eventual failure of an incubator. Adding to the challenge of copy and paste in the last review of incubation performance in SSA, business incubator failure rate in SSA is estimated to be at 60% (World Bank, 2016). As a remedy to these identified challenges, Meru and Struwig (2015) advocate the need for incubators to respond to local needs, to effectively contribute to shaping local structures and institutions for the new business creation and economic development. In seeking to understand how business incubators are attempting to shape local structures, this study reviews the support context in Nigeria to inform understanding of the uniqueness of the system in place.

While Adegbite (2001) is more less the pioneer study that explored incubation development in Nigeria, the incubation ecosystem in Nigeria is in its infancy, and limited studies have been carried out to assess how they are used to support start-ups in Nigeria (Iyortsuun, 2017; Ikebuaku, 2018). In addition, existing incubation studies in Nigeria are mostly focused on reviewing incubation impact on entrepreneurship (Adelowo, Olaopa and Siyanbola, 2012; Obaji, Senin and Richards, 2014; Bubou and Okrigwe, 2017; Olayinka et al., 2018; Asikhia et al., 2020). Others like Obaji and Olaolu (2020)

and David-West, Umuokoro and Onuoha, (2018) examined the barriers to incubation performance. At the moment, networking within business incubators in Nigeria is yet to be explored.

Studies like Adegbite (2001) and Obaji, Olugu and Obiekwe (2015) trace Nigeria's first engagement with business incubation to 1988, following a summit organised by the United Nations Development Programme (UNDP). This summit was designed to foster economic development through the commercialisation of research and development results, boost innovation and replace import substitution (Obaji Olugu and Obiekwe, 2015; Iyortsuun, 2017). Following the summit's directives, Obaji Olugu and Obiekwe (2015) note that the first government technology incubator was set up in 1993, in Lagos, Nigeria, their study alludes that the nations focus on technology incubation was influenced by the propositions from UNDP. They add that no consideration was given to regional needs and, instead, incubators were used as mediums for satisfying political constituency needs. Presently, there are 35 government technology incubators in Nigeria with at least one in each state (NBTI, 2018).

However, a review of their performance by studies like Adegbite (2001), Iheanacho (2005), Obaji, Senin, and Richards (2014), and David-West, Umuokoro and Onuoha, (2018), all observe that these government-led technology incubators are yet to actualise the goals for which they were set up. Obaji, Senin and Richards (2014) attribute this failure to the inability of the government to design policies that would enable these support entities to run efficiently. Equally, David-West, Umuokoro and Onuoha (2018) identify corruption and mismanagement for the failures within the support context, and advocate for privatization to aid in curbing the excesses of the system failure. Following the limited success of government-led incubators, new private entrants have stepped in to bridge the gap left open by the government. Presently, Nigeria is home to 26 private incubators, 54 co-working spaces, 8 accelerators and 17 innovation hubs (NINE, 2018). **Figure 1** provides an overview of the entrepreneurship support context in Nigeria. From Figure 1, it can be seen that entrepreneurship support with the Lagos ecosystem is the most active and, as a result, this location was selected as a case study location. A deeper review of this location is given in the analysis section in **chapter 4.** As earlier mentioned, the focus of this study is on network creation mechanisms with an intent to examine network creation mechanisms in the socio-spatial context. The incubator, which covers the socio context has been examined, attention now shifts to the cluster, which represents the spatial context.
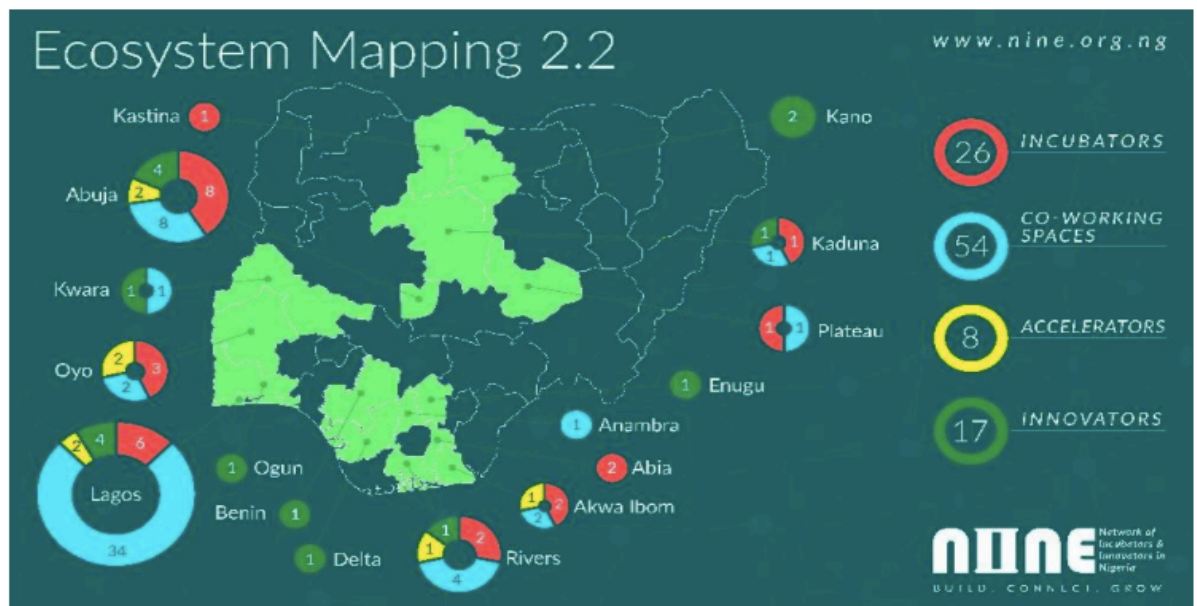
Figure 2-1:Ecosystem Mapping of Private ESOs'

2.5.3 Overview of Clustering in Africa and Networking within Nigerian clusters.

Following earlier discussions on the impact of enterprise clustering, McCormick (1999) views that clusters will aid countries in Africa to overcome the challenges of industrialisation. In the same vein, Chisenga (2012) identifies that since African societies rely largely on face-to-face communication, clustering would be beneficial in fostering joint action that would lead to collective efficiency in regions.

However, a study by Brautigam (2003) provides a different narrative. This study notes that African clusters are yet to become dynamic clusters that have established transnational links and that this is because of the inability of African businesses to overcome ethnic divisions, policy inconsistencies and failure in establishing links to international businesses. Similarly, an earlier study by Schmitz and Nadvi (1999) views that clusters in Africa are replete with socio-cultural strong ties and trading weak ties, leading to the creation of weak undynamic clusters. Therefore, Meagher (2007) views that the consensus from the extant literature about African clusters is that it is a region where small firms in clusters perform badly. However, Meagher also notes that this perception of the African cluster is marred by socio-cultural identity, where African clusters are treated as a single ethnic group, distinguished only from Asian and European business groups. As a solution to this identified problem, Meagher calls for more institutional and historical treatment of African small firm clusters. Similarly, McCormick (1999b) identifies the need to be more intentional about examining specific

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ethnic factors resident in individual African clusters, to understand how joint action is facilitated or blocked in them.

One way to carry out these suggestions is by examining the cluster context in specific African countries which, in the case of this study is Nigeria. Detailed studies have been carried out to examine some Nigerian cluster locations. For a detailed review see studies by Brautigam (1997), Oyelara-Oyeyinka (1997, 2001, 2005), Abiola (2008), Meagher (2011) and Uzor (2011). In Nigeria, clusters have been in existence since independence in 1960, it was initially viewed as a tool for economic development in a place where rapid industrialization had been a constant challenge (Iwuagwu, 2009). The cluster concept was reintroduced again in 2007 as a mechanism for attracting private investors to the country and as a medium for encouraging small and medium scale business clusterisation in designated free trade zones and enterprise zones (Iwuagwu, 2009; Treichel et al., 2010). The government intended to create a community of businesses that would enhance environmental, social and corporate performance and, in turn, achieve global trade competitiveness (Iwuagwu, 2011). This policy was to be executed using Free Trade Zones, Industrial Parks, Industrial Clusters, Enterprise Zones and Business Incubators.

However, Treichel et al. (2010) note that this policy was not successful because of low participation from the private sector, alongside administrative and institutional constraints. This was because, like most policies designed by the Nigerian government, Iwuagwu (2011) notes, there is usually a lack of commitment to implement such policies, mostly because of the vested interests of public officials. Their study adds that when a particular administration that introduces a policy vacates office, interests change, and the policy proposed by a previous government will not then be implemented.

Despite policy deficits and limited participation from the government, cluster presence in Nigeria is not a new phenomenon. Zeng (2008) explains that several clusters do exist in Nigeria as spontaneous agglomerations of enterprises or related institutions. Equally, Iddrisu, Mano and Sonobe (2012) note that firms within this type cluster are usually small in size and struggle to evolve, impacting the degree of productivity within the cluster. The type of clusters in Nigeria are spread across different sectors and different regions. The south-eastern part of Nigeria enjoys the presence of prominent clusters like the Aba shoe and textile cluster and the Nnewi automobile cluster, the western part

of Nigeria is home to the Ilorin weaving cluster and the Otigba computer cluster is in Lagos. In northern Nigeria, the Kano leather cluster is another prominent location.

Networks in some of these clusters have been largely influenced by family ties and knowledge transmitted through apprenticeship. A review by Abiola (2008) of the Nnewi clusters, identifies that networks in this cluster were built on strong kinship ties and knowledge is transferred through apprenticeship. This strategy is adopted to keep knowledge in the family and reduce the risk of losing a valuable member. A similar scenario is witnessed in the west as well; the Ilorin weaving cluster is organised under the leadership of the Yoruba institution of apprenticeship and the weaver's guild. However, in this cluster, there is a strong affinity to religion (Meagher, 2011). In an earlier study by Meagher (2007), it was identified that although a range of other ethnic groups has been integrated into the cluster, all of the enterprise heads in the cluster were Ilorin indigenes and Yoruba Muslims.

The clusters identified above are plagued by different problems. Amakom (2006), Brautigam (1997) and Meagher (2011) all identify low participation from government, intense competition from imported goods, poor infrastructure and bureaucracy as problems they face. Therefore, following earlier literature about how poorly clusters in Africa are performing, it can be inferred that the same scenario is playing out in Nigeria. In chapter 4, a detailed description of the Otigba Computer Village cluster is examined to ascertain cluster conditions and how networks are created.

The examination of the cluster context within Africa and Nigeria provides an opportunity to briefly review network subtleties, how clusters are structured and the types of economic activity present in these locations. Hess (2004) notes that the economic success of clustered networks of firms is determined by the local embeddedness of actors and institutional thickness. This is not static but evolves as regions and their entrepreneurial advantages rise and fall over time (Zahra, Wright and Abdelgawad, 2014). Additionally, Zahra, Wright and Abdelgawad explain that these changes happen over time and will determine who benefits from entrepreneurial activities, the kind of value and knowledge created and their interpretation by different stakeholders.

Thus far, the literature review has captured a variety of topics, from the place of motivation and behaviour (human agency tools) to networking, the relevance of context to networking, done specifically by reviewing the interventionist context and the location-induced context to understand how networks are brokered and the relational patterns present. What has not yet been explored is how actors in these different

contexts perceive impact. So far, discussion on how networks impact the entrepreneurial process has been explored from a generalist perspective, with most emphasising the place of structure in relational ties. In the next section, prevailing discussion on network impact is examined and theories that guide these thoughts are also explored. Additionally, the role of cognition in deciphering network impact is also explored. This is useful to bring a conceptual framework that captures the network creation properties.

2.6 Understanding Network impact on Entrepreneurs.

According to Klyver, Hindle and Meyer (2008) networks provide entrepreneurs with valuable resources they need to achieve their entrepreneurial goals. Casson and Giusta (2007) add that entrepreneurial networks act as information channels needed to access capital, information and acquire critical resources that will guarantee business success. In reviewing network development studies, an early study by Degenne and Forse (1999) recognises three main contributions. The first is research based on cognition and interpersonal influence, led by German researchers Kurt Lewin and Fritz Heider. The second is the influence of mathematicians using graph theory to transform the study of networks from word description to structural analysis leading to the discovery of social structure and interactions. The third source is traced back to anthropological studies influenced by the works of Warner and Kapferer within organizational settings. However, the most recognised contribution to network research which was not explicitly captured in Degenne and Forse's (1999) work, is Jacob Moreno's work on sociometry (Scott, 1988; Freeman, 2011; Burt, Kilduff and Tasselli, 2013). Moreno (1936) noted that human societies are dynamic in nature and are made up of varied structures that help to explain and understand how societies are grouped. Moreno (1941) advocated for utilising methods that would account for spontaneity, an often-ignored aspect of the study of human interactions or social relationships. In his earlier study in 1936, he used his sociometry technique and structural properties to explain the reason for run-aways within a school. Moreno attributed the reason for run-aways to the position of the girls in the network structure. He notes that, although they might have been unaware of this, they were connected to each other through affective bonds and were influenced by these bonds (Borgatti et al., 2009).

As this study is focused on understanding entrepreneurial networking, attention now shifts to entrepreneurial impact studies. Hayer (2013) credits the place of network in entrepreneurship to the influence of the sociology discipline where network benefit is

perceived to have a de facto benefit to the entrepreneur. Hayer adds that researchers within the management discipline have applied social network concepts to describe how firms are embedded in networks of social, professional and exchange relationships, resulting in a new approach termed 'the network approach to entrepreneurship'.

However, following a comprehensive review of network emergence and impact in entrepreneurship, Hoang and Antoncic (2003, p.166) identified three essential components of networks, which are: "the content of the relationships; the governance of these relationships; and the structure or pattern that emerges from the crosscutting ties. These three components emerge as key elements in models that seek to explain the process of network development during entrepreneurial activity and the impact of networks on entrepreneurial outcomes". Network content examines the content of the relationship, and essentially it explores what the entrepreneur is able to access using available relationships (Hoang and Antoncic, 2003). A study by Chen, Lin and Wang (2018) explain relational content as the actual resources that are exchanged when multiple interactions are enacted using specific or mixed relationships. Network governance explores the network facilitators used to coordinate relationships and factors like trust, social mechanisms like power, influence or threat of expulsion aid to understand governance (Hoang and Antoncic, 2003). Lastly, network structure is described by Hoang and Antoncic (2003) as how the network position an actor occupies enables them to aggregate or combine resources within the network. Hoang and Antoncic (2003) notes that these elements have been extensively used within entrepreneurship study to justify the mechanisms behind entrepreneurial impact. The summary of how entrepreneurial impacts are assessed using the elements identified by Hoang and Antoncic (2003 is reviewed in the table below:

Table 2-1; Network Impact Studies

Network content		
Author	**Study findings**	**Study interest investigated**
Brüderl and Preisendörfer (1998)	**Strong tie impact** **positive** The network study identifies that support from the personal (strong ties) network of a founder improves survival and growth of newly established businesses.	**Particular ties**
Elfring and Hulsink (2003)	**Strong tie impact** **positive**	**Particular ties**

	Strong ties secure crucial information.	
Kingsley and Malecki (2004)	**Strong tie impact** **positive** This study identifies that in urban and rural regions firms use informal (strong ties) networks that are cast widely in a quest for useful information. Firms use the informal networks for different types of advice, whether it be product development, competitive concerns or labour issues. Firms are most comfortable with fashioning an informal network that 'works'.	**Particular ties**
Raz and Gloor (2007)	**Strong tie impact** **positive** This study notes a positive correlation between survival rates of start-up companies and the number of linkages with their peers. The study notes that firms that were isolated and not connected with their peers were the ones that did not survive. They conclude by highlighting that having a sufficient number of strong ties is crucial for firm survival.	**Particular ties**
Eisingerich, Bell and Tracey (2010)	**Strong tie impact** **and open networks** This study finds that cluster networks characterized by strong ties and a high degree of openness are positively associated with overall cluster performance.	**Particular ties** **Network utility**
Redlich et al. (2013)	**Network openness** The findings from this study demonstrate that network openness creates opportunity for value co-creation.	**Network utility**
Kreiser (2011)	**Network closure** **Mixed Ties** The findings suggest that entrepreneurially oriented firms attempting to conserve their resources only form weak ties with organizations residing in networks to which the focal firm is not currently linked and should only form strong ties with organizations residing within a closed network that	**Particular ties** **Network utility**

	facilitates the transfer of tacit information. Therefore, the study argues that a closed network facilitates the entrepreneur's ability to maintain series of strong ties, enhancing entrepreneurial orientation and experimental learning.	
Davidsson and Honig (2003)	**Weak tie impact** This study identifies that the weaker tie was consistently important and significant in predicting gestation activity at the start of business screening, and in the pace during the following 18-month period. It was also a very strong predictor of having a first sale or in being profitable.	**Particular ties**
Julien, Andriambeloson and Ramangalahy (2004)	**Weak tie impact** This study identifies the importance of weak tie networks as opposed to other types, and their complementary contribution to technological innovation. In addition, the organization's absorptive capacity is also found to be a significant intermediary factor in taking advantage of weak tie networks.	**Particular ties**
Watson (2007)	**Mix tie impact** This study identified that both formal (weak) and informal (strong ties) networks are associated with firm survival. However, only formal (weak ties) networks are associated with growth (and neither formal nor informal networks are associated with return on equity (ROE).	**Particular ties**
Chell and Baines (2000)	**Different ties for different reasons** This study points out that there are different ties for different purposes.	**Mixed ties**
Rowley et al. (2000)	**Strong ties impact** This study identifies that strong ties matter, they are used in a highly interconnected strategic alliance network like the semiconductor industry, but negatively impact firm performance; strong ties are positively related to firm performance in the steel industry.	**Particular ties.**

Lechner and Dowling (2003; 2006)	**Different ties for different reasons** This study identifies that firms use varied relationships for a variety of purposes and that every firm has an individual relational mix. This relational mix is the constituent of the different types of network, which change over time to engender new firm growth.	**Tie mixture**
Berrou and Combarnous (2012)	**Strong ties impact** This study notes that in a context of uncertainty and instability, such as in informal African urban economies, strong ties favour approachability. They are more efficient and resilient when facing shocks.	**Particular ties**
Network structure		
Author	**Study findings**	**Study interest investigated**
Reese and Aldrich (1995)	**No impact on size** This study found no evidence to suggest that the size of an entrepreneur's network affects venture survival.	**Network size**
Ostgaard and Birley (1996)	**Positive impact of size** This study affirms that the size of an entrepreneur's network and the time spent to maintain and enlarge the network are positively and significantly correlated with the growth rate of employment.	**Network size**
Sedaitis (1998)	**Positive impact of density** In the Russian context, low-density networks of entrepreneurs facilitated better revenue growth in contrast to high-density networks.	**Network position**
Galunic and Moran (1999)	**Positive impact of size** This study found that network size impacts positively on revenue.	**Network size**
Batjargal (2003)	**Positive impact of size** The finding suggest that large networks may be more useful for information transfer than actual revenue growth. They note that network size could also indirectly influence economic actions.	**Network size**
Raz and Gloor (2007)	This study speculates that distance among the firms within different geographical	**Network position** **Network size**

	clusters will influence their communication patterns. This means that it might matter more whether firms are located in the same building or even on the same floor, rather than their distance from the high-tech centre. The size of informal interfirm networks has a positive impact on new venture survival.	
Stam and Elfring (2010)	Bridging ties has a statistically significant positive relationship, with sales growth and performance relative to competitors.	**Bridging ties**
Batjargal (2010)	Structural holes have a negative effect on a new venture's profit growth.	**Structural holes**
Network governance		
Author		
Besser and Miller (2011)	Trust is a key component in network performance and helps determine resource exchange levels.	**Trust**
Grandi and Grimaldi (2003), Hoang and Antoncic (2003), Lee et al. (2001), Hagedoorn and Schakenraad 1992)	Network partnerships with well trusted organizations, including universities, provide a signal to other resource providers.	**Trust**
Berrou and Combarnous (2012)	Trust, length and regularity of contact of these strong ties enable a more efficient circulation of resources and facilitate entrepreneurs' access to information, financial support, business partnership, etc. They also facilitate tangible resources and allow instant access to financial support which may be required, for instance, in a time of crisis.	**Trust** **Length and regularity of contact**
Wegner and Koetz (2016)	In small and medium-sized SFNs, the mechanisms of governance did not show a significant impact on the performance of the participating firms, but they indicate social rules and trust may be useful to small and medium size businesses. With respect to large networks, this study shows that the centralisation of decisions and the adoption of sanctions had a negative effect on business performance, whereas incentives had a positive impact on this same variable.	**Social rules** **Trust** **Sanctions** **Incentives**

Source: Author's slightly adapted from Hayer (2013); Semrau and Werner (2013)

The table above captures network impact on entrepreneurs by exploring views on governance, structure and the relational dimension of networks. Conversations on the varying views of network impact using the dimensions identified in Hoang and Antoncic (2003) were used to explore the divergent opinions of network impact. While the table attempts to provide an insight into entrepreneurial impact studies, these studies are not exhaustive. In addition, there seems to be conflicting agreement as to how a network structure or particular leveraged tie will impact on an entrepreneur. Notable theories that influenced these studies include strength of ties, structural holes and embeddedness.

For studies that explored the positive influence of relational ties on entrepreneurs, there is a deterministic assumption that once an entrepreneur connects to certain network ties, impact is assured. Klyver and Hindle (2007) identify this situation as 'structural diversity', explained as a situation where firms can access ties with mix characteristics. The assumption here is that entrepreneurs in an effective structurally diverse network will provide entrepreneurs access to nonredundant business information, business advice, access to finance, emotional support and knowledge about start-up processes. However, as noted earlier in chapter 1, networks are dynamic and, as such, the compositional ties that might be useful at one point could also be useless at another time. Equally, while some studies emphasise the positive impact of network structure identified in Kidluff and Brass (2010) as structural patterning, emphasis is placed on the role of size or centrality on impact. Kidluff and Brass (2010) note that although structural attributes of network ties give network research a distinctive appeal, it continues to garner much criticism because focus tends to be on the structure instead of the ties. The importance of network utility is also noted in the table, this is a situation where network closeness and openness are explored. A major theoretical influence of this is Burt's structural hole theory. Structural hole theory emphasises the utility of network connections between two network types, one surrounding the focal actor involving holes, and another involving closure, a situation where the central actor is an integral member of a densely connected team, hence the 'closure' (Kidluff and Brass, 2010). A contrast to this view is 'structural cohesion' or 'network closeness' influenced by Coleman (1960). Here network collectivity trumps individuality and is used to build benefits that will influence the group positively (Kidluff and Brass, 2010). Debates from both schools have already been covered in chapter 1 and earlier in this chapter but are inferenced again to explain network utility.

In spite of the debate on network governance, structure and tie utility, networks no doubt have an impact on entrepreneurs, as a number of studies have noted a variety of impacts such as: the ability to access capital and finance (Light, 1984; Zimmer and Aldrich, 1987; Bates, 1997), emotional support (Bruderl and Preisendorfer, 1998), access to information, advice and opportunity recognition (Birley, 1985; Smeltzer et al., 1991; Johannisson et al., 1994; Brown and Butler, Singh et al., 1999; Hoang and Young, 2000; Singh 2000), reputation (Deeds et al., 1997; Stuart et al., 1999; Higgins and Gulati, 2000; Shane and Cable, 2001), growth (Stuart et al., 1999; Lee and Tsang 2000) and legitimacy (Stuart et al., 1999; Calabrese et al., 2000; Klyver and Hindle, 2007). What is yet to be documented within entrepreneurial study is the role of individual cognition in assessing what they perceive as impact, especially when taking into consideration contextual factors. It was established earlier in this chapter that entrepreneurship is a contextual event that is facilitated by embeddedness within a locality and influenced by founding conditions. Since this is the case, it can also be argued that what entrepreneurs in context A perceive as network impact might not be entirely useful in context B.

Consequently, Krackhardt (1990) notes, accurate perceptions of networks are important because they can be an indicative tool for identifying individuals who are powerful within the network, the perception of connections and the reputation of network actors within a network. Krackhardt (1987) also notes that cognition aids the investigation of the perceptions of social networks as phenomena in their own right, rather than just estimating how accurately people recall social interactions. Similarly, Kidluff and Brass (2010) describe network cognition as knowledge by the company kept, where perceptions are influenced by the company kept. The study notes that individuals' recollections of social interactions can exaggerate systematic structure through social affiliation. Additionally, Brand (2013) explains that cognition provides an opportunity to explore cognitive processes that underlie network perceptions. This is because individuals tend to rely on schemas to organize and remember their surrounding social networks. Consequently, network cognition affects why certain individuals go after an opportunity that enables them to network and others do not (DeCarolis and Saprio, 2006). Network cognition also influences the awareness of network opportunities and constraints and might act as a useful component for the utility of social connections or a trigger to network behaviour.

Existing entrepreneurship study explores the relationship between cognition and social capital (DeCarolis and Saprio, 2006; Decarolis, Litzky and Eddleston, 2009; Jonsson and

Lindbergh, 2013; Jonsson, 2015). Jonsson's (2015) study notes that entrepreneurs develop social capital by displaying their cognitive attributes like brand image and design aesthetics. Other studies like Baron (1999) and Simon, Houghton and Aquino (1999) have documented the likelihood of entrepreneurial perceptions to differ.

Current focus on cognition from existing studies within entrepreneurial study is on acquiring social capital. This study adds to the existing entrepreneurial discussion by exploring the perceptions of network impact between start-ups in two contexts: the interventionist business incubation context and the location induced cluster context. Additionally, Bandura (1986) posits that social environments play an important role in shaping individuals' cognition, and ultimately, their behaviour, and therefore exploring network cognition in both contexts is useful for explaining resulting behaviours demonstrated by start-ups in both contexts. Similarly, Urban (2011) views that the usefulness network relationships are often context dependent. As such, cognition is helpful in understanding how firms, especially new firms, react to network opportunities, how they are able to assess network partners and the challenges they face in assessing them.

The key message of this review is that individual attitudes, behaviors and outcomes cannot be understood without considering the influence of the social contexts in which they are embedded, and social network structuring and the relational ties created cannot be understood without considering the psychology of purposive individuals. This research speaks to the view that individuals' personalities and cognitions shape the network positions individuals occupy and the network patterns they utilize. It argues that an irreducible fact is that each network involves individual people connecting or failing to connect across social space.

Taking note of these observations and earlier proposal for the need to account for network motivation and behaviour and to understand how and why networks are enacted in specific contexts, the conceptual framework presented below captures the network properties and elements that will improve understanding on this and, in addition, the role network cognition in the network creation process.
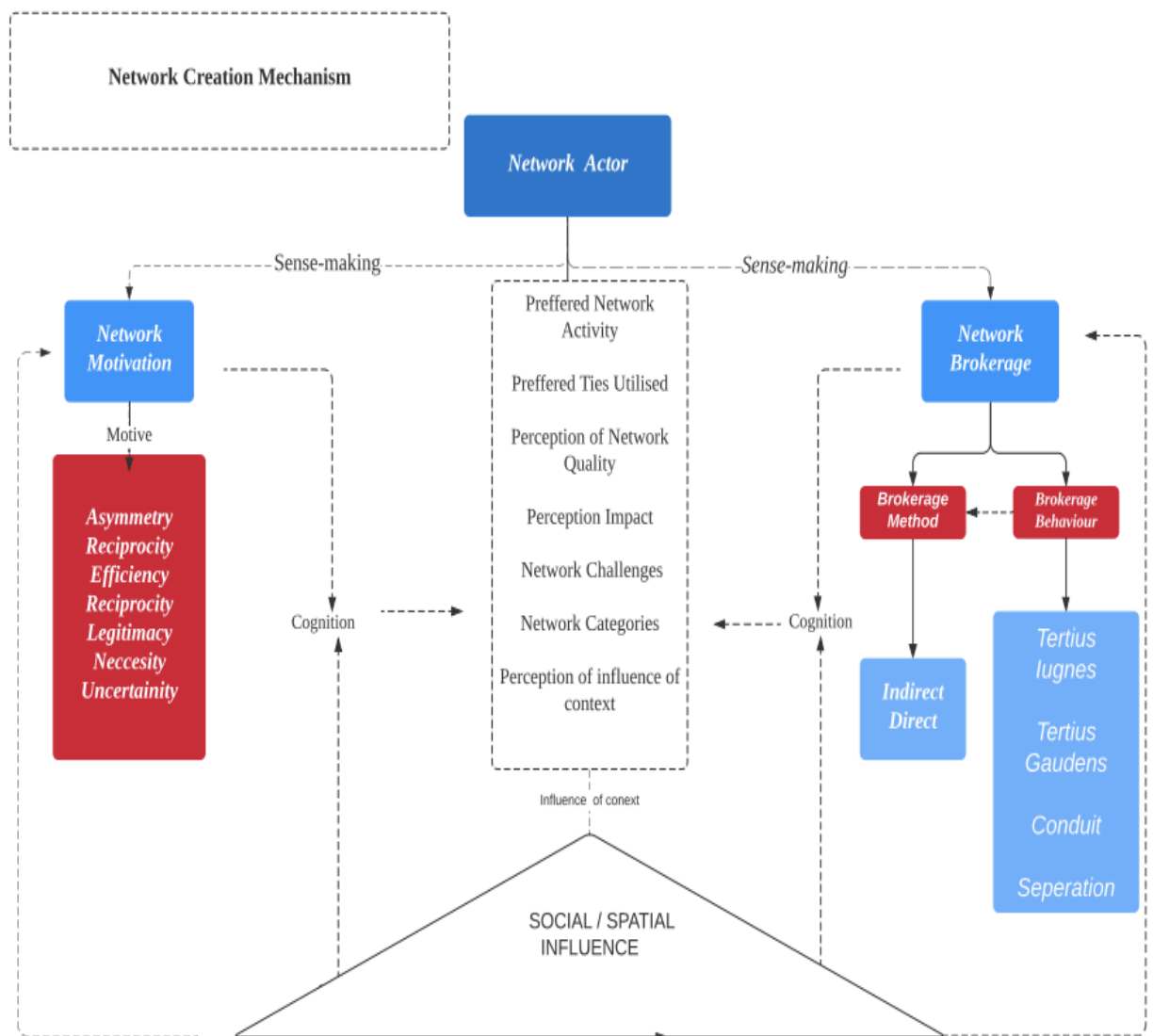
Figure 2-2:Conceptual Framework

Source: (Author's)

This conceptual framework offers an opportunity to understand the role of the network actor at the center of the network creation process. In this study, the network actor plays a pivotal role in the network creation process. Understanding the network actor's role is vital for getting a nuanced perspective of "how" and "why" networks are enacted, as well as the perception of network impact. Additionally, this study offers valuable insights into how actors utilize their cognitive abilities to make sense of network opportunities, challenges, and other networks that can be accessed within a context.

As previously noted, network motivation and network brokerage play an important role in entrepreneurial networking. In this study, both are identified as agentic tools that affect network sense-making. To understand the "why" for seeking to network, one can look at the actor's motive, which can be a single motive or multiple motives. Using Oliver's 1990 study on critical contingence as a basis for understanding why actors will engage with others is crucial. These are seen as motives and are listed within the conceptual framework. Network motivation provides us with insight into the network "why" when this is confirmed, the "how" is triggered. An actor's network motive or why is met via network brokerage. Network brokerage also reveals the varying behaviours that actors demonstrate to enact relationships (Obstfeld, Borgatti, and Davis, 2014), as well as the method the actor uses, which could either be the direct or indirect approach. The actor makes sense of the network creation process by seeking to understand the motive and brokerage process.

In order to comprehend the network creation process, the actor must understand the motive and brokerage process. However, it is also imperative to recognize that the entrepreneurial and network context also affect this process; as whatever founding condition or contextual conditions prevalent is often reflected in actor network motivation and brokerage process. The influence of context and the dimension has already been discussed earlier in this chapter. The particular focus of this study is the socio-spatial context, which encompasses the geographical location of firms as well as the networks of entrepreneurs, financiers, and other financial professionals. This study examines the interventionist and location-induced cluster contexts, which are both part of the socio-spatial context. By understanding the role of contextual factors and sense-making in the process of network formation, it is possible to decipher actors' awareness of network opportunities and their perception of the impact of network relationships that they have access to. It triggers cognition, a state where the actor's perception, as well as their perception of other critical components like the ties utilised, preferred activity, challenges, and the network categories that are necessary to complete the network process, becomes apparent.

It would be prudent to refer to the next chapter on methodology, where the research design is discussed, and then the analysis section in Chapter 4 for an understanding of how this plays out in the Lagos technology ecosystem.

Chapter 3

Following on from the literature review, this research seeks to explore the network creation mechanisms within the incubators and clusters context and then draw implications on new ventures. To do this effectively, this chapter begins by reviewing the research problem to be investigated and then explores the research questions that will enable study to address the problem investigated appropriately. The research paradigm that guides this research and the underlying assumptions are also discussed. The research paradigm will explain the ontological, epistemological and axiological assumptions that inform this research. Discussion of these world views provides a useful guide for understanding and exploring the assumptions guiding the research design. Later sections of this chapter will discuss the process of data collection, instruments for collecting data, from whom data is collected and how the data collected will be analysed.

Therefore, this chapter is structured as follows:

- first, section (3.1) explores the research problem, research questions and the rationale for this study
- thereafter, the research design used within this study is captured. Here, the research approach, the kind of data collected and the research philosophy that guides study is discussed in section (3.2)
- the penultimate chapter section (3.3) presents the participants' profiles
- the last section (3.4) reviews the process of data analysis

3.1 Research Problem

Following observations from the literature review chapter, there is consensus that networks have positive impact on new venture creation and growth. They are recognised as stimulants to the entrepreneurial process (Chell and Baines, 2000), buffers for mitigating environmental changes (Baum and Oliver; 1991; Klyver and Hindle, 2007) and conduits for accessing information, knowledge and resources relevant for establishing credibility (McAdam and Marlow, 2007).

However, the discussion of network impact on new ventures has often been analysed using the structural and relations attributes, with both yielding inconclusive results (Semrau and Werner, 2013). Since entrepreneurship is viewed as a multidimensional activity (Hjorth et al., 2008), this study argues that paying attention to just the structural and relational properties of networks to understand impact is insufficient, as

neither tell the whole story. Equally, Kidluff and Brass (2010) adds that the argument should not be to justify if the structural of relational dimensions are right or wrong, but which measure is most appropriate given the particular context being studied. Similarly, studies such as Mckveer, Anderson and Jack (2014) and Slotte-Kock and Coviello (2010) point out the need for studies to account for why individuals and groups enact certain networks, how and why the structure and processes of embeddedness affect entrepreneurs, and how this contributes to variations in the form of entrepreneurship generated. Adding to these calls, Kidluff and Brass (2010) identify other oversights in extant network studies. The first is the failure to account for human agency, the second is the neglect of cognition, that is subjective meanings inherent in networks, and the third is neglecting the context within which networks emerge and constrain action.

In this study, network motivation and brokerage/behaviour are used as sense-making tools to explain the role of human agency in network relations. Both are used to explain why network actors decide to enact or pursue certain relations, the different network brokerage methods used to access network actors for start-ups, and the behaviour demonstrated by both broker and the start-ups. Studies covering general network brokerage are still under-developed and are in need of more substantive contribution (Stovel and Shaw, 2012; Sgourev, 2015 and Grosser et al., 2019). Equally, network motivation studies have mainly identified the relevance but offered limited description of a concept or treat it as a unitary concept (Hansen and Nohria, 2004; Reinholt, Pedersen and Foss, 2011; Cooper, Hamel and Connaughton, 2010).

There have also been calls to explore the place of context and cognition with network studies (Kidluff and Brass, 2010; Brand, 2013; Burt, Kidluff and Tasselli, 2013; Mckveer, Anderson and Jack, 2014; Kidluff and Menges, 2015). To do this effectively, entrepreneurial contextual dimensions (socio-spatial), highlighted earlier in chapter 2, are explored to understand how the context influences network behaviour or brokerage process, the motivation that triggers network activities and the types of network ties leveraged, as well as how actors in the context perceive the impact of network brokers. Consequently, the Lagos technology ecosystem within the Yaba and Ikoyi axis, home to several business incubators and the Otigba Computer Village, were the chosen locations to explore.

To shed light on these identified gaps, the main research objective of this study is to: *Examine the mechanisms for entrepreneurial network creation in business incubators and clusters.*

To address these aims, the following objectives were set:

- first, examine the influence of network agency in determining network behaviour and motivation of network brokers and new firms, especially in enacting or partaking in networking activities
- explore the role of the incubation and cluster context in Lagos in facilitating entrepreneurial networking
- finally, discuss the perception of network impact, and challenges of networking experienced by brokers and entrepreneurs

To address these research objectives, the following research questions are answered*:*

1. What is the role of network brokerage and motivation in enacting and pursuing network relationships in the context of business incubators and clusters in the Lagos technology ecosystem?
2. How do firms react and take advantage of network opportunities and activities that take place in business incubators and the cluster?
3. What is the influence of the socio-spatial environment on network creation mechanisms and the kind of relationships that network brokers and firms are exposed to?
4. How do network brokers and firms perceive network impact and challenges within the business incubator and the cluster?

The rationale behind this study is presented the next section.

3.1.2 Rationale for Study

This research is a departure from the extant structural deterministic studies within networking in general and entrepreneurial networking study by extension. It aims to contribute to this field by providing guidance for network brokers like incubator managers on how to apportion network resources and design network activities for tenant companies.

It presents the relational patterns and network challenges obtainable in both business incubator and cluster contexts, as well as the contextual factors that facilitate network creation or access to network actors within both locations. This information will be useful and instrumental in developing policies that are a good fit for start-up support.

Finally, it explores how an actor's network cognition is used to gauge impact, as this information would serve as useful indicators, necessary for benchmarking network success and areas that can be improved on to harness development at the regional level. The next section captures the research design that will be used to answer the questions identified.

3.2 Understanding the Research Design

According to Lee and Lings (2008), research requires the creation of knowledge by linking theory with the real world. However, the ability to create knowledge is first rooted in the researcher's ability to seek and understand the complexity of these diverse world views (Yin, 2018). This diversity is best understood by reviewing how the actors under study perceive reality and the use of appropriate methods in the research process (McAdam, 2004). To help with this, an understanding of the research paradigm that underpins a study provides a useful starting point.

McAdam (2004) describes the research paradigm as a representation of how a researcher's values, judgements, norms and thinking process are formed. A more comprehensive description is highlighted in Guba and Lincoln's study (1994, p.107) which describes a paradigm as "a set of basic beliefs that deal with ultimate and principles….it represents a world view that defines, for its holder, the nature of the "world", the individual's place in it and the range of possible relationships". In simple terms, a research paradigm explains how a particular piece of research is positioned, as well as the methods used to address the research problem identified (Gummesson, 2000; McAdam, 2004). Additionally, Creswell (2018) notes that a researcher's paradigm can also be influenced by a particular discipline's orientation, prior research experiences or engagement in research communities. Since the research paradigm explains what guides the research process, Guba and Lincoln (1994) suggest that it must answer three questions. The first, which is the ontological question, questions how reality is formed and what is to know about it. The second question concerns the research epistemology, that is the relationship between what is known and what needs to be known. Third is the methodological question, which explores how a researcher goes about finding what needs to be known. These questions raised are not exactly elaborate, hence a wider review of other studies provides a nuanced understanding of the three questions raised.

Easterby-Smith et al. (1991) describe research ontology as the critical aspect of the research process, as it provides the researcher with guidelines on how to carry out research utilizing available research designs and methods. A different study by Lee and Lings (2008) elaborates more on this, their study identifies ontology as a set of beliefs about what knowledge is, and whether it influenced by individual perceptions or constructed through individual experiences or the experiences of others. Put simply, ontology represents what knowledge is out there and whether said knowledge is objective or subjective (Maylor Blackmon and Huemann, 2017). Equally, Saunders et al. (2016) explain that although ontology may seem removed from research, it shapes the way a researcher perceives reality and study's research objects. Moreover, their study identifies the objective researcher as one who embraces realism in the most extreme form by incorporating assumptions of the natural sciences, viewing knowledge as something verifiable or testable.

Conversely, the subjectivist researcher incorporates assumptions of the arts and humanities and views social reality to be informed by varied perceptions as well as the actions of social actors (Saunders et al., 2016). Subjectivists are interested in diverse opinions or narratives and this is captured by accounting for the diverse perceptions of social actors in the context under study (ibid). Their study adds that the subjectivist also embraces 'nominalism', which takes into account order and structure under study or 'social constructionism' which acknowledges that reality is socially constructed through shared meanings and experiences. Unlike the objectivists, the subjectivists cannot detach their values from research. Cunliffe (2003) identifies this process as 'radical reflectivity', described as a situation where a researcher actively reflects, questions and incorporates personal values within their research process.

 Epistemology on the other hand, is derived from the Greek word 'episteme', meaning knowledge, is concerned with the nature and scope of knowledge and seeks to answer questions like 'how can what is believed to be knowledge be investigated?' (Slevitch, 2011). Research epistemology also describes the assumption about knowledge created, that is, what is viewed as acceptable and valid knowledge, and how said knowledge is communicated (Burrell and Morgan, 1979; Lee and Lings, 2008; Wahyuni, 2012; Scotland, 2012; Saunders et al., 2016). The last facet of the research paradigm, which accounts for the place of values and ethics in the research process, is axiology (Lee and Lings, 2008; Wahyuni, 2012; Saunders et al., 2016). Axiology explores the role of values within the research and the researcher's stance in relation to the phenomenon under study (Wahyuni, 2012). Equally, it also accounts for the place of ethics and how

the values of research participants are taken account of in the research process (Saunders et al., 2016).

The philosophical beliefs highlighted above inform research design and the methods adopted within the research (Creswell, 2018). As such, the assumption of what constitutes reality and how knowledge is explored informs the methodology and the methods adopted (Scotland, 2012). The methodology is the strategy or plan of action which lies behind the choice and use of particular methods (Crotty, 1998). It seeks to answer the questions why, what, when and how to understand how questions raised will be answered (Guba and Lincoln, 1994). This can also be influenced by the researcher's academic discipline, as the methodology and design used within the study are shaped by what is deemed acceptable, and this often differs across academic disciplines (Saunders et al., 2016). Additionally, the methodology adopted by the research can also be influenced by previous experiences or interactions with the research community, mentors and advisers and this informs if the research will be qualitative, quantitative or mixed (Creswell, 2018).

However, there is a constant debate over the best-suited research paradigms to be used in academic research. As such, a range of recommendations have been suggested, some influenced by the scientific school, others by the work of philosophers or social scientists (Saunders et al., 2016). Table 2 below summarises the output of research paradigms captured across studies. These studies reviewed the different ontological, epistemological and axiological orientations, as well as the methodology that should inform the world views highlighted. Consequently, table 3-1 summarises the research assumptions and paradigms noted across studies.

Table 0-1:Overview of Research Paradigms and Philosophical Assumptions.

	Research Paradigms			
Assumptions	**Positivism**	**Post Positivism (Critical Realism)**	**Interpretivism (Constructivism)**	**Pragmatism**

Ontology: the position on the nature of reality (subjective or objective).	Stems from physical sciences; where reality is external, observable, objective and independent of social actors.	Here reality is objective, structured and layered and is observed through sensations, events experienced and mental processing.	Socially constructed, subjective and influenced by the real world.	It strives to create a balance between objectivism and subjectivism. Reality is external and draws from multiple world views.
Axiology: the place of values and research stance.	Research is undertaken as value-free as possible. Researchers try to remain neutral and detached from research and data in order to avoid influencing results.	Research is value laden; the researcher is biased by world views, cultural experiences and upbringing.	Research is value-laden, meaning that the researcher is part of what is being researched, cannot be separated. Hence, their interpretation of research materials and data play an important role. The interpretivist also adopts an empathetic stance.	Values play a large role in interpreting the results, the researcher adopts both objective and subjective points of view.
Epistemology: what knowledge is acceptable?	Research has to be observed, focus is on identifying causality and law-like generalisations. In addition, the researcher might use existing theory to develop hypothesis, which can either be confirmed or refuted.	Observable phenomena and should provide credible data and facts. Focus is on explaining within a context or contexts and identifying underlying causes and mechanisms that shape phenomena under study.	Focus is on the details of the situation, the reality behind these details and motivating actions. It also acknowledges complexity, multiple interpretations and meaning making.	Research is problem-driven, reflexive and more interested in practical outcomes than abstract distinctions. It can be observable but can also be focused on proving meaning about the phenomena under study.
Research Methodology: how is the research process designed?	Methods will often generate quantitative data using tools like questionnaires or standardised tests.	Quantitative or qualitative.	Qualitative.	Quantitative and qualitative (mixed or multi-method design).

The research paradigms highlighted above provide a useful guide for understanding philosophical assumptions guiding research. They also identify the appropriate methodology to be used, as well as the methods to be used within research. However, within business and management research, Saunders et al. (2016) recognise that, because the discipline draws from a mixture of disciplines, there is often a philosophical disagreement on the most appropriate paradigm to use. However, McAdam (2004) identifies the positivist and the interpretivist research paradigm as the two paradigms that influence business and management research. These two approaches differ in terms of data generation and interpretation, with the positivist focused on collecting quantitative data, while the interpretivist collects qualitative data (Guba and Lincoln, 1994).

Positivists stress on data generalization, that is, when different researchers observe a problem, they will be able to arrive at similar results by carefully applying the same research process and carrying out the statistical test (Creswell, 2009). Equally, Scotland (2012) adds that to achieve this level of rigour and ensure that the same results are achieved, research must pass the test of external validity, which is when recommendations can be transferred to other populations or situations, and that researchers must record the same conclusion, and that it be replicable and reliable at the same time.

For the positivist researcher, objectivity and generalizations are important and, as such, research is mostly quantitative and interested in using large sample sizes to justify representation and generalizability of results (Slevitch, 2011). However, Ryan (2018) explains that sometimes the positivist researcher makes use of qualitative methods that can be used alongside qualitative methods. This view highlighted by Ryan is echoed in Sale, Lohfeld and Brazil (2003, p.50) who note that:

"The fact that the approaches are incommensurate does not mean that multiple methods cannot be combined in a single study if it is done for complementary purposes."

However, Slevitch (2011) cautions that although methods can be integrated, methodologies cannot, thus it is important that the methodological distinctions of the phenomena under study are accounted for (Sale, Lohfeld and Brazil, 2003). This is done

by clarifying the specific features of a particular paradigm in use in the study (Dubois and Gadde, 2014).

The positivist paradigm is criticised mainly for its position on the influence of value. According to Scotland (2012, p.3)," positivists self-delude themselves by thinking their research can be value-free". This is because throughout the research process the research makes value-laden judgements, for example, selecting variables or actions to observe. Scotland also identifies knowledge production as political, therefore, ignoring these political connections is problematic. Similarly, an earlier study by Habermas (1978) notes that human interest guides the investigation process, hence it is impossible for the researcher not to be affected by their values in the research process. Jacobs (2012) adds that when the intentions of individuals who undertake the research are presumed to be ignored, the actions a researcher undertakes will not be understood.

Interpretivism, on the other hand, creates new, richer understandings and interpretations of social worlds and contexts (Saunders et al., 2016). This is undertaken by explaining how humans interpret the world that they inhabit and how they attribute meanings to this world (Yin, 2018). This interpretation is done by carrying out an in-depth examination of the phenomenon under study. This is necessary because interpretivists recognise that truth is subjective, especially where social interaction is concerned. Hence, the researcher is not detached from the phenomenon under study but creates a situation where the researcher and their participant jointly create or co-construct findings (Remenyi et al., 1998; Ponterotto 2005; Easterby-Smith et al., 2008). The interpretivist researcher tries to explain how a phenomenon manifests by paying specific attention to how behaviours and beliefs of actor's match, the different triggers for them (Lin, 1998). However, since human perspectives and experiences are subjective, the perception of what informs interpretivist knowledge may change from time to time and can also be varied (Saunders et al., 2016). Therefore, Hennik, Hutter and Bailey (2011) recommend that the methods used within an interpretivist study should be able to capture and explain participants behaviour and perspectives.

Like the positivist paradigm, the interpretivist paradigm also has its shortcomings. The first shortcoming noted is that knowledge generated using the interpretivist paradigm might not be transferrable, as it would be difficult to generalise the research findings across other contexts (Berliner, 2002). This difficulty in generalising findings questions the legitimacy of knowledge generated, because the researcher may find it difficult to

adequately account for the varied perceptions of the actors under study (Rolfe, 2006). As a result, Angen (2000) recommends using triangulation to resolve the problem noted. Equally, Howe and Moses (1999) add that participant privacy might also be comprised, as the process of conducting research using the interpretivist paradigm is more personal and intimate, thus could lead to the discovery of secrets not intended to be shared.

In reviewing both research paradigms, the researcher is made aware of the expectations and knowledge outputs, as well as the positive and negative outcomes of using both paradigms. However, Saunders et al. (2016) suggest the use of the interpretivist paradigm within business and management research, because business situations are identified to be complex and unique. Additionally, an interpretivist study provides the opportunity to explore and account for the subjective nature of opinions and the divergent behaviours of actors within the business process, in order to explain the varied socially constructed meanings expressed (Wahyuni, 2012; Saunders et al., 2019).

Taking note of the expressed views above, this research adopts the interpretivist philosophy. This thesis argues that, to understand the entrepreneurial network creation mechanisms within business incubators and enterprise clusters and assess the perceptions of impact, it is important that the varied meanings expressed from participants are adequately accounted for and that trust is established. Interpretivist study creates an opportunity for this to happen, as the study is carried out in the natural setting of participants and with the researcher playing an active role in the process (Saunders et al., 2019).

Reviewing both perspectives within the business incubators and clusters, identified in this study as the socio-spatial context, also provides the opportunity to access how networks are brokered, as well as understand the brokerage behaviour adopted by actors. As the study mentioned earlier in chapter 2, network motivation enables actors to make sense of the relationships that they have access to. These motivators, namely asymmetry, efficiency, reciprocity, legitimacy and necessity have been identified as drivers for pursuing and engaging in network relationships. Additionally, by examining network activities in both the contexts highlighted, the study seeks to explore if there are similarities or overlaps between network patterns that are created, the outcome of these networks created and then the conditions that trigger these outcome and network types.

A research design that follows the tenets of interpretivism and allow for an in-depth understanding of phenomenon and context is a case study (Dyer and Wilkins, 1991;

Farquhar, 2012; Yin, 2018). Eisenhardt (1989) identifies that case studies are useful for understanding the dynamics present within a research setting. This is particularly useful in network study, as it has been identified that new ventures constantly change over time and at different stages. Case studies have been identified as an appropriate medium for capturing network interactions as well as the change processes inherent within small firm networks (Coviello and Munro, 1995; Curran and Blackburn, 2001; Shaw, 2005; Shih and Aaboen, 2019). However, Johnston, Leach, and Liu (1999) identify that the strength of a case study is reliant on logic and being systematic. Taking note of this, the next section reviews the opinions of the case study research design process adopted within this study.

3.2.1 Reviewing the Research Design

Case studies have been identified to be increasingly applied within management and business research (Barratt, Choi and Li, 2011; Paavilainen-Mäntymäki, 2011). The reason for this, Eisenhardt and Graebner (2007) explain, is that it allows for the exploration of the real-world context in which the study occurs. Similarly, Bill and Saunders (2017) add that case studies allow for 'particularization', which is described as the capability to study a phenomenon in-depth and identify unique characteristics that can be combined to provide useful outcomes. Case studies are also useful for exploring, explaining, understanding and describing a research problem or question (Farquhar, 2012; Yin, 2018). Case study research also provides the researcher with an input of real-world data used to form concepts, theories and propositions to be tested, allowing a phenomenon to be studied in-depth (Gummesson, 2005). Similarly, Dubious and Gadde (2002) note that case study provides an opportunity for developing theory through a process identified as systematic combining. Systematic combining is viewed as a non-linear and path-dependent process of matching theory with reality (Dubious and Gadde, 2002). Put simply, systematic combining allows for the simultaneous evolution of the theoretical and empirical framework with the case analysis; put simply, it is when a formerly tacit research process is made explicit and an alternative language that fits the research context explored is provided (Dubios and Gadde, 2017).

However, case studies have been criticised for lacking objectivity and rigour (Rowley, 2002), for the difficulty of generalizing case findings (Weick, 1969: Farquhar, 2012), the problems presenting findings (Easton, 1995) and the lack of methodological rigour (Piekkari et al., 2010). Summarising the critique noted across studies Gummesson

(2007, p.223) notes that case studies have been criticised for "being just conceptual, useful at an exploratory stage but not for proving anything, lacking in rigour, and offering journalism and 'anecdotal evidence' with non-generalisable outcomes".

Despite the disadvantages observed, Piekkari, Plakoyianni and Welch (2010) still advocate them as a useful approach for conducting research and but also identifies the works of Eisenhardt (1989) and Yin (2003) as the main authorities in business research on case studies. Dubois and Gadde (2014) affirm this but add that Eisenhardt and Yin have contributed to the legitimization of case study as a research approach and have equipped researchers with relevant tools and techniques needed in undertaking case study research. However, Dubois and Gadde (2014) argues that the tools or techniques emphasised in the two studies listed above are only useful for multiple case studies which rely on replication logic, emphasize linear step by step process and are influenced by the positivist paradigm

Yin's (2003, 2018) perception of case study emphasises the use multiple cases (usually 4 – 6) as a medium for creating balance and increasing the chance of theoretical replication or pattern matching across cases. Multiple case studies aid researchers to achieve literal replication or the prediction of contrasting results (Yin, 2003). Other studies that share Yin's sentiment include Eisenhardt (1989), Remenyi et al. 1998, Baxter and Jack (2008) and Farquhar (2012). Eisenhardt (1989) views multiple case studies as powerful tools for theory development, because they permit replication and also extend the findings of individual cases. Their study also claims that replication within case studies aids in corroborating propositions or creating more elaborate theories.

Additionally, multiple cases also enable the researcher to compare, contrast or explore a phenomenon in a number of different cases (Farquhar, 2012) or analyse within and across each setting (Baxter and Jack, 2008). Furthermore, Eisenhardt and Graebner (2007) opine that multiple cases enable the broader exploration of the research question for theoretical elaboration. Advocates of deep-probing case studies like Dyer and Wilkins (1991) state that instead of focusing on surface multiple cases, deep cases should be the priority, and therefore should be emphasized. Their study argues for 'deep cases' rather 'surface cases' because of the more context reviewed by the researcher and the less insight that he/she is able to communicate of all contexts covered. Their study adds that a deeper exploration of cases helps in providing a richer description of the context in which these events occur.

With regards to theory development using multiple cases, an early study by Van Maanen (1979) argues that theory born out of deep insights of a single case tends to be more accurate, as the researcher takes into account specific intricacies present in a particular context. Therefore, while multiple case study is prone to ignore new theoretical relationships or question old ones, a single case study creates the opportunity for a researcher to explore the rich context surrounding the case under study (Dyer and Wilkins, 1991). However, Siggelkow (2007) adds that the more important focus for theory development within case study research is for a reader to see the world examined in a new way and therefore researchers will need to convince readers that the conceptual argument proposed is plausible, and that the case examined provides some justification for this.

In addition, Folger and Turillo (1999) note that discovering essential features of a phenomenon should not always come from gathering observations or in describing details but in the ability to tell better stories and develop better constructs instead of using 'ready to test' the hypothesis. This is because the reliance on 'ready to test' hypothesis emphasizes the positivist approach which focuses on already developed constructs and measurability, missing the opportunity to uncover or identify new relationships or even question old ones (Dyer and Wilkins, 1991; Dubious and Gadde, 2014).

Dubios and Gadde (2014) explain that this ongoing debate concerning the pros and cons of single and multiple case studies means that no unanimous agreement has been reached yet on the suitability of single or multiple cases. Although the decision might be guided by the problem investigated, if the study is directed towards a number of interdependent variables, the natural choice is to explore deeper a single case instead of increasing the number of cases used (Dubios and Gadde, 2002). A different perspective offered for explaining the use of single or multiple cases is noted in Easterby-Smith, Thorpe and Jackson (2012). This study highlights that interpretivists (constructionists) often advocate for single cases, while multiple cases tend to fit within the positivist paradigm. However, an intermediate position within case study research is also noted and, in this kind of case study research, inspiration is drawn from both the positivist and interpretivist paradigms (ibid).

In contrast to Eisenhardt and Yin studies which are identified as positivist studies that emphasise a linear process for designing case studies and replication logic (Piekkari, Plakoyianni and Welch (2010), the intermediate approach favours flexibility in the

design approach and is not constrained by the number of cases used or replication (Easterby-Smith, Thorpe and Jackson, 2012). This approach to case study design, explained further in Dubios and Gadde (2002), is viewed as systematic combining a method that favours abduction and the need for a researcher to constantly move back and forth between theory and empirical data.

Moreover, Dubios and Gadde (2014) criticise the concept of deep cases proposed in Dyer and Wilkins (1991), by stating that the relevance of deep cases would depend on what a researcher wants to achieve, and thus a researcher might focus on some things and miss others. However, they note that deep cases examination can be achieved by continuously moving back and forward in the research process, allowing a researcher to gain more insights or what Miles (1979, p.597) describes as 'moments of sheer' despair and 'then achieved clarity'. To summarise, Eisenhardt and Graebner (2007) assert that theory building requires a recursive process, where a researcher cycles between case data, theory and existing literature.

With regards to theory development using replication logic, Eisenhardt (1989b) notes that replication logic is central to theory building within case studies. This view is elaborated in Eisenhardt (1989a) and Yin (2003, 2018). Both studies argue that elaborate theories are developed using replication logic. This happens where individual cases are used to corroborate propositions and eliminate chance association, thereby building findings that are robust, which is essential for theory development. Additionally, Eisenhardt and Graebner (2007, p.27) note that "theories built on replication logic are better grounded, more accurate and generalizable". For replication to occur, Yin (1994) identifies that multiple cases serve as experiments that aid in replicating, contrasting or extending an existing theory.

However, Tsang and Kwan (1999) note that replication is perhaps expected within the positivist paradigms, where the goal is in either verifying or falsifying general laws. Outside this confine, replicability is not a 'strait-jacket', and confusion might occur when researchers emphasise replication using a different epistemological stance. Their study further argues that replication is near impossible to achieve because both participant and researcher views change from time to time.

Furthermore, Stake (1994) adds that too much emphasis on replication might force a researcher to be drawn away from certain features important for understanding a case under study or what Ragin (1992, p.219) describes as the 'uniqueness and specificity of the empirical world'. Similarly, Weick (2007) views the emphasis on replication, as

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shameless generalizing, where a researcher claims that their work is proof that an event that happens in one place is also likely to happen elsewhere.

While this section is not focused on reviewing case study research design relevance or arguments that shape the design process, this thesis argues that it is important to understand the current perception, as well as the influential studies that shape this discipline, so as to gain varied insights into the different opinions expressed. Within this research, the focus is on understanding entrepreneurial network creation mechanisms, hence a maximum variation multiple embedded case approach is adopted. Seawright and Gerring (2008) identify a maximum variation case as an exploratory case. This kind of case is concerned with obtaining information about various case circumstances, processes and outcomes (Flyberg, 2006). Equally, an exploratory study seeks to gain insights or clarify on a particular issue, problem or phenomenon under study and to uncover what is happening (Saunders et al., 2019).

Taking note of this, the multiple cases used in this study is not for replication purposes, but to understand the phenomenon under study better. This is also what Welch et al. (2011) describe as 'interpretive-sensemaking', where a researcher seeks to understand the particular instead of generating law-like explanation. To understand this phenomenon of networking, this study is abductive in nature, as it first seeks to understand the network creation mechanisms that occur with the socio-spatial context, and then offers explanations on the impact of these networks on new ventures in the incubator and the cluster. Abduction provides the researcher with the opportunity to explain a theoretical puzzle by seeking explanations for observations that do not fit (Piekkari, Plakoyianni and Welch, 2010).

Dubios and Gadde (2002) describe abduction as the process of redirecting a study to create a new view of the phenomenon under study, which is useful in this thesis as at present, the perception of network impact is described by reviewing the structural and relational aspects of network structures (Mitchell 1969; Aldrich and Zimmer, 1986; Burt 1992; Hoanga and Antoncic, 2003; Eflring and Hulsink, 2007). However, the dynamics of these network structures are functions of individual choices and the needs of the individual are often viewed as a passive agent (Willer and Willer, 2000). A study by Coviello (2005, p.41), notes "the focus of many studies is on counting activities or types of network contacts over time; 'as such, the processes underlying network development are not captured. Equally, individual firms are triggered by different motives and can demonstrate varied behaviours towards network relations or the co-evolution of these

networks. This study departs from the relational, structural perception of network impact and examines how individual motivation, behaviour and context influence network creation, and the resulting perception of impact from their perception.

This study adopts the systematic combining approach proposed in Dubois and Gadde's 2002 study to facilitate the abduction process. This process involves two stages, the matching and the direction and redirection process. The matching process involves going back and forth between framework, data sources and analysis (Dubois and Gadde, 2002, p.556). The direction and redirection stage explores the different sources of data or methods used within a study and can also be described as triangulation. These multiple sources of data, their study argues, reveal aspects or new dimensions that will aid in understanding the research problem better. In this study, data triangulation is used, and this form of triangulation explores different sources of data from different participants in the same research (Sands and Roer-Strier, 2006).

As highlighted earlier, multiple case study allows for the comparison, contrast and exploration of a phenomenon in a number of different cases. The phenomenon under study takes place in two contexts: the incubator and the cluster. Hence, a multiple case study allows for a nuanced understanding and comparison of the networking creation mechanisms within them, and the perception of impact from actors that engage in network activities.

Moreover, the argument for adopting an embedded case study rests on the view put forward by Baxter and Jack (2008). Their study recognises the importance of examining sub-units that are situated within a larger case and consider that data can be analysed within the subunits separately (within-case analysis), between the different subunits (between case analysis), or across all of the subunits (cross-case analysis). They note that the ability to engage in such rich analysis only serves to better illuminate the case. The incubator or cluster as a whole represents whole units. However, data was collected from the several intermediary units to get insights and as a way of triangulation. The intermediary units considered in this research include incubator management and start-up tenant companies within the incubator, data was collected from them. While in the case of clusters, units investigated are start-ups within the cluster. This process allows for the development of rich data which helps the researcher understand how networks are developed, the agents that facilitate these networks, the perception on outputs of these networks, the conditions that trigger certain network interactions and the network types the start-up leverages.

This allows the researcher access to rich information to first, understand how networking takes place in both contexts, second, to understand the areas that can be improved on, and then proffer directives on how start-ups can benefit from the brokered networking relationships. This will be useful for supporting model initiators as well, as the results will benefit their knowledge on how to support start-ups better, provide more insight on networking context and the relevant stakeholders, which are all instrumental in enhancing start-up development.

Bearing in mind the above considerations, an iterative research design was developed, and the next section reviews the methodology, the methods for collecting the data and the process.

3.2.2 Methodology and Methods

Considering that this research explores network creation mechanisms and impact within incubators and clusters and embraces the interpretivist philosophy, qualitative data is utilised. Leech and Onwuegbuzie's (2007) study highlights that a qualitative study creates an opportunity for obtaining deep insights and explaining meanings that individuals attach to different experiences. Additionally, several network studies have also advocated for qualitative studies (Borch and Larson, 1992; Curran and Blackburn, 1994; Arthur, 1995; Johannisson, 1996; O'Donnell et al., 2001; Hoanga and Antoncic, 2003; Jack, 2005; Jack et al., 2010), for a deeper and richer analysis of network relationships and network activities that have been created. Equally, an early study by Hammersley (1992) views that a qualitative study provides an opportunity for examining network intentions and meanings. This creates an opportunity for extensively examining network patterns that emerge to understand how actors build self-enforcing and trust-based exchange processes (Larson, 1992; Johannisson, 1996).

In addition to understanding exchange principles and motivations behind network creation, Borch and Arthur (1995) advocate for applying qualitative tools to capture knowledge influenced by the cultural contexts and other socio-economic relations of actors within networks. A further argument put forward to support the qualitative approach within network study is captured in Aldrich (2001) and O'Donnell (2001). Both studies explain that because the network is an interactional and event-driven process, it is important that the contents of these interactions are accounted for and appreciated, to enhance and increase understanding of the network process. Moreover, Hoang and Antoncic (2003) note that in view of the current knowledge surrounding a new venture's

process of network development focused predominantly on a quantitative approach, the qualitative approach will stimulate the introduction of new theoretical ideas. This new theory would then aid in understanding network transformation and evolution, as well as their emergence over time (Jack et al., 2011).

Equally, Yin (2018) notes that case studies favour qualitative data because they are well suited for in-depth investigations. This is because it enables the understanding of a social phenomenon by thoroughly examining the phenomenon from a holistic view, utilizing words and analysing the view of respondents in their natural setting (McAdam, 2004). Similarly, Sanjari et al. (2014) view that within qualitative research, humans which can also be inferred to mean researchers, are important research tools. This is because they are able to interact with the participants under study, review different pieces of information and can spot immediate findings that are presented through feedback or by pulling together different pieces of information from case context or the participants under study. Qualitative methodology also facilitates the exploration of a phenomenon through multiple lens, allowing multiple facets of the phenomenon to be revealed and understood (Baxter and Jack, 2008).

With regards to aligning methodology with philosophy, Saunders et al. (2015) observe that qualitative research and interpretive philosophy work together to improve understanding of the subjective meanings expressed by participants as researchers seek to make sense of a phenomenon under study. Equally, Antwi and Hamza (2015) view that qualitative study undertaken within an exploratory setting allows for the phenomenon researched to be truly novel, as the researcher is viewed to be 'an instrument of the data collection'. They add that the researcher does not only collect data but also makes interpretations, records observations and constantly seeks to understand participant views.

In spite of the observed benefits of qualitative research, the approach faces some recognised challenges and critique. The first is pointed out in Gummesson (2005), whose study notes that the interpretation and analysis of qualitative data is an 'Achilles heel' for this methodology, as it is often difficult to make sense of the large volume of data. However, the study notes that analysis should not be attributed to qualitative study because it is more associated with techniques and research designs that are explicit and rigorous and can be replicated by others. Instead, qualitative study should be focused on data interpretation because the process is not as orderly as the

quantitative study and replication is often not the target as the focus is on conscious search for meaning and understanding (ibid).

Qualitative research has also been accused of being manipulative, as it is suggested that researcher includes 'power' and 'proof' quotes to persuade the reviewers of the rigour of the findings or speculate on the meaning of data in the favour of personal agenda (Pratt, 2009; Kapoulas and Mitic, 2012). As a remedy for this, Adu (2019) advocates for consistency through data reduction and transparency during analysis process. For qualitative analysis to be consistent, the researcher is expected to the adhere to philosophical assumptions of conducting a qualitative study, and this can be done by paying attention to coding strategies adopted in within the discipline (Adu, 2019). Conversely, data reduction involves the ability to summarise data to adequately represent participants' responses to the questions asked, documents collected, or behaviour observed by making specific information more general and relevant to address research question and objectives (Saldana, 2013). This process is also described as coding, where relevant data is separated from raw data to reflect researchers understanding (Adu, 2019). Finally, as Adu notes, transparency is guaranteed by describing the step-to-step process of the analysis, when researchers' biases are bracketed to when final conclusions are reached.

Another challenge with qualitative study is the issue of ethics. Some commonly identified ethical challenges include anonymity, confidentiality and informed consent (Houghton, 2010; Sanjari et al., 2014). According to Wiles et al. (2007), confidentiality is connected to anonymity in that it is seen as how confidentiality is operationalised. Confidentiality involves respecting the autonomy of participants by not discussing information provided by an individual with others without permission, and presenting findings in ways that ensure individuals cannot be identified through anonymisation (Wiles et al., 2007). Houghton et al. (2010) notes that confidentiality issues can be addressed by using pseudonyms or being selective when describing defining characteristics of participants which could reveal their identity. Confidentiality can also be achieved by explicitly stating, within the information sheet, the individuals who will have access to information (Sanjari et al., 2014). In this study both recommended approaches were used; the information sheet explicitly stated that responses would be anonymised when findings were reported, as well as the specific individuals who would have access to the data collected. Please see appendix 3 for the information sheet.

With the issue of consent, Houghton et al. (2010) note that a major issue on consent within qualitative research was the suitability of the traditional one-off informed consent form given to participants, because researchers cannot guarantee the direction of research. As a remedy to this challenge, Sanjari et al. (2014) recommend that in addition to sending out consent forms, they should also include the type of data to be collected and how it will be used within the information sheet. In addition to clarification on the data to be collected, researchers will need to ensure that consent seeking, and negotiation is continuous; researchers must iterate the right of the participant to withdraw from the process at any time. In this study, consent forms (see appendix 4) were sometimes sent in advance to participants or provided to participants before the interview started. Just before the interviews started and, midway through interviews, participants were provided with the opportunity to ask questions and seek clarity or further elaboration. At these times, the information regarding withdrawing from the research process was also reiterated.

Despite the challenges mentioned, Birkinshaw, Brannen and Tung (2011) opine that qualitative methodology enjoys the benefit of experiencing research first-hand through exposure to deep contextual knowledge without sanctions. Therefore, to benefit from this deep contextual knowledge within the selected case, this study adopted a qualitative methodology.

To support qualitative methodology, Bernard and Ryan (2009) identify that there are several methods for collecting qualitative data, including interviews, focus groups and observations. However, in this study only interviews were utilised. This was used to get nuanced understanding of perceptions of both the brokers (business incubators) and the network beneficiaries (tenant firms and clusters) in their various support contexts. Hesse-Biber (2010) recommends interviews for capturing individuals' points of view, because it creates an opportunity for the participants to be the experts and the interviewer to be the interpreter of the reality based on his/her experience. Interviews not only align within the interpretivist lens but are also useful for collecting in depth information and are flexible to accommodate participant needs (Rubin and Rubin, 2004). Additionally, Adu (2019) describes interviews as a powerful data collection tool that is used to capture participants' experiences, thoughts on a phenomenon and different rationales behind views, actions and decisions. Similarly, McAdam (2004) views interviews as the union between interviewee and the interviewer, which invariably presents an opportunity for quality information generation about the world of the

participant. However, the quality of information gathered is directly dependent on the ability and willingness of participant to interact (ibid).

In this study, semi-structured interviews were used as they present the opportunity to probe for answers and build on the responses of participants (Saunders et al., 2016). Fox (2006) views that semi structured interviews permit the researcher to ask interview questions in a similar way but use open-ended questions. Similarly, Noaks and Wincup (2004) also identify that they are flexible to use as this allows the researcher to change approach slightly to fit the audience interviewed. Moreover, semi-structured interviews create an opportunity for researchers and participants to speak informally and change the vocabulary used in the conversation (Madill and Barkham, 2011).

Taking note of this, the next section begins by describing the research design stages, which involves series of 'lead-in' stages that lead to the core stages. This approach was also utilised in Huggins (2000) to explain the data collection process. This is summarised in table 3-2 below.

Table 0-2:Research Design Outline

Research Stage	Research Action	Approach
Lead-stage 1 June – October 2018	Initial Incubation/Cluster mapping using websites, blogs posts and Ng cluster mapping website.	Secondary data was collected from websites to ascertain the location of incubator/cluster sites and also for contact information. Afterwards, Lagos was chosen as the case location.
Lead-stage 2 December – February 2019	Initial contact with 4 incubator managers/ accelerators, 1 tenant company and 2 cluster contacts were initiated to ascertain interest in study undertaken.	Emails, phone calls and WhatsApp messages were sent to prospective participants (phone calls took roughly 10 to 20 mins).
Lead-stage 3 5th -11th March 2019	Initial meetings with 3 incubator/ accelerator managers, 1 tenant company and 2 cluster contacts to discuss access to incubator facility, tenant companies and other companies within the cluster.	First face-to-face meetings with incubator managers and cluster contacts (meetings lasted between 30 mins to 1hr). One of the 4 managers declined participation because of location but referred me to two other incubators managers. Two initial cluster contacts referred me to other businesses within the cluster.
Core stage 1 12th - 15th March 2019	Redrafting interview questions.	Following meetings with first contacts and further review of the literature and conceptual framework, interview questions were drafted to

		capture the insights to be investigated.
Core stage 2 19th -25th March 2020	First round of interviews with some incubator managers, tenant companies and cluster participants.	Face-to-face semi-structured interviews lasting an average of 50 mins were conducted.
Core stage 3 25th March – 18th May 2019	Second round 2 of face-to-face interviews with managers, tenant companies and cluster participants were carried out	The initial contact referred me to other participants, and access and meeting dates were scheduled. Interviews lasted an average of 60 mins.
Core stage 4	4 interviews were transcribed: one from an incubator manager, 2 tenant companies and 1 cluster company.	Transcripts from the interviews were examined for themes. These were compared with themes from the literature, conceptual framework and network theories used within the study and also reviewed. This was done to compare and identify missing themes not captured in the initial framework.

Source: Author's Transcripts

This process involved earlier 'lead-in stages' and 'core stages'. These stages helped the researcher establish location that would be more accessible and cost-effective for the research project. These stages also helped the researcher to leverage existing relationships and establish new relationships. As noted in the table above, the first stage involved incubator/cluster mapping to establish the spread of incubator facilities as well as the cluster location. Lagos provided a promising location as it is home to some successful fledging start-ups which have gone through some of the incubation programme, and it is also the second location with the highest concentration of incubators in Nigeria. Lagos is also home to the two of the biggest markets in West Africa, which are also cluster sites according to the definition of cluster in this study.

Following this, five incubator sites and one cluster location were used as case sites within this study. After the mapping was completed, initial contact was made to promising participants and, at this point, personal contacts were first leveraged. The project was discussed, and interest ascertained. The first face to face meeting dates were also fixed. The last lead-in stage was the first face-to-face meeting with the listed group in the table. The expectations of the project were discussed, and the information and consent forms were also provided at this stage. Following the project discussion, the first core-stage, which involved redrafting questions, was completed and the second core-stage, which involved face-to-face semi-structured interviews was carried out. Interviews lasted an average of 60 mins. At this stage, I asked participants if they could refer me to individuals within their network who would be interested in taking part in

this study. This technique is called the snow balling technique, whereby the researcher accesses participants through contact information that is provided by other participants (Noy, 2008) as, according to Noy, snowballing is an effective method for researching organic social networks.

Discussion to this point has covered the methodology and instruments for collecting data. The next section introduces the profile of participants interviewed during the field work process. The incubators examined are presented first, thereafter the corresponding tenants firm profile are introduced. The cluster and cluster firm profiles are also covered within the next section.

3.3 Participant Profile

Business Incubator Profile

A total of five business incubators across the Yaba/Ikoyi axis were examined. These incubators operated different models and the models examined were useful in understanding how network support and network activities are created. For anonymity purpose, these incubators are referred to as Incubator A, B, C, D and E. Additionally, 18 tenant companies were also interviewed. These tenants are addressed by numbers too but bear the corresponding letter of their incubator; for example, AT1, BT2, CT3. Pseudonyms like Company xxx, x and y are used to identify companies mentioned by participants. The section begins with an overview of the incubator profiles.

Incubator A

This privately-run incubator is a forerunner to start-up support in Lagos, Nigeria. It was set up in 2010 and is located in Yaba. It initially started as a co-working space focused on building a community that would cater and bring together technology and technology ideas in one space. This incubator initially provided entrepreneurs access to the co-working space and the internet.

Over time, the incubator founders realised that even though start-ups managed to come up with brilliant ideas, funding was a strong mitigating factor that deterred them from making progress, as the solutions start-ups were creating were not seeing the light of day. As a remedy, seed funding of US$5000 was offered to some very promising start-ups. However, support was still required but, at the time when funding was offered, no kind of business support was provided. Shortly after seed funding was provided to these

start-ups, the co-working space model was adjusted to include pre-incubation services to new ventures that were co-located within this space.

With the introduction of seed funding and pre-incubation, incubator founders soon realised that building technology solutions, especially in a place like Nigeria, required a lot of funding because when the firms burnt through the US$5000 seed fund provided, most were unable to continue, defeating the purpose of starting in the first place. This period ushered in the incubation phase, where start-ups are provided with access to business support with an additional US$30,000 and access to the co-working space. A VC (Venture Capital) fund was also introduced to support business who require more funding. These businesses might have gone through the initial first two stages or be businesses who might not be tenant companies. Usually, the amount of funding that can be raised from the venture capital fund is somewhere between US$500,000 and 1 million dollars.

This incubator has now gone on to add acceleration support, but this is often done in collaboration with corporate partners. In this case, the incubator only serves an implementor within the acceleration process. At the moment, this incubator runs a hybrid model, where different support routes are offered to start-ups. The incubator provides start-ups access to infrastructure, finance management, business support and networking services to start-ups.

Network activity in this incubator takes various forms: the incubator puts together breakfast chats, where individuals with the experience of growing a start-up or are currently managing big corporation can mentor a start-up. The breakfast chats are designed to be personal one to one meetings, where start-ups directly interface with these mentors. The incubator also organises an event called the 'innovation showcase'. Here around 250 corporate executives are invited, and start-ups are given the opportunity to showcase their solutions. The idea is to expose start-ups to potential customers and/or meet with corporations who are already using their solutions. Additionally, the incubator organizes group sessions where experts from top management companies in different sectors run workshops with start-ups. This opportunity also doubles as an advisory opportunity as the start-ups can have personal meetings with these experts to get feedback or general advice. Sometimes, personal relations between founding companies and these experts are built. The incubator also organises social events termed TGIFs, which take place on Fridays. This is an opportunity for tenant companies to unwind, but also an opportunity for start-ups to

learn from each other, share experiences, encourage each other and learn from a mentor that might have been invited the event. The incubator also organises technology focused events like hackathons challenges. This event is open to not just tenant companies but other businesses within the ecosystem. The idea is to get businesses to proffer solutions to technology problems and also be rewarded for it financially. Tenant companies are also able to meet up with other companies within the ecosystem. Finally, the incubator organises pitching events called the Demo day; here tenant companies pitch to investors to get additional investment or just to secure partnerships.

(Source: Interview with Incubator Manager and Tenant Companies).

Incubator B

This incubator, located in Ikoyi, was set up to fulfil the corporate social responsibility (CSR) initiative of an international software company based in Silicon Valley. It was created to give back and empower entrepreneurial talent in Africa, as it is often reported that start-up finance and infrastructural deficits were often the problems faced by new businesses in this and many other climes. This incubator initially started as an entrepreneurial school, where the focus was on training and transferring business and technology knowledge to the next generation of technology entrepreneurs within the region.

However, founders soon realised that it is also imperative to empower people financially and so provided exceptional start-ups with seed funding on completion from the entrepreneurial school. These start-ups needed more than just finance to start and run technology businesses because they required additional support for an array of other things, such as getting business credibility, and also a conducive environment to work out of. Therefore, incubation was added to support start-ups further after the training school. At the moment, the process is first the entrepreneurial training school, seed funding and access to incubation support.

The first stage of the incubation programme is the education phase, where businesses are equipped with technology, business development and marketing skills. Every quarter during the training school, which lasts for one year, there are capstone projects. This is an opportunity for individuals in the programme to form alliances with other individuals in training to come up with ideas and present them to the incubator founder and a team of investors. The team reviews and gives feedback to the different groups of individuals. The team carries on working on the idea presented to fine-tune it during

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the process. In the final quarter, also known as the investment pitch, the new entrepreneurial teams formed during the programme once again have the opportunity to present a new idea or a previously presented idea to founders and investors. Team then receives funding based on the feedback received at this stage and afterwards goes into incubation.

The incubator provides end to end support to start-ups. The services provided to tenant companies include access to a decent workplace, mentors, how to pitch, how to code, digital marketing, coaching and other forms of training, which can also be centred around how to raise further funding. Currently, the incubator is experimenting with corporate acceleration, whereby support is partner-driven and mostly focused on providing training opportunities for start-ups. Notwithstanding, the focus of this incubator is still supporting technology start-ups, so it is fair to say that this incubator is a technology incubator.

Within this incubator networking events that are put together are not are not diverse, although, several network activities are organised. First, the incubator puts in place training programmes called 'soap box event', this is usually tailored to meet the specific needs of start-ups and not done as often. This training is done by the parent companies' top executives. Then the incubator organises entrepreneurial events called the Master class; this is an opportunity for tenant companies to meet players within the industry and pitch their solutions to them. The incubator also puts together internal events where start-ups are able to share their experiences and progress, discuss their challenges and get feedback from each other. Additionally, the incubator provides referrals for tenant companies seeking access to a particular corporate or government agency. This usually is done by leveraging the personal relationships of the start-up's portfolio managers. Finally, the incubator organises a funding event called the "capstone project". This is done in-house and is an opportunity for a tenant company to pitch to executives of the parent company to secure funding.

(Source: Interview with Incubator Manager and Tenant Companies).

Incubator C

This accelerator is a fairly recent addition to the technology ecosystem in Yaba and Lagos. It exists as a collaboration between a well-recognised global social network company based in California and a local incubator. The accelerator was set up to support students, entrepreneurs or just innovators who display interest or have ideas for

building solutions that can leverage advanced technologies. Like the first incubator, this is incubator also located in Yaba. During the interview, the manager mentioned that this accelerator was founded to disprove opinions that often suggested that Nigerian developers and entrepreneurs had not finished creating solutions for basic technologies, so why would anyone be focused on creating solutions with deep technologies like Artificial intelligence (AI), Internet of things (IoT), Augmented and Virtual Reality, and other advanced solutions that people around the world are creating. While it is early to ascertain how far they have come with achieving this vision, the profile of tenant companies suggests that incubators are making some steps to meet this vision.

Most of the start-ups that join the programme are either at the ideation stage or just have a working prototype, so the accelerator first provides product development support to help these individuals fine-tune ideas, identify target customers and research the market. Additionally, the start-ups can get up to US$20,000 equity-free funding to help them with this process. The accelerator also provides a variety of support to these new firms and they include workshops, advisory and business support, access to industry experts, mentors and referrals to partners within the incubation network.

Within this accelerator, entrepreneurial events known as 'Founder's Day' is organised. This event is solely for tenant companies to interface with potential partners and stakeholders within the different industries they play in. The accelerator also organises workshops with experts for tenant companies and start-ups are given training in different areas of business from technology to business. This also doubles as an opportunity for firms to identify areas of synergy between themselves, identify where they could leverage each other's strengths and expertise and provide feedback for each other.

Like incubator A, 'TGIF Friday' is also organised in this accelerator and is an opportunity for tenant companies to unwind, just talk about their experiences and give each other emotional support. The accelerator also organises pitch events called 'Demo day'. This is an opportunity for firms to showcase their products and solutions to stakeholders that play within the space for potential investment. The accelerator also designs mentor and advisory sessions. The advisory sessions are called 'Tea break' sessions and are designed for start-ups to sit in with industry experts: individuals who have been running businesses for a long time. The purpose of these sessions is for start-ups to learn and get information from these experts the mentor sessions are between start-ups and

individuals who have successfully built and scaled start-ups. Tenant firms book office hours with them to get feedback, share ideas or just get some moral support.

(Source: Interview with Incubator Manager and Tenant Companies).

Incubator D

This is a corporate accelerator programme set up by a top wealth and asset management company located in Ikoyi, Lagos. With technology disruptions and the entrance of new disrupters within the financial space, this company began seeking ways to leverage these technological changes and also remain competitive. This organization also wanted to capture a different age group and audience, as the current customer base is traditional and older and so were seeking to adjust offering or introduce new offerings that will appeal to the younger audience.

To effectively make these changes, the company sought to provide support to innovative start-ups within the financial technology space, by providing them with the opportunity to co-create together and provide these firms with access to their customers, capital and resource base in exchange for the ability to leverage these start-ups' innovative technologies and offerings. Although these start-ups operate as independent companies, they exist as companies under the umbrella of the parent company

The accelerator programme was put together to support these spin-off companies and they provide services such as access to a fund mentor network, workspaces, internet access, meeting with industry advisors and US$10,000 worth of cloud storage. There is also an option for firms to get additional funding by exchanging equities within their respective companies.

Networking in this accelerator is first facilitated through setting up face-to-face meetings with a corporation or an individual that a tenant company wants access to. The incubator manager sets up initial face-to-face meetings and goes to these meetings with start-ups but encourages the start up to lead the conversation. This accelerator also organises an entrepreneurial event called the 'Partner day'. The idea is for founders to meet up with potential funders, corporations and stakeholders. This event serves multiple roles and include: an opportunity for founders to pitch their ideas directly to all invited to this event, an opportunity for founders to get to know these corporates well, and assess fit to raise investment. The accelerator also organises mentoring sessions for start-ups, with the mentor being from three areas: strategy, product development and machine

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learning. These sessions also double as a training session with tenant companies. Lastly, the accelerator organises networking events called the 'Mentor Mixer'. Here founders meet up with other entrepreneurs playing in different industries, CEOs of big corporations and industry experts. This is done to facilitate collaborations or discuss future partnerships. Sometimes, at this event, investment opportunities or actual investment talks are initiated.

(Source: Interview with Head investment, product and portfolio support and Tenant Companies).

Incubator E

This incubator is a passion project that was set up by the founder to replicate business support facilities he had experienced in India. This founder mentioned that while working on a project in India, he was exposed to the world of incubation and acceleration and saw first-hand the successes and impact recorded in India at the time. Impressed by this success and the impact recorded, on the founder's return to Nigeria, this incubator was set up to replicate what had been observed in India.

For this particular incubator, the kind of support provided to start-ups is driven by the request from support partners: support partners are usually corporate organizations from diverse sectors and international organizations. The incubator merely designs programmes to suit the brief provided and executes afterwards. As a result, this incubator model is fluid: the programme designed for start-ups could be pre-incubation, incubation or acceleration support, depending on the actual preference of the support partners. However, support is only provided to start-ups that are or can be technology-enabled.

Networking in this incubator is also very minimal. Two main events mentioned are network events referred to as 'Demo day', where start-ups pitch to investors for funding. Then the start-ups are given access to attend technology events organised by the partner organizations. Tenant companies also have the opportunity to meet face-to-face with industry experts or successful entrepreneurs who play in diverse sectors. These sessions are useful for accessing market information, getting insights on 'best practice' and support that will boost the tenant company's confidence.

(Source: Incubator Founder and Portfolio Company)

Having reviewed the profiles of these different incubator types, the next section will now discuss the tenant company profiles. These tenant companies are grouped by their incubator

A Profiling Tenant Company Profile

Table 0-3: Tenant Firm Profile

Incubator A			
Incubator	**Age**	**Sector**	**Service**
AT1	3yrs	Software Development	Builds software solutions and supplies software talent to corporate organizations
AT2	1yr	Real Estate Technology	Provides residential communities the opportunity to digitally manage their security, communication and payment solutions.
AT3	5yrs	Health and Fitness with Technology	Provides affordable on-site fitness training to corporate organizations and connects individuals to outdoor fitness activities and events using a social app.
AT4	1yr	Identity Technology	A cloud-based consumer journey management relations platform used to manage visitor and queue management by helping companies manage and monitor in real time the entire customer experience and service time.
BT1	6 months	HR Technology	A technical recruitment platform that supports companies to recruit technology talent. The platform sources, screens and vet's technology talent and presents partners with the most suited.
BT2	1yr	Supply Chain Technology	A supply chain technology that aids in tracking the origin authenticity and stock levels of products sourced for consumers.
BT3	2yrs	Health Technology	A medical record and health insurance claims platform.
BT4	3yrs	HR Technology	Provides an interactive platform for conducting job interviews and profiling candidates to find talent for companies.
CT1	1yr	VR Technology	Offers a virtual reality simulation for training employees on safety and efficiency in the workplace.
CT2	1yr	Artificial Intelligence	Develops frameworks, platforms and resources for software developers, researchers and industry practitioners to build solutions and leverage AI.
CT3	1yr	Internet of Things	Offers a power supply platform that allows consumers to track electricity consumption in their offices and homes.
DT1	1yr 3 months	Financial technology	A web and mobile application that lets customers invest in money markets and virtual funds.
DT2	9 months	Insurance/ Financial Technology	A monitoring service provided to road transport companies to help them determine insurance premiums for inter-state travel.

DT3	1yr	Financial Technology	Offers a service that assists investors to trade in local and international markets.
DT4	2yrs	Financial Technology	Offers a co-operative management solution that assists co-operatives, trade unions and thrift organizations to manage financial transactions and access alternative financial services and solutions.
ET1	Incorporated in 2014; started operations in 2017	Drone Technology	A drone service provider that ensures that drones are implemented in core sectors to reduce the cost of operations for the business and improve efficiency. The drone service is also focused on improving operational output for businesses.
ET2	1yr	Drone Technology	A drone delivery company that provides medical suppliers' deliveries to primary health centres.
ET3	5 months	Waste Technology	Provides a waste management, waste energy and incinerating service.

Source: (Author's Culled from interview)

Otigba Computer Village Ikeja, previously called the Ogunbiyi community, was a purely residential location before its evolution to an **ICT Hub**. The popular Otigba street within this location is how the name Otigba came about. However, it is now popularly referred to as Computer Village. The exact date this location transformed to a technology destination is difficult to place, but there are speculations that it started around the mid '90s to the late '90s, following the wake of technology emergence in Nigeria. From the late '90s, technology adoption became more rapid in Nigeria and this location gradually evolved to a business centre location (business centres are small computer run businesses usually controlled by a sole trader. This centre offers browsing, photocopying, typing and binding services. At that time, internet service and computers were not readily available, so people often went to this location to access these services.

With the increasing presence of these kind of businesses within this location, dealers of computers and other computer accessories began converging at this spot. Gradually, the trading of computer and computing accessories became large scale and the repair for defective parts commenced. As technology evolved and time passed, mobile phones and sim business trade started in the early 2000s. Consequently, this location became more recognised and the patronage and interest in this location and in trading ICT products became more popular. This also became a new kind of profession for individuals in the corporate space who were seeking to change jobs, secondary school leavers who could not afford to continue to higher education and fresh graduates who did not want corporate 9 to 5 jobs. Knowledge and learning in this location are transmitted through apprenticeship and this occurs in two ways. The first apprenticeship

model is practised by business owners of Igbo origin; here family members and relatives come under the tutelage of an established business owner for a number of years and afterwards get a lump sum of money to commence business. The other type of apprenticeship model is where individuals either pay to learn the trade or work for the business but earn stipends.

Currently, this location is home to not only computer and computer accessories businesses, but all the other products within the ICT space. The repair of hardware products, as well as software development, is also carried out within the computer village location. There is a significant amount of technology talent in this location. Some of these individuals did not attend university or receive any special training but, by virtue of being there and interacting with other businesses, they have been able to develop skills in a variety of areas from computer or phone repairs to software development and installation. This location not only serves Lagosians, but also other markets across Nigeria and West Africa, and can arguably be called the largest ICT hub within West Africa.

Aside links to market and the availability of technology talent, this location contributes significantly to Nigeria's GDP. In 2013 Mrs Omobola Johnson, the then minister of communication technology under the presidency of Goodluck Jonathan, conducted a study of this location and it was speculated that this location contributes approximately $32 billion dollars to the economy. Every reputable ICT brand from different parts of the world has a base within this market, and they all have their dealership and distribution agents in this location. From time to time, international directors of these brands also come to this market to see how businesses are conducted and to organise training for their suppliers.

This location not only contributes to the GDP of the country, but also create jobs. With no or very little capital, some individuals have been able to establish themselves in this location, by doing 'Oso Ahia'. This is an Igbo term that translates to helping other businesses to sell, buy or market their products for a commission. This is a fund-raising method used by some individuals within this location to raise the funds they need to start their business. Some of the individuals who did not initially have the capital to start their businesses resort to this. Today, some have established businesses and have also become employers of labour too.

The trade association known as the Computer and Allied Dealers Association of Nigeria (Capdan) was instituted 18 years ago to interface between businesses in this location

and the government on policy and taxation matters. The initial objective was to have an organised association that can cater to the needs of members and act as a regulatory body that will provide guidelines and policies for conducting business within Computer Village. The association also brokers relations with reputable global ICT brands, and this helps to boost the exposure of businesses within this location.

Network activities in this location usually happen during the stakeholders' meetings, where representatives from each business plaza (a building that houses different stores) and government officials convene with officials of Capdan to share ideas on ways to move this location forward or address challenges they are facing. Capdan also brokers relationships with foreign technicians of the brands represented in this location, to train suppliers on repairs and different ways they can provide after-sales service to their customers. This training is given from time to time, although the exact frequency cannot be stated. Aside training on repairs, these technicians also offer training to businesses in this location when a new technology has been introduced, or workshops on how to run businesses better. In addition, the association sponsors businesses to attend trade shows that are usually outside the country, and this is done in collaboration with a government agency called NITDA, the Nigerian Information Technology Development Agency. The association tries to subsidize the costs of travel and provides visa recommendation letters for businesses.

(Source: Secretary of Capdan).

Cluster Companies Profile

A total of 13 businesses were interviewed within this cluster, including firms who were in the early stages; to firms aged 1-4; businesses approaching the growth stage (4-6 years) and businesses at the 8-12 years growth stage. For anonymity purposes, these companies are referred to as company A, B, C, D, E, F, G, H, I, J, K, L or M.

Company	Age	Service
Company A	1 year and 2months	Digital marketer and dealer in mobile phone and accessories.
Company B	3 years	Dealer mobile phone and mobile accessories.
Company C	5 years	Software developer / reseller and hardware dealer.
Computer D	4 years	Dealer in computer networking and securities equipment.

Company E	3 years	Dealer computer networking, telecommunications and securities devices and an information technology consultant.
Company F	6 years	Dealer in computer networking and security devices.
Company G	2 years	Repair and sale of laptops.
Company H	5 years	Dealer in mobile phones, laptops and accessories and logistics.
Company I	8 years	Digital gadget repair and sales.
Company J	10 years	Wholesale dealer in computer networking accessories.
Company K	11 years	Software sales and deployment trainer.
Company L	12 years	ICT consultant and digital gadget wholesaler.
Company M	12 years	Computer securities manufacturer, internet service provider and software developer.

Table 0-4:Cluster Firm Profile

Source: (Author's Culled from interview)

Having presented the profiles of participants, the next section explores how data collected from these participants were analysed.

3.4 Data Analysis

Following Adu's (2019) recommendation that qualitative data analysis needs to achieve consistency and transparency during analysis process, this section begins by discussing how the data collected achieves these objectives. As mentioned earlier, semi-structured interviews were collected from 35 participants in 3 locations (Yaba, Ikoyi and Ikeja). These collected interviews were transcribed and the journey to achieving the three highlighted objectives started, beginning with data reduction.

Data reduction, also described as coding, is viewed as a rigorous process that involves making meaning of the data collected by seeing and interpreting what participants have discussed or done, and reflecting on the category to follow on with (Bazeley, 2013). Another study by Gunby, Marshall and McCulloch (2011) identify coding as the initial step in analysing interview data, because it allows researchers to engage in data reduction and simplification. Through coding, a researcher expands data by making new connections between concepts, transforms data to meaningful units and reconceptualizes theoretical associations (Gunby, Marshall and McCulloch, 2011).

A different perspective on coding is presented by Saldana (2013, p.3), whose study describes coding as "a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data. The data can consist of interview transcripts, participant observation field notes, journals, documents, drawings, artifacts, photographs, video, Internet sites, e-mail correspondence, literature, and so on". Coding is also described as a sub-category of qualitative analysis that requires a systematic, subjective and transparent process of reducing data to meaningful and credible concepts to adequately represent the data and address the research problem, purpose or questions (Adu, 2019). However, to achieve coding, the researcher needs codes. Saldana (2013, p.3) describes them as "a researcher-generated construct that symbolizes and attributes interpreted meaning to each individual datum for later purposes of pattern detection, categorization, theory building, and other analytic processes".

Unlike quantitative data analysis, coding in qualitative analysis is not a precise science but an interpretive act (Saldana, 2013). As such, it has to be systematic and this can be achieved through consistency and believability (Adu, 2019). Consistency, Adu further notes, is also achieved by following and adhering to a specific philosophical assumption and approach. Some recommended qualitative approaches that will guide qualitative researchers are noted in several studies (Denzin and Lincoln, 2011; Creswell, 2013; Merriam and Grenier, 2019; Adu, 2019) and include grounded theory, mixed methods, transcendental, narrative, case study, ethnography and interpretive approaches.

In reviewing these approaches to analysing qualitative data, Adu (2019) notes that there is no specific approach for analysing case study data, as cases are unique and data from multiple sources are collected. As such, Adu recommends adopting data analysis strategy from any of the approaches earlier identified. In reviewing the existing approaches, this research adopts the interpretive analysis approach. According to Smith and Osborne (2012) the interpretative analysis approach (IPA) is used to explore in detail how participants make sense of their personal and social world. IPA also provides a detailed explanation of participants' personal perceptions or accounts of an object or event, as opposed to an attempt to produce an objective statement of the object or event itself (Smith and Osborne, 2012).

Additionally, IPA is concerned with the interpretation of the perspectives and experiences presented by participants, by exploring describing or situating data (Smith,

Flowers and Larkin, 2012). Adu (2019) recommends the use of IPA in research if it satisfies any of the following:

- to assess how participants make sense of their experience
- to understand why people, do what they do (rationale behind decision making) and
- when exploring the core components of participants experiences

In this research, the first and second reasons align more with the choice of data analysis approach. The focus of this study is to understand how network actors make sense of the network or network activities available to them, first by seeking to understand why and how a network actor pursues network relations and then their impression of network impact either from networks that have been brokered or network activities that are available. To carry out IPA, Smith, Flowers and Larkin (2012) provide five steps to help guide researcher. They include:

- reviewing transcripts to learn about participants' responses to the research questions
- identifying relevant information that would aid in addressing the research purpose and questions
- using the relevant information identified, to attempt to answer these questions:
  a. What information means
  b. What the participant is implying
- develop themes based on interpretations

Following this recommendation, the first stage of data reduction in this study commenced with interview transcription and reading to get familiar with the responses given by participants. Afterwards, paragraphs were annotated to explain or attempt to interpret what participants were trying to say. This stage is similar to the data familiarisation stage documented in Braun and Clarke (2006). Their study notes that at this stage the researcher becomes immersed in data by reading and re-reading transcripts and making notes. After this stage was completed, the transcripts were imported into the Nvivo software. The Nvivo software programme facilitates data analysis through coding relevant text, categorising identified codes and generating or visualising results (Adu, 2015). After transcripts were imported a word frequency was run and a world cloud developed (please see appendix 5 for results). The word cloud gave an overview of words that were used often and the context within which they were used.

Following the review of the word cloud and annotated transcripts, the empirical indicators were created to guide initial coding and then stage two commenced. Adu (2019) describes empirical indicators as relevant portions of the raw data that is selected to address a research question or purpose. Adu adds that they exist in two forms: the explicit empirical indicator, which is described as information that is easily decoded from transcripts where the meaning behind the text is explicit, and the implicit empirical indicators, which is information that is not immediately apparent within the data examined. Charmaz (2014) adds that, with implicit indicators, further analysis is undertaken to determine if they can adequately address the research problem or question. At this stage too, initial coding (also described by Saldana (2013) as first cycle coding) commenced, with the empirical indicators used as a guide. It is worthwhile to note that an array of coding strategies is available to aid qualitative analysis. However, this study argues that the comprehensive guide presented in Saldana (2013) and Adu (2019) provided better guidance.

To guide the coding decision, Saldana (2013) recommends the use of a coding strategy that is consistent with the purpose of the study and answer the research questions. Similarly, Adu (2019) recommends that the decision on what coding technique to use should be guided by any of the following: the kind of research design, the purpose of study and / or the research questions. This study adapts Adu's DIP strategy as it provided a clearer and explicit explanation that aided in quickly grasping concepts and processes. DIP is an acronym for descriptive, interpretive and presumption focused coding. In reviewing the research questions, design and objectives of research, the descriptive and the interpretive focused coding strategies were utilised. Both coding strategies allow for an explicit description of events, experiences and phenomenon and an opportunity to explain, explore and understand the experiences and phenomenon (Adu, 2019). They also both answer the questions 'what' and 'how' and are recommended within case study design (Adu, 2019).

Descriptive coding is used to summarize, in a word or short phrase, the basic topic of a passage of a piece of qualitative data; in this case interview transcripts (Saldana, 2013). This coding strategy, Wolcott (1994) explains, is used to point the reader to see, read or hear what researcher experienced at the point of data collection, and no attempt is made to deduce the reason behind the participant responses or actions. This is done by using, verbatim, the participants' own words (Adu, 2019). While coding, some comments made by participants needed further interpretation and the interpretive coding technique using the implicit indicators created was used.

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After the initial coding was completed, the third stage, which is to attempt to answer the research questions, commenced. To assist with this, an analytical memo was created to guide this (please see appendix 6 for the memo). In designing the analytical memo, interview data and literature were reviewed multiple times to identify some possible answers to the research questions.

At the end of the third stage, the final stage mentioned in Smith, Flowers and Larkin's (2012) research, namely the development of themes, was caried out. The developed codes were sorted, and themes were created. The initial codes created were 32 codes for managers, 66 codes for tenant firms and 50 codes for cluster firms. These codes were collapsed into 5 themes for the managers and 6 themes for both the tenant and cluster firms.

This chapter has presented an overview of the research problem, the philosophy guiding the research and how the research was designed to answer the research questions and address the research problem. In the next chapter, the codes derived from the interview data, further data analysis and the findings are discussed.

Chapter 4

4.1 Analysis and Findings

In this chapter, the focus is on the analysis of the data generated from the interviews conducted with the incubator management, tenant companies and cluster firms. As noted in chapter 2, incubator models have evolved over time and the models covered in this study are hybrid incubators which, for the purpose of this study are incubators that offer pre-incubation, incubation and acceleration routes to start-ups. Other models examined in this study include a corporate accelerator, a deep technology accelerator and a technology incubator. For the purpose of the analysis, they will all be referred to as incubators. It is important to mention that all the models examined were particularly focused on supporting technology-enabled start-ups, with the exception of one focused on deep technology looking to leverage artificial intelligence. Technology focused or

technology enhanced start-ups are predominantly the focus of private incubation support within Nigeria. The cluster context, on the other hand, cuts across businesses focused on hardware repairs (laptops, mobile phones and tablets), software sales and design, mobile phone and accessory dealers, computer networking, telecommunication and securities device dealers. Data analysis process was already described in chapter 3. This chapter focuses on presenting the codes and themes derived from the analysis and findings.

To fully examine all these, the chapter is broken down as follows:

- Discussion on networking creation mechanism from the management perspective commences. This section begins by exploring why managers broker networks for tenant firms in the first place. This is undertaken by exploring network motivation from the perspective of incubator management. Understanding this sets the tone for exploring how they broker these relationships. To explain this, the brokerage process is presented, and the ties utilised by managers in brokering these relationships are presented. Discussing motivation, brokerage method and ties utilised presents an opportunity for understanding how managers make sense of their network actions. Next, the position of the socio-spatial context of Yaba and Ikoyi in the network creation process is reviewed in order to understand the influence of the location on brokerage and motivation, the resulting relational patterns and the challenges faced by incubator management in reaching these network partners. This will improve understanding of the network opportunities available within the incubator locations (see 4.2).

- Following discussions of network brokerage and motivation from the management perspective, the start-ups perspective is presented in section 4.3. This section explores how incubator tenant companies make sense of network opportunities available by discussing their motivation, preferred network activity and ties utilised. The influence of the socio-spatial context of Yaba and Ikoyi on entrepreneurial networking, network types utilised, and network challenges are also reviewed.

- The final section (section 4.4) discusses the entrepreneurial networking creation mechanisms in the Otigba Computer Village Cluster. An examination of network motivation, brokerage and ties utilised is covered first to understand how firms make sense of network opportunities available. This also enables understanding of how network opportunities are initiated and why firms take advantage of

them. Additionally, the influence of the socio-spatial context of Ikeja Computer Village on entrepreneurial networking, the resulting network types and challenges are also discussed.

4.2 The Management's Perspective of Networking Creation

In this section, the focus is on understanding how the incubator management makes-sense of network opportunities available in the Yaba/Ikoyi location. To adequately cover this, the themes, codes and sub-codes derived from the interview materials are presented first in the table below

Table 0-1:Table presenting themes, codes and sub codes managers perspective

RQ1 Network motive of managers	This is the anchor code for research question 1 (What is the role of network brokerage and motivation in pursuing and enacting network relationships in incubators and clusters?).
Theme: Network Motivation	
Code (Motive)	
Need Reciprocity and synergy To access information	
RQ1 Brokerage method utilised	This is an anchor code for research question 1 (What is the role of network brokerage and motivation in pursuing and enacting network relationships in incubators and clusters?).
Theme: Network Brokerage	
Codes (Brokerage Method)	
Indirect Brokerage Brand and reputation **Direct Brokerage** Events Marketing Meetings Partnerships	
Sub-code (Tie Preference)	
New relationships Old relationships No preference	
RQ 3 Influence of context in network creation	This is an anchor code for research question 3 (What is the influence of the socio-spatial context in network creation and the kind of relationships that network brokers and firms are exposed to?).
Theme: Influence of Context	
Code (Benefit of Support Context)	
Benefit of accessing information and resources Benefit of accessing partnerships Benefit of accessing talent and community Benefit of socio-spatial proximity Infrastructure and environment	
Sub-codes 1 (Network Categories)	

Co-incubation network	
Corporate	
Expert	
Funder investor	
Mentor network	
Sub-codes 2(Network Gate Keepers)	
Business heads	
Ecosystem influencers	
Policy and regulation heads	
RQ4 Perception of network impact, quality and challenges	This is an anchor code for research question 4(How do network brokers and firms perceive network impact, quality and challenges within the business incubator and cluster context?).
Theme: Impact, Challenge and Quality Assessment	
Code: Network Impact Assessment	
Acquisition	
Time begets trust	
Code: Network Challenges	
Talent	
Time	
Code: Perception of Network Quality	
Quality Based on knowledge and experience	
Quality based on progress and reciprocity	
Quality based on shared interest and personality	

Source: Authors, Culled from Nvivo Coding.

The table presented above is useful for understanding how themes were derived to answer the research questions. These themes are led by both the data and the literature, as this is an exploratory study. These themes all have subcategories which are represented using codes, and this is elaborated on below

Discussion begins with first understanding the motive that drives managers to broker relationships for their tenant companies. Thereafter, the network brokerage method and ties utilised by the managers is discussed to understand network behaviour and ways managers satisfy tenant firms' network needs. The place of context in driving access to network actors and the network types forged within the context of Yaba and Ikoyi is then discussed. The final discussion covers the managers' perception of network impact, quality and challenges. The next section begins with discussion on management's perspective on motivation.

4.2.1 The Management's Perspective on Network Motivation

Three codes were captured under this theme; need, reciprocity and synergy motive and access to information, as presented in the table above.

Four of the five incubator managers identified need as a motive for explaining why incubator managers seek network relations with actors, three out of the five identified reciprocity and synergy, and one mentioned access to information. Usually, for managers who are motivated by start-up need, their goal is to match tenant firms with network actors who have the right expertise, who can exchange knowledge or simply to meet specific requests from tenant companies.

Incubator A manager remarks:

"We work from the need of the start-ups; we try to identify someone who is an expert in their field, and we assess if they are actually able to meet the needs of the start-up in question and vice-versa".

Incubator C manager adds:

"It is based on start-up need, for example, if we have a particular programme and we require experts to come in, we either look into our existing network or we ask people in our network if they know anybody or we look for new people to add to our network. For example, if we have not done anything in nuclear physics and I have a start-up doing something in nuclear physics, it is an opportunity to reach out to existing networks or go out to find them on our own".

Incubator E manager stresses the importance of matching tenant companies with requested access, he explains that:

" … Relationships are unlocked based on need. When a start-up approaches us requesting support to access a network, we look at our network and find a contact, if we do not have, we reach out to people within our network who may know them".

In reviewing earlier discussions on necessity as a motivator for pursuing network relationships, two scenarios were provided. The first scenario is induced by policy or some degree of urgency, which is often mandatory and could result in punishment, expulsion or loss if network participants do not adhere (Oliver, 1990). The other requires active participation for innovation, information and knowledge exchange, but also requires the opportunity to organise complementary knowledge shaped by government policy (Spielkamp and Vopel, 1999; Roelandt and Hertog, 1999; Edquist, 2006; Lundvall, 2007; Godin, 2009). In the case of these incubators neither applies, while access to expertise, matching needs of tenants and knowledge might be what propels

managers to seek out network relations, because there is no expectation that policy from the government will change the motive of managers and no coercion, as their sole purpose is to meet the needs of tenant companies.

However, some other managers, who are more focused on ensuring that tenant company and network actors can benefit from each other, assess how they can provide reciprocal services to each other or ascertain if there exists some degree of synergy in the first place. Reciprocity motive is judged by assessing the possibility for establishing partnerships to facilitate customer acquisition, increase speed to market and openness to innovation. Synergy, on the other hand, is assessed by the ability to leverage solutions or services of network actors and tenant companies.

Incubator D manager explains;

"First thing we consider is who will be the right fit for start-ups to deliver this value proposed to projected customers. Again, they are a host of people we partner with, but we look at a few other things, like which of these potential networks are open to innovation, and which of these companies from the time we did the first introduction to close can move quickly with the innovations introduced. We also look at consumer the base of potential partner, where if we broker this relationship, it will make it easier to access them and move faster in the market".

Incubator B manager further notes:

"I would say the motivation is fuelled by our ability to ask and also give. What can this partner offer portfolio companies and can we match the expectation? This is because partnership should happen organically, it cannot be forced, as they are like marriages".

Also, we look out for synergies between partners and start-ups. For example, a real estate firm looking for an online solution that a start-up can provide. If it is a bank, is the bank looking to go in the direction of the solution start-ups are providing? However, the most crucial is alignment".

The notion of reciprocity within the literature is facilitated by goals collectively pursued individually or in a group to achieve co-operation and intentional interactions between actors in a network (Powell, 1990; Uzzi, 1997). This can be inferred from these responses from the managers, who are seeking to find network partnerships for their firms to enhance both parties' chances in the market. However, reciprocity in the case

of these incubators goes hand in hand with the ability to identify areas of fit/synergy with tenant companies. What is not apparent is the expectation of the degree of contribution parties involved have to make, the role of trust, time or if there are established principles that guide network actors in making decisions about whom to get into relationships with or not. These are areas that were pointed out in the literature review as factors that would trigger an effective relationship or address the potential risks of opportunism (Walter et al., 2008; Wincent, et al., 2010).

The last motive covered is the opportunity to access information. Previous studies (Hoang and Young, 2000; Johannisson et al., 1994; Brown and Butler, 1995; Singh 2000) view information access as more of an outcome of engaging in network relations than a motive. However, incubator manager B views it as a motive. He notes:

"If there is no synergy, we still broker the relationship for information purpose, keep each other informed. We attend each other events and trade advice".

The managers' responses provide an opportunity for understanding how sense-making begins; here managers are acting as independent network actors, with no mention of how the relational ties they have or the networks groups they belong to influence their decisions. The main focus, following the responses is the need of their start-ups. This drives them to explore different brokerage options, which is discussed in the next section.

4.2.2 Management's Perspective of Network Brokerage

The emerging themes from interviews that cover how network partnerships are enacted for tenant firms identify two main themes. They include the brokerage process and the preferred network ties utilised. These themes all have subcategories which are represented using codes, outlined below:

Network brokerage

Brokerage process

Indirect brokerage

- brokerage by leveraging reputation and years of support

Direct brokerage

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- events
- marketing
- meetings
- partnerships

Network Tie preference

• no preference

• old relationship

• new relationship

With regard to the network brokerage process, four of the five incubator managers mentioned that they facilitate the network brokerage process by simply leveraging their network using their reputation and the number of years they have spent supporting start-ups. What is noted across the discussions is the ability for managers to call on the relational capital they have built over the years by leveraging their reputation or by boosting the reputation of their tenant companies directly, through partnerships, collaborations or by marketing. Below are excerpts from interviews with managers from incubators B, C, D and E.

Incubator B manager notes

"…. one of the key things we do is to first make sure that B incubator is a key player in the tech ecosystem. You will see B staff or alumni partake in tech investment in the ecosystem by offering free mentoring. Our alumni take part in or other accelerations programmes as well.…We also do several internal events, like master classes so that we can be easily recognised in that space…… We also have corporate partnerships, and this gives us credibility as well. I would say visibility starts from getting creditability for B as well. That way we can create a platform for our portfolio companies".

" …. We also have very oiled marketing machinery that ensures that start-up milestones are communicated. We even reach out to foreign media organizations like Tech Crunch. The marketing team communicates all the endeavours of the start-ups and makes sure they are adequately communicated".

Incubator C manager further explains:

"…. It depends, we have built a brand over the years by working with both local and international actors and stakeholders. Over this time as well, we have also built a network with experts and companies across different sectors, so we leverage our existing networks and reputation."

"There are workshops and these sessions designed are for start-ups to work with each other and to leverage each other's perspectives, strengths and expertise. We also have social events like TGIF, Founder's Day for portfolio companies. This is created for start-up companies to interface with prospective partners and stakeholders".

Incubator D manager adds:

"…. We basically leverage our networks…. Because we have been building business for a while and we have been around for a while, we know a number of people. The interesting thing about networks is that your networks open more networks for you. So, there is almost nobody within the context of Nigeria, at least, that we are not one person away from. We also basically leverage our networks. If we do not know them directly, we realise that we might have someone in our network pipeline that already has a relationship with a potential network, we leverage this relationship. This is just because reaching out to this new network might just be a longer process".

Incubator E manager remarks:

"Well, I would say that myself and co-founder are very well connected. We have been doing this business for five years and our paths have crossed with a lot of people. We have also worked with a lot of corporates and it is easy for us to walk into a room and activate these relationships by ourselves or using the people we know. So basically, we leverage our reputation while we broker relations for start-ups. We have network events like the demo day are organised from time to time".

Another method used by managers to facilitate the network brokerage process is by setting up meetings with an actor requested by a tenant company.

Incubator A manager's remarks:

"Often times, some start-ups make requests to meet a specific expert. We make these relationships possible as well. It is a stronger sell, if we broker these relationships first instead of the start-up companies as they do not have credibility yet. We have the

breakfast chat, here we bring an individual who has experience either growing a start-up or is currently managing a big corporation. This is more personal; the start-ups can have individual interface with the individual in question. We also organise an innovation show case, where we invite over 250 corporate executives. The start-ups showcase their solutions too, might be lucky to get any of these corporates as customers or get to meet corporates that are already using their solutions. We also have group sessions where expert come. This could be top managements in different companies or have this expert meet one to one basis for advisory sessions. Here these start-ups are able to create personal relationships with these individuals."

Based on the views expressed by these managers, both direct and indirect brokerage is utilised to meet start-up need or address reciprocity and synergy motive. Indirect brokerage, as discussed in the literature, is viewed as when the incubator does not require to actively participate in the networking brokerage process, but instead relies on the proximity of network partners, incubator brand name and reputation to facilitate network access for incubating firms (Sa and Lee, 2012; Pettersen et al., 2015; Shih and Aaboben, 2019). However, following the review of the network activities that take place within all the incubators, direct mediation between the incubator management and the network actors is also noted. Direct mediation is described as when the incubator is actively involved in building relationships between the incubating firms and actors (Sa and Lee, 2012; Cantu, 2017; Shih and Aaboben, 2019). In all the incubators, entrepreneurial events, training and to some extent, mentoring and advisory services are organised. These activities take place because of the active participation of incubator management.

However, the purpose of these events, especially the entrepreneurial events, are different. For example, the innovation showcase organised by Incubator A is organised for tenant companies to demonstrate how the solutions they are building work, meet with corporations who are already using their solutions and possibly acquire new customers. With incubators B and C, their purpose is slightly different; the 'masterclass' and the "Founders day" are organised to enable tenant companies to acquire customers by presenting their solutions to industry stakeholders. For incubator D, their 'partner day' is aimed at customer acquisitions, assessing synergies with potential partners and raise investment. Incubator E's 'demo day' is solely for raising investment. Therefore, what is noted is a predominant mix of methods in facilitating the brokerage process. Incubators B, C, D and E are more inclined to using the direct and indirect mediation brokerage process, while A is more inclined to use direct mediation. The boundaries of

this mediation process will be discussed when reviewing the types of relationships incubators have.

Earlier within the literature review chapter the discussion examined the theories of structural holes and tie strength to understand the structural and relational attributes of networks. Within this study, the focus is on understanding the role of human agency in forging relationships in order to understand network actors' attitude to networking. This thesis argues that Strength of weak tie theory, which explores the impact of strong or weak ties on entrepreneurs, can be used to explain this. In this study, this is represented as old and new relationships. The strength of interpersonal ties is viewed as the combination of the amount of time, emotional intensity, intimacy and reciprocal service that the ties benefit from (Granovetter, 1973).

The network tie preference amongst the managers is varied, three out of the five managers have no preference, the other two are divided, with one preferring a new relationship and the other an old relationship. For managers who have no preference, they note that focus is more on achieving added value for tenant companies.

Incubator A Manager remarks:

"We don't have a preference; we are more interested in people who can add value to our start-up companies".

Incubator D Manager elaborates further:

"For us, there is no preference, what drives our search is dependent on what the start-ups need... Our relationships are portfolio focused; that is how they can benefit from the relationships we are brokering to grow".

However, where the network preferred is new, it is done to position the incubator to serve the ever-growing needs of the tenant companies. This view is expressed by Incubator manager B who explains:

"Well, each has its own role, but we are always looking to build new relationships. In business you are told that any company that stops growing is on its way out, so we are always looking to build new relationships. Also, because we have not been in the market for long, acquiring new relationships is important for our growth, so priority now is on building diverse upward trajectory relations as opposed to stability".

Conversely, Incubator manager E explains the preference for an old relationship, he notes:

"Well, I would say old relations, they are quicker to get results from and you do not need any introductions".

The brokerage perspective of networking illuminates the researcher's knowledge to understand how networks are enacted by discussing the brokerage process utilised and the network tie preference of incubator managers. As noted by Ebbers (2017), the brokerage process adopted by an individual is a reflection of network behaviour; all the incubators demonstrate the 'tertius Iugnes' behaviour where the broker facilitates introductions between two other parties within an individual's social network (Obstfeld, 2005; Obstfeld, Borgatti and Davis, 2014).

Additionally, in reviewing the discussions about ties in Chapter 2, it is indicative that tie mixture is recognised to be important across studies like the ones by Eflring and Hulsink (2007), Schwartz and Hornych (2010), Sa and Lee (2012) and Cantú (2017).

Network brokerage and the motivation of managers have been explored to understand how they make-sense of network opportunities. However, what has not been discussed yet is how the context of Yaba and Ikoyi, where these incubators ae domiciled, influences the network opportunities these intermediaries are able to access for their tenant companies. Consequently, the next section discusses the influence of the socio-spatial context to understand how relationships emerge or to explain network opportunities available.

4.2.3 The influence of the socio-spatial context in Ikoyi and Yaba on networking emergence.

Benefit of context

- environmental and infrastructural factors
- benefit of socio-spatial proximity
- benefit of accessing partnership
- benefit of accessing talent and community
- benefit of accessing information and resources

Network categories

- mentor
- funder
- corporates
- expert/advisors
- co-incubation

Network gatekeepers

- Business heads
- Ecosystem influencers
- Policy and regulation

Discussion commences with exploring the influence of the context of support. The Yaba/Ikoyi axis has a number of support facilities located within it and Yaba and Ikoyi are roughly 8.03kms away from each other. Three of the incubator managers stressed the importance of the environmental and infrastructural factors such as the ability to avoid traffic, centrality of location and access to infrastructure like the internet as the reason their incubator was located there. In being located in this axis, the managers believe that tenant companies are also able to benefit from the centrality of this location and/or access the internet infrastructure available in this location.

Incubator A Manager remarks:

" .... when we opened incubator A, we brokered partnership with XXX, an internet provider with the government to lay a fibre optic cable in Yaba. The government waived the right of way, basically taxes that would allow XXX to lay their fibre optics cable. The idea behind this was that it would attract more start-up companies to want to agglomerate in this space and it did; because after this was done notable technology start-ups and other support entities moved to this location. Till day, more and more technology start-ups still choose this location to start their business. Yaba is also central.

Incubator C Manager affirms this by stating:

".... Yaba is a central location Limited traffic, easy access to the island and also infrastructure, like internet, is available here in Yaba".

Manager E, located in Ikoyi which, as stated above, is approximately 8.03kms away, also cites reduced traffic. The manager explains:

".... Traffic and logistics were a factor; we needed a place that was close and easily accessible. Ikoyi is not too away from the mainland and is in the heart of the island, you spend less time in traffic".

Aside the environmental and infrastructural factors, the Yaba/Ikoyi axis provides incubators with the opportunity to readily access technology talent and knowledge from the budding technology community. This ease to easily access technology talent is facilitated by different properties of proximity and anchored on geographical or what was identified earlier as locational/ spatial proximity. As earlier noted earlier in the literature review chapter, location alone does not guarantee interdependence, knowledge sharing or interaction, but is facilitated when used with other dimensions of proximity (Letaifa and Goglio-Primard, 2016). Other dimensions of proximity apparent within this study include spatial and social proximity, with blurred lines between all three also identified. However, a benefit of this is the opportunity to access talent and community. For example, Incubator manager A remarks:

"Yaba offers us the opportunity to access talent easily. The other thing would be the accessibility to other entrepreneurs, which helps us to easily access the tech community. Talent is a strong one and the community of start-ups is another".

This is facilitated by socio-spatial factors, as she adds:

" People gave this space this name (Yabacon valley) because, at the time, space was agglomerated by technology start-ups and this incubator was also the premier support place at that time. Although Yabacon Valley started as a joke, there was interest in creating something similar to the Silicon Valley...in this location you never know who you might meet.

Incubator C Manager adds:

"When you look at the way popular ecosystems are built, you will see that ecosystems are usually close to talent and technology communities. Yaba is uniquely positioned within close proximity to Unilag and Yabatech, both universities. It also, has the largest concentration of secondary schools across Nigeria and possibly West Africa... So Yaba gives access to talent".

A different insight on how the social-spatial context of Yaba/ Ikoyi improves access to talent is noted by Incubator manager D. He states:

"With respect to accessing talent and relationships readily, this location definitely helped. First because there are a couple of co-working spaces within Ikoyi, with varied companies that work out of them. Our start-ups are able to leverage this to test their products and of course acquire their first customers. Then, in respect to building communities, accessing talent and relationships, this location has definitely helped".

The Yaba/Ikoyi context also makes it easier for managers to forge partnerships or get access to information and resources their start-ups might need. Two managers pointed these as some other benefits.

For example, Incubator A Manager explains:

"Being here also helps us to stay informed on what is going on as well, the location has been getting a lot of foreign traction as well, so, for example, Mark Zuckerberg came to Yaba".

For accessing partnerships, Incubator D manager pointed to the value of building partnerships for tenant firms. He states:

"A few of the companies were able to leverage the access they have to other companies to form partnerships".

Following responses from managers, being situated in the Yaba or Ikoyi location reduces traffic concerns and improves tenant firms' opportunity to access internet infrastructure, talent, information and the community of start-ups. It was identified that it would useful to examine how these opportunities influences the type of network partners managers are able to reach and then assess the challenges they face in reaching these partners for tenant companies. Thus, five network types were identified: corporate, investor/funder, expert/industry advisors, mentors and co-incubation networks. To give context to the content of the relationships that exist between incubators and network partners, excerpts from interviews are given below:

Incubator A Manager explains:

"We have corporate networks, they would include NGOs, ESOs, private organizations and the government. Our relationships with them are mutual. We aid them tap into the innovation ecosystem by helping them to access talents that would add value to their

organization or fulfilling their desire to support start-ups in the ecosystems or acting as implementation partners to run their accelerator programme.... We also have, Emmh... a funder network, these people are co-investors with the incubator and other venture capitalist networks.... Then, I would say we have industry or sectoral experts who are able transfer knowledge or help start-ups fine tune the solutions they are working on. Then, we have a mentor network. These individuals act in different capacities, but mainly they support our start-ups, sometimes emotionally or just giving feedback on the work they are doing. We are also in an incubator network; so, we just launched the pitch drive, which is when we take 10 technology start-ups to Asia. Being in this network helps us to support these start-ups, we are able to leverage on the resources of other incubators, to reach more entrepreneurs and also spread support reach in other locations or countries".

A similar network pattern is noted by the Incubator C Manager:

"Our popular categories would be investors; these are people who seeded the vison of this accelerator and provide grants or investments to the founders.... I would say we have industry advisors or mentors and corporate clients. These are members of our community, we do work for them, for example, we run consultancy and innovation related services for them ... and they also support our start-ups".

A similar network content is also identified by Incubator D Manager. However, this manager identifies the presence of four out of the five networks and provides more information as to how they are used to support their start-ups. He states:

"So, I will say we have four major networks.... the mentor, corporate and distribution, domain experts and co-incubation network".

He continues:

".... You know mentorship is mentorship is critical, so we have a founder mentor network; these individuals advise on product development and market fit. Basically, people who understand what it means to build a company in this context, and in other contexts as well. They might have been founders themselves or just people in other regions that we feel would be useful for geographical expansions.

There is also a corporate and distribution network, so we are talking FMCGs, banks, Telco's, we try to court corporates to build a good relationship with them for our start-

ups. In Nigeria, to sell solutions or access them, you need the right access to individuals and to do that timely too. We discovered that in Nigeria to do this effectively, partnership was important, you cannot go alone or by seeking to bootstrap marketing...you need to have partnership with big corporates, could be a financial institution, could be a telco, all dependent on solution provided, and that way it is easier to deploy solutions faster by leveraging on their resources. So, what we do, is to first find people in these established industries or corporate organizations to create/cultivate partnership with them, to make it easier to access for introductions to be made.

Then domain experts, individuals who have great insight about the industry they play in, understand the frameworks, challenges in the said industry and loopholes as well. They could be legal people, people in medical industry, but generally experts in the industry that our start-ups play in...... they could also be engineer technology experts, these individuals basically support our start-ups to build great and lasting technologies and software.

"We also have co-incubator networks, and this is because we have actively supported a lot of start-ups and have gathered immense knowledge across different sectors...we think it is important to share these across the ecosystem or to different climes that might not have had a lot of support with regards to building their knowledge base, so we share this knowledge. At times, we also learn from them, other times it is about pipeline development, which is why we invest in companies because we believe that you are only as great as the type of start-ups you are able to support...also, instead of just reinventing the wheel, we leverage our access to them and seek how we can help to add value".

Some of these networks are similar to the network types discussed earlier within the literature review, namely the industry advisors /experts, funder and corporate networks. These network types were noted in Sa and Lee (2012) and Pettersen et al. (2015). However, the mentor and co-incubation networks are other types identified in within the Lagos ecosystem. As noted earlier while discussing brokerage, maintaining relations with network gatekeepers assists business incubators in building relations with network partners, who will in turn provide additive support and opportunities to tenant companies. However, the ability for incubators to stand in as network intermediaries for start-ups is also enhanced by their own ability to access certain network gatekeepers in the ecosystem. The three managers in incubators B, D and E noted that for the network brokerage process to be successful, they need to establish relationships with certain

gatekeepers within the Lagos ecosystem is totality. They provide a category of the type of brokers that will facilitate networking for tenant companies.

Incubator B Manager explains:

" In a place like Nigeria with distinct sale cycles and hierarchy and several network gatekeepers, the various people in the hierarchy all have an input and until all their inputs are considered, it would be difficult to assess relationships. There are several network gatekeepers in this ecosystem from operational, innovation and management standpoints, the system is just bureaucratic…..The most crucial one is the business head of a particular unit that is responsible for deploying solutions created by start-ups…..Then you have innovation heads, they might not be head of units, but their input is considered.....Also, regulators, an example would be the interbank switch systems or government agencies, they give input from a policy or procedure standpoint. You also need the ecosystem influencers, they have the ability to boost the credibility of start-up companies, and even attract funding or the adoption of a solution of your portfolio company".

Incubator D Manager adds:

" To speed up the network access to a new network partner, you need people that will facilitate this…. the decision-makers are key people to know, they do not necessarily have to be CEOs, but their input is valuable or would be valuable in the process. For example, instead of the CEO of a bank, we might just need to meet up with the head of SME banking".

Incubator E Manager further adds;

"We have people who we call industry captains, these include decision makers who can influence decisions or people who have distinct experience like Bank CEOs that can influence procedures or processes"

Acknowledging the presence of gatekeepers lends credence to the fact that networks are not static, and that the network structure or the relational content can change over time. Equally, as incubators strive to bridge network gaps for start-ups within the context of the Lagos technology ecosystem, they need access to gatekeepers to provide quality networks for start-ups. What is indicative is that it might be easier for incubators to bridge gate keeper access using their reputation, as opposed to a tenant firm sourcing

them directly. Additionally, while existing literature identifies the need for brokers to provide access to certain network structure to access useful information, knowledge or market intelligence. Managers assert that they also need access to network gatekeepers; these individuals aid to boost credibility of tenant firms by influencing the adoption of tenant companies' offerings or facilitating quicker access for BI managers to broker relations for their tenant firms.

As Pettigrew (1992) and Jack, Dodd and Anderson (2008) noted earlier in chapter 2, the examination of the context (the Yaba/Ikoyi context in this case) provides an opportunity for understanding the benefits of the location in facilitating network access and the pattern of relationships present. This study argues that examining the network context also provides an opportunity to critically examine and understand network cognition. Exploring network context provides an opportunity to present managers perception of the impact of networks brokered for start-ups, understand how they assess network quality and the challenges they experience in brokering relationships for tenant companies.

An important point worthy of mention is that network impact is gauged by reviewing beneficiary's perception, which in this case are tenant companies, however, it is also useful to capture how managers assess network impact, this, and managers perception of network quality and challenges are discussed in the next section.

4.2.4 Management's Perception of network impact, quality and challenges

To present the managers' perceptions of network quality, review how network impact is assessed and the network challenges managers face, three themes were utilised, and they are outlined below:

Perception of Network Quality

- quality based on knowledge and experience
- quality based on reciprocity and progress
- quality based on shared interest and personality

Network Impact assessment

- acquisition
- time begets trust

Network Challenges

- talent
- time

This section begins by reviewing network quality. Since multiple incubator models and managers were consulted, what will be useful is to understand the managers' individual perceptions of the quality of the relationships enacted and how they assess the networks brokered. The perceptions of the network quality observed in incubators are split between; quality based on the depth of knowledge and experience; quality-based on reciprocity and progress; quality based on shared interest and personality. At least 2 managers perceived network quality as any of these, with the exception of shared interest and personality, identified by 1 manager and reciprocity and knowledge identified by three managers as important. For the managers who perceived quality as reciprocity and progress, their perspectives are varied. For some managers, the progressive aspect of networks is emphasised. For example, Incubator manager C, whose perception of network quality is hinged on the openness to learn, notes:

"So, for us, a quality network is one that is progressive, people who are open to learn new things or already into development".

In others, the reciprocity aspect is emphasised, for example, by Incubator Managers D and E. Incubator Manager D explains:

"Between founder company and start-ups, a quality relationship is a relationship that is mutually beneficial, a win, win scenario, everyone is happy based on progress made and outcomes as well.

Additionally, Incubator E Manager notes:

"For us, quality is shared value and reciprocity. That means that you have to identify what network partners would appreciate in return, it is not a one-way street. For example, if we work with google, we leverage their reputation in exchange for our time".

However, another perception of network quality, that was only mentioned by Incubator Manager B, is assessed by evaluating interest and personality alignment between network actors and tenant companies. Incubator Manager B notes:

"We assess quality by taking note of interest, the network ties must have a vested interest to enhance the relationship with start-ups. Then, we check for compatibility with personalities, if a mentor is a bit older and traditional, we access if the start-up is in the same spectrum and can fit personality-wise".

Understanding the managers' perceptions of network quality enables comparison between prevailing studies that have examined the relational attributes of networks. Properties like trust, content, intensity, relational closeness and openness (O' Donnell et al., 2001; Hoang and Antoncic, 2003; McAdam, 2004; Moran, 2005; Adams, Makramalla and Miron, 2011). None of the relational attributes identified in the case incubators were observed. It seems that the perception of network quality is influenced by a manager's network motivation, which is centred around the needs of start-ups, synergy and reciprocity. Additionally, network studies often explore network relationships to assess if the relational attributes identified earlier are present. However, as the perception of network quality is different in this thesis from what is present in the literature, attention is now drawn to how network quality is assessed with brokered networks.

Acquisition is one way that networks brokered are assessed. Factors like distribution and opportunity identification, customer acquisition, cashflow and feedback are the different ways managers measure network quality. Incubator Managers A, C and D track this using different methods like meetings and feedback. For example, Incubator Manager A notes:

"We have check in sessions, to see the progress of the start-ups. This allows us to track if a conversation or network brokered has turned into something tangible although, for us, there is no standard for measuring impact in Incubator A because impact varies, but normally we check....in terms of their cash flow or new customers they have acquired".

Incubator D Manager identifies a similar scenario. He explains:

"We consider distribution, so essentially, we measure in distribution terms. The start-up could get linked up with a big corporate with a large customer base. Using a particular scenario is a company called xxx. They have an analytical tool that allows big corporates pass their data and generate intelligence. But the biggest problem was not in analysing data but in finding the data in the first place. So, we asked them to build an agent network to help them gather this data. This agent can also be a connector that links them to access their various communities. Then we plugged them into a particular

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programme which was organised by the federal government, known as the Npower, which has about 3 million agents. As of today, they have onboarded about 50,000 of them. These are agents all across Nigeria and they have now started collecting data for the start-up in question. This, I would say, has been the biggest drive of growth for this start up".

" .... Also, we assess if the network brokered has helped start-ups to identify opportunities they did not know existed in the industry. For example, you might have built a solution for the bank, but then discover that there is a bigger opportunity in a different vertical. An example is a start-up that does crowdfunding for farmers and also loans. The start-up also works with farmer in their production process. We plugged them into a banking partnership and what the bank does is to provide the funds that would provide loans for these farmers".

Another method managers use for assessing network impact is time. Incubator B manager explains:

"So, one way to access impact is timing. This is because one of the things about network exposure is that timing is always key in building relations. This is because trust takes time to build. You also consider that for this trust to be solid, several interfaces on both ends are required.

Incubator C Manager affirms this and notes:

"Time is important, especially because trust is key in these networks; most of our start-ups work on novel things, so trust is important in these kinds of relationships. It takes time to build this trust".

So far, discussion has covered managers' perceptions of network quality and the different ways these quality brokered networks are assessed. What is yet to be covered is the challenges managers endure to broker these relationships. In brokering networks for start-ups, incubator managers mentioned time and talent as the key issues they face. The time challenge is explained differently across the incubators; some managers associate time with readiness to accept local solutions that are technology enabled, limited understanding of technology or just lack of openness to local technologies. For example, incubator C manager remarks:

".... Another issue is timing, getting people into our network or the overall attitude of corporates. Most of them are not yet open to using local solutions...not everyone understands technology yet, so might not be interested in what we are offering. For other SMEs, most of them are not open to technology or even technology enabled and so will not be interested in the service offered. Also, not everyone understands tech yet, so might not be interested in what we are offering.... the government does not even advertise local start-ups enough".

A different perspective to time challenge is linked to how fast conversations progress when networks are brokered or the response time of network actors. Progress is restricted by nature of the individual's incubators interface with, the goal of the network actor and procedures. Incubator Manager B remarked:

" …timing is one. This is because every individual has the goal they want to achieve. If your timing does not fit between the targeted timeframe the partner has, the relationship would not exactly be beneficial.

A similar sentiment is noted by Incubator D Manager:

"...One challenge would have to be timing and moving fast, so a start-up might require an immediate access to a network and would want to move fast as well, but big companies do not work this way. There is somewhat a degree of red tape, which would require approvals, process and procedures that need to be satisfied".

Equally, managers identified talent as a challenge. This is linked to being able to find the right start ups to support, difficulty finding talent that will provide knowledge support that start-ups require or hiring staff with requisite skills to match tenant company staffing needs. For example, Incubator Manager A notes:

"I would say perhaps with the experts we bring in, the knowledge they provide might not necessarily be useful to our portfolio companies... then even for our start-ups, the challenge of hiring quality talent".

This view is also echoed by Incubator C Manager, who notes *"Getting founders into the programme is the first challenge. To access talent, especially quality, you need to demonstrate that you have something to offer. Also, the challenge of getting top talent to build solutions or talent to meet staffing needs of our start-ups...the very good ones*

would just want to offer skills for a lot of money, start-ups would not be able to afford them".

Incubator D Manager adds:

"One of our goals in the first year was to fund about 20 early-stage companies. We realised that it would be difficult to find this number of quality start-ups to invest in. Although we found some solid companies, most were already in growth stage. At the early stage, there were a lot of individuals that did not understand how to build companies or the methodology of building an MVP or how to validate solution or establish market fit...this was a challenge for us".

The stance of the incubator managers on talent as a challenge to networking is an interesting observation, considering that they mentioned this as one of the benefits of the location. This could also explain why the mentor network is acknowledged across all the incubators and absent from the literature.

However, it is worthwhile exploring the tenant companies' perceptions of mentor network to access the actual impact they have on them. To do this, attention now shifts to the perception on network creation from the tenant perspective. Reviewing the tenant perspective provides an opportunity to understand how tenant firms make sense of network opportunities that have been brokered. This also provides insights to their preference on the network activities designed, as well as their overall perception of network impact. Consequently, the next section begins by reviewing why tenant companies pursue networks or engage in network activities, and how tenant companies react to the network opportunities they have been exposed to. Equally, the role of the context in the network creation process and tenant perception of impact and quality is presented. Discussion commences with network motivation.

4.3 Tenant Companies' Perspective on Network Creation

In this section, the focus is on understanding how tenant firms make sense of network opportunities available in the Yaba/Ikoyi location. To adequately cover this, the themes, codes and sub-codes derived from the interview materials are presented in the table below.

Table 0-2:Table presenting themes, codes and sub codes tenant perspective.

RQ1 Network motive of tenant firms	This is the anchor code for research question 1 (What is the role of network brokerage and motivation in pursuing and enacting network relationships in incubators and clusters?).

Theme: Network Motivation

Code (Motive)

Legitimacy
Brand awareness
Market insight
Partnerships
Revenue

Personality
Desire to help
Meet people

Reciprocity
Shared Value-Vision

Impactful Solution

RQ1 Brokerage methods recognised	This is an anchor code for research question 1 (What is the role of network brokerage and motivation in pursuing and enacting network relationships in incubators and clusters).

Theme: Network Brokerage

Codes (Brokerage Method)

Indirect Brokerage
Space
Direct Brokerage
Entrepreneurship Showcase
Industry events
Mentor events
Pitch events
Referrals
Social events
Technology events
Training

Sub-code (Tie Preference)

Mixed Tie
New Tie
Old Tie

RQ2 Firm preferred network activity	This is an anchor code for research question 2 (How do firms react and take advantage of network opportunities and activities that take place in the incubator and cluster).

Theme: Preferred Network Activity

Codes

Network Activity
Entrepreneurship events
Mentorship
Training

No particular event
No preference

RQ 3 Influence of context in network creation	This is an anchor code for research question 3 (What is the influence of the socio-spatial context in network creation and the kind of relationships that network brokers and firms are exposed to?).
Theme: Influence of Context	
Code (Benefit of Support Context)	
Access to knowledge Environment and infrastructure Knowledge of networking events and networks Opportunity access and customer acquisition Socio-spatial proximity Talent and community	
Sub-codes 1 (Network Categories)	
Associates-business network Fans and family Friends Funder Incubator or community network Mentorship-advisory network	
RQ4 Perception of network impact, quality and challenges	This is the anchor code for research question 4 (How do network brokers and firms perceive network impact, quality and challenges within the business incubator and cluster context?).
Theme: Impact, Challenge and Quality assessment	
Code: Code: Perception of Network Quality	
Quality as Value – Exchanged Partnership, sales and client acquisition Reciprocity **Quality as Value - added** Exposure Market insight and feedback **Trust**	
Code: Network Challenges	
Limited network skill No challenge Talent Time Validity	
Code: Perception of Network Impact	
Legitimacy impact Incubator brand influence Referrals Mentorship **Resource and Economic Impact** Access to funding Partnerships Access to information and market No participation Not looking for Network Benefit	
RQ1 Network motive of tenant firms	This is the anchor code for research question 1 (What is the role of network brokerage and motivation in pursuing and enacting network relationships in incubators and clusters?).
Theme: Network Motivation	

Code (Motive)	
Legitimacy Brand awareness Market insight Partnerships Revenue **Personality** Desire to help Meet people **Reciprocity** Shared Value-Vision **Impactful Solution**	
RQ1 Brokerage methods recognised	This is an anchor code for research question 1 (What is the role of network brokerage and motivation in pursuing and enacting network relationships in incubators and clusters).

Theme: Network Brokerage	
Codes (Brokerage Method)	
Indirect Brokerage Space **Direct Brokerage** Entrepreneurship Showcase Industry events Mentor events Pitch events Referrals Social events Technology events Training	

Sub-code (Tie Preference)	
Mixed Tie New Tie Old Tie	
RQ2 Firm preferred network activity	This is an anchor code for research question 2 (How do firms react and take advantage of network opportunities and activities that take place in the incubator and cluster).

Theme: Preferred Network Activity	
Codes	
Network Activity Entrepreneurship events Mentorship Training No particular event No preference	
RQ 3 Influence of context in network creation	This is an anchor code for research question 3 (What is the influence of the socio-spatial context in network creation and the kind of relationships that network brokers and firms are exposed to?).

Theme: Influence of Context
Code (Benefit of Support Context)
Access to knowledge Environment and infrastructure Knowledge of networking events and networks Opportunity access and customer acquisition Socio-spatial proximity Talent and community
Sub-codes 1 (Network Categories)
Associates-business network Fans and family Friends Funder Incubator or community network Mentorship-advisory network

RQ4 Perception of network impact, quality and challenges	This is the anchor code for research question 4(How do network brokers and firms perceive network impact, quality and challenges within the business incubator and cluster context?).

Theme: Impact, Challenge and Quality assessment
Code: Code: Perception of Network Quality
Quality as Value – Exchanged Partnership, sales and client acquisition Reciprocity **Quality as Value - added** Exposure Market insight and feedback **Trust**
Code: Network Challenges
Limited network skill No challenge Talent Time Validity
Code: Perception of Network Impact
Legitimacy impact Incubator brand influence Referrals Mentorship **Resource and Economic Impact** Access to funding Partnerships Access to information and market No participation Not looking for Network Benefit

The table presented above is useful for understanding how themes were derived to answer the research questions. These themes are led by both the data and the literature, as this is an exploratory study. These themes all have subcategories which are represented using codes, and this is discussed within the next section

The discussion below begins with first understanding the motive that drives tenant firms to engage in brokered networks within an incubator. Thereafter, the brokerage method is identified, and the ties utilised by tenants are discussed to understand network behaviour and the preferred network activity of firms. The place of context in driving access to network actors and the network types forged within the context of Yaba and Ikoyi is also discussed. The final discussion covers tenants' perceptions of network impact, quality and challenges.

4.3.1 Tenant Companies' Perspective of Motivation

Five codes were captured under this theme: Legitimacy, Personality and Reciprocity and Impactful solution. These codes have sub-codes that are outlined below:

Motive

Personality

- desire to help
- meet people

Legitimacy

- brand awareness
- market insights
- partnership
- revenue

Reciprocity

- shared value/vision

Impactful solution creation

Turning to the discussion, the first motive discussed is the personality motive. Across the incubators A, B and D, 4 tenant firms expressed personality as a motive that drives them to take advantage of the network activities organised within the incubator. They explain that they do not actually anticipate any benefit but are motivated to engage in these activities because they love to just meet people or help out. However, they

acknowledge that oftentimes they reap from actively taking part although, as mentioned, this is not a driver. For example, Tenant AT2 explains:

"For me, it is about been able to build relationships, it does not exactly have to be in line with what I am doing, like real estate or tech, there could other sectors, maybe finance, consulting and business development. Building relationships is very important to me. Sometimes you might meet someone who you had a good conversation with, and you get an email from them and could then lead to business. You do not know where relationships will go to, most times it could lead something beneficial at the end".

For Tenant DT3 it is about being able to offer help. Tenant DT3 explains:

"I like to help out, so most of my conversation/ interactions with people are centred around listening to them and seeking how I can help. I want to know about your challenges, and I am vested in helping you resolve them. For me, I believe that the more I help the more I learn and develop myself as well as prepare myself and business for potential challenges that we might face".

While some tenant firms are motivated by their personality to engage in network activities, some other tenant firms' motives to engage are rooted in their desire to gain legitimacy; 8 tenant companies across all the incubators identified this as a motive. Legitimacy, they identified, can be achieved either through partnerships, accessing market insight or just creating some awareness for their brand. For example, Tenant AT1 explains:

"So, for me it is to grow my business. This could either be through seeking partnerships or to acquire new clientele or seeking access to distribution channels. For me it is important that I can identify individuals that would make this possible".

Tenant CT3 adds that, although the growth route might not always be apparent at the time of network inception, they become useful in future. He states:

"I engage in these network activities to foster growth by seeking opportunities for future collaborations because we might do something better in future. I noticed that the way you can acquire new relations is reliant on your previous relationships. People on our team are people we met two years ago and had dealings with and now we are working together again. Sometimes you might not have immediate need for them, sometimes you might".

Legitimacy for other tenant firms is described as the opportunity to raise awareness for their brand. For example, Tenant AT4 notes:

"The motivation for me is to raise brand awareness, keep my brand in the person's mind, it can convert to something useful potentially in future. Let them just know we provide a service, I just want to be memorable, you might not need the service we are providing but I want you to just know that we provide the service".

A similar sentiment is noted by Tenant BT2, who remarks:

"So, motivation for us is exposure and access. Incubator B has a platform that exposes our company to the world of tech giants in Africa and to meet relevant people. They also have a huge connection to the rest of the world, like Silicon Valley. So, I will say it makes it easier to meet people and raising funds in future".

Another perspective to legitimacy is the ability to access market insights, which is captured by Tenants DT1 and ET1.

Tenant DT1 notes:

"I will say that the biggest motivation for me is to get market insights from people that are not necessarily in my field. For me, what is important is being able to speak to people that are completely different from you, because that is where you can see innovation, their ideas spark how you can create solutions that are actually impactful. If you stay in your field, it is difficult to access this information...you can become inspired to come up with solutions that would address their needs specifically and of course get more insights on what will help you better with your own business".

 Equally, Tenant ET1 highlights:

"For me, my motivation is to get insights and also share mine. I would say picking people's brains to get feedback and fresh perspective".

Insights, partnerships and exposure mentioned by these tenant firms are identified in Oliver (1990) as aspects of legitimacy which are critical elements that spur inter-organizational interactions. When new firms struggle to establish legitimacy, they are said to be facing the 'liability of newness' (Stinchcomb, 1965). While earlier studies captured how the incubator mitigates this challenge (Lavie, 2006; McAdam and Marlow, 2007; Scillitoe and Chakrabarti; 2010; Pauwels et al., 2016), what is not captured is

how long this interventionist process of the incubator takes in addressing this challenge or the tenant firm's perspective of legitimacy. Tenant firms in this study established this as a motive that will drive engagement in network activities, although; they do note that they do not anticipate immediate impact. In addition, their perception of legitimacy is varied, they mention ability to access funding opportunities, being memorable, exposure and future collaborations as the different ways' legitimacy can be secured through network partners.

While some tenant firms are motivated to engage in network activities because of the legitimacy motive, 4 other tenant companies' motives are triggered by reciprocity, explained as either an alignment in vison or value, as highlighted in the excerpts below:

Tenant CT2 remarks:

"*For me, what motivates me to engage in networking activities is that I am seeking people who share our vision for the potential of the technologies that we are working on and what they are working on.... If I see you share in the vision of the future of technology and you understand the opportunities in this market, then I am happy to try to get to know you*"

Equally, Tenant DT2 notes:

"*So, for me, I have at the back of my mind the particular profile of people I want to be involved with or want to target. An example is with this corporate accelerator, I did some research about them to see who they know or who they are affiliated with. For me, this is my motivation. Now for me, the reason why this is important is because there has to be synergy in vision*".

Tenant BT1 adds:

"*For me, it will have to be all about value that is mutually beneficially. I look for partnerships with tech training schools because they are the ones that will train these developers, I also look for partnership with companies that have tech product that developers will use. So, we organise hackathons. So as long as there is shared value, I am happy to have relationships*".

The ability to obtain synergies is identified by Oliver (1990) as components of reciprocity and these are represented in this study as shared vision or value. For Oliver, reciprocity

is triggered by co-operation and intentional interactions hinged on goals and interests that are collectively pursued, whereas the social exchange theorists view reciprocity as actions that trigger co-operation and solidarity hinged on trust, the obligation to return favour and resource commitment (Molm, 2010; Wincent et al., 2010). In the case of the tenant firms, the motive of reciprocity is more aligned with Oliver's study, where tenant firms emphasise an alignment in vison or value. Other motives that drive network engagement is the desire to make revenue or build impactful solutions, although these motives are only mentioned by Tenants CT1 and ET2.

So far, the motives that drive tenant company engagement have been noted. Attention now shifts to firm awareness of network activities available within the incubator location and preferred network activity following motivation. These are presented in the next section.

4.3.2 Tenant Companies' Perspective of Network Brokerage

The literature notes that the incubator network assists and supports the creation and development of value-adding network relations (Hansen et al., 2000; Rice, 2002). To understand tenant companies' awareness of these value adding networks, this section discusses process of brokerage, network preferences and the preferred ties utilised to gain value. 12 codes were captured under this theme. These codes have the sub-codes that are outlined in table 4.2 at the beginning of section 4.3.

From observations, the brokerage process utilised by incubators is a mix of direct and indirect brokerage and involves management's active involvement in network brokerage and their ability to facilitate access to network actors using their reputation and proximity to network partners**.** All but one tenant across the five incubators recognised different methods of direct brokerage using different network activities. However, tenants added training and referrals as additional methods of direct brokerage. Equally, tenants mentioned space as a useful network brokerage method with 5 of the 18 firms, mostly from incubators A, B and E, identifying this as important.

Some excerpts are provided below to give context. Tenant AT4 notes:

"Internally, the space gives us the opportunity to interact and collaborate with other businesses. The workspace is relatively open. Company x, one of the start-up companies is just directly beside me and it makes it easy to walk up and meet him and just have a conversation or just discuss ideas or projects we can collaborate on".

Tenant BT4 adds:

"Collaboration happens naturally if you were co-located in the same space, so the space provided was one way. When you are having problems, you can have conversations with each other. So, for example, if you are having any challenges, you can meet the CTO of another company and ask if they have ever encountered such problems. Sometimes they are able to give you input. You can also meet other founders and you realise that they have networks that will be beneficial to you".

To understand how this mixed brokerage process influences tenant companies network choices and decisions, tenant firms' tie preferences (that is preference between old and new relationships, which also represents strong and weak ties) and preference of network activity from the selection of network activities designed by the incubator are presented next. For the tenant firms, their old relationships are relationships they had before incubation, and the new represent relationships that they have been exposed to in the incubator. In reviewing discussion on network preference, like the managers, there is a split in preference between new and old relationships. However, unlike the managers, tenants mentioned their preference for mixed ties within the networking process; 11 out of the 18 tenant companies across the 5 incubators wanted a mix of the two; 6 tenant companies across incubators A, B, C and D wanted new relations; and 1 tenant in incubator D was happy with just old relationships. For tenants who preferred a mix, they cited time suitability, access to mixed opportunities and link to different network as the reasons for their choices. For example, on time suitability, Tenant AT1 justifies why this important:

"...Both, this is tricky because in life you really can't tell who you will meet tomorrow or who can add value. This individual could be in your new relationship or old relationship directory. My own is that as long as you have them in your network that is what matters, when you need them you can reach them...".

Similarly, Tenant ET1 remarks:

"Both, because an old relationship can be relevant in future and the new ones might not be suitable at that time and vice-versa".

In the same vein, other tenants like BT3, BT4, CT1, CT3, DT1, DT4 and ET2 cited mixed opportunities access as the reason why they wanted both network relationships. For example, Tenant ET2 explains:

"Both, I believe that you should never forget people that you started with...but you must also take note of the fact that you are growing as well...both are useful, you explore different opportunities with them".

Tenant DT1 adds:

So, for me, no preference really, I would say a mix of the two, Emmh, I want both, there is only an extent an old or new relationship can take you, but together you have access to multiple opportunities".

Similarly, some other tenants believe that that both act as a link to different networks as Tenant BT2, for example, highlights:

"To start with, my old networks gave me a soft landing when I returned from the training school. These are people I reached out to get the ball rolling. Sometimes your old relationships would also give you access to new relationships. So, for me, both are important".

Tenant BT4 adds:

"I do not think it matters. The way I see, if you are good at building relationships it does not matter which you have, you will need both to get access to relationships that you did not have before, I guess.

However, as noted earlier, certain firms prefer new networks, because they believe old relationships have surpassed the scope of use or would always be available, and therefore they seek new relationships to gain access to fresh insights, information and opportunities. For example, Tenant AT1 remarks:

"I prefer new relationships. This is because with the old relationships I have explored the extent of the support available. New relationships mean new opportunities, higher level relationships and more returns as well".

Tenant DT3 adds:

"I would say new networks because there is already a channel of existing communication with my old networks. The new relationship gives you a brand-new perspective; there is no bias, no overthinking, that perspective every now and then is interesting. Also, if

these new people are productive, they bring on board as well new skill sets or ideas that could take your business to the next level".

However, a different perspective to the choice of new relationship was based on reputation building. Tenant ET3 remarks:

"I prefer new, because new one means am doing good. This is because if your business is doing well and you have a new product people will be interested in what you are selling, which is a way to boost your reputation as a business".

The last option of network preference is the old relationship. Here tenant mentioned time and energy invested in building the relationship as the reason why older relations are more attractive. Tenant DT2 remarks:

"I would say old relationships, because I am intentional about building relationships. I would have invested time and energy; therefore, I will do anything to protect them".

Tie mixture of new and old relationships seems to be more favourable with tenant companies. Elfring and Hulsink's (2007) study covered time suitability, but they note that tie mixture is utilised as firms evolve through the stages of growth and adjust to meet changing needs. However, tie evolution through stages of growth is not admissible within these case studies, as the firms who indicated tie mix as a preference are aged between 1-5 years. As such, the results are more in line with Chell and Baines (2000) and Lechner and Dowling (2003), whose studies identify that mixed ties are important for different purposes and will be utilised when needed. Additionally, both network ties are recognised to impact start-up performance differently because they contain different informational content (Rodan and Galunic, 2004; Giuliani, 2008; Casanueva, Castro and Galan, 2013). This is also noted within the interviews, with most citing that old relationships are trust-based and new ones afford them access to partnerships, insights or access to new opportunities. For example, Tenant BT2 notes:

"...new relationships give you information or new access to a different network, while old relations are already working relations. You know what to expect, it is built on trust"

A similar opinion is also stated by Tenant ET1, who remarks:

"...some of these old relationships did not even understand what we were doing when we started, but they cheered us on, with some of these people we have established

trust... new networks give you new opportunities like partnerships, by finding companies that have solutions that you can ride on their infrastructure. An example for us is a company called XXX. We have come to an agreement that we can test our solutions using the services that they provide by helping them to improve their delivery. Also, you can access funding through new relations, and through referrals as well".

Tenant CT3 further adds:

"With old relationships there is established trust and loyalty which can make things go faster. New relations need validation, you are still getting to know them, but they provide your business with new insights".

Taking note of these network preferences, it is deduced that tenant firms rely on both relationships that they previously had before incubation and relationships that they have been able access within the incubator as both have their benefits, like trust, which helps them manage their expectations, as well as opportunities to strike partnerships, get insights and funding. However, since most firms in the reviewed case studies are open to add new relationships to their existing networks, it is useful to understand how the incubation brokerage process facilitates the new networking formation process. As such, tenants were questioned about their preferences on network activities organised within the incubators. This is useful for understanding how the overall network 'tertius Iugnes' behaviour demonstrated by the incubator firms influences tenant firms' decisions to partake in the network activities organised. Across the incubators, the most preferred network activity was access to the mentor network. 7 tenant companies across incubators C, D and E recognised this as the most important, while 6 tenant companies across incubators A, B and E cited the events as the preferred networks. Additionally, training was identified as a preferred network between tenants in incubators A and C, with 2 tenant firms listing this as important. Despite the availability of network activities in all the incubators, some tenants do not engage or do not have any preferences at all, and this is noticeable amongst tenants in incubators B, C, D and E.

For tenant companies who identify mentorship networks as the most preferred network, factors like feedback, industry insights, access to other networks and an opportunity to learn are the reasons behind their choices. For example, Tenant CT2 remarks:

"So, I would say mentorship, building a technology business can be difficult and intimidating. These mentors are individuals who are more exposed and more

experienced than us, they help us to get into so many uncharted waters and give us industry insights that help us plan ways not to be taken by surprise".

Tenant DT4 adds:

"For me, it is access to mentors, they have industry experience. There might be certain things you already know is a business principle. However, hearing this from people who have set up businesses gives it more importance. This is because most of them have put them into practice in their businesses. Also, because you are seeing it from the perspective of their own experience, it is just helpful for insights, because they have done it and can let you in on the mistakes, so that you take note. Also, access to them is access to a wider network, they are already established in the industry or might know someone who can be a potential partner or customer...".

A similar sentiment is also noted by Tenant DT1:

"For me, I actually like opportunities where I can have face to face meet ups, so mentor meetings for me; we have mentors who go above and beyond to assist us...I am able to have a personal relationship with mentors and pick their brains as well".

On the other hand, tenants who prefer entrepreneurial events cited opportunity to gain exposure, validity and speedy referrals as the reasons for this choice.

Tenant AT1 explains:

"The innovation showcase event was it for me. Just imagine having about 60 people in the room at the same time, you get to meet them all at once face – face, and you can have a discussion about what you do. You cannot ask the incubation team to provide you with 60 referrals, it will get tiring. If they organise an event like this, it gives you an opportunity to meet more people and get more exposure".

A different perspective for the preference of entrepreneurial event was provided by Tenant BT3. He explains:

"The quality of your idea and the execution is influenced by the people involved. The incubator organises a week where start-ups come together to share their experiences discuss progress and challenges and get feedback from other start-ups. This for me is the preferred network activity, because if it was just your team, it might take a longer time to figure out the challenges you are facing as a business. But now you have a pool

of smart people who are able to offer feedback or refer you to networks who they think would be useful to your business. This helps you tap into a wider network, which you might not have necessarily had".

In the same vein, Tenant BT4 highlights:

"Emmh, I would probably say the entrepreneurial events. This was beneficial. It was a good opportunity to reach out more, basically see what exists within this space. The thing is, you never really know where the next customer will come from, so I would say it definitely helped in reaching more people".

Aside the entrepreneurial events and the opportunity to access mentors, some tenant firms were more interested in the training organised and the opportunity to speak with industry experts. For them it was an opportunity to gain personalised knowledge or test mental models. For example, Tenant AT3 remarks:

"The trainings were useful; you are able to access hands-on support when it concerns business development".

However, as noted, some other tenants do not have any network preference because they believe that each network activity has its own benefit or that the decision to engage will depend on need. For example, Tenant DT3 notes:

"No preference, each has its own benefit. You also need to be proactive yourself, especially if they are outside the mentor assigned to you. It is also important that you initiate the conversations yourself"

A similar opinion is also mentioned by Tenant CT1, who remarks:

"It really does depend, it depends, essentially. I would say they all have their varied benefits. It is actually hard to decide which I prefer as they present different opportunities".

Despite the plethora of network activities organised by the incubators, 2 tenants still do not participate. Tenant DT2 states his personality as the reason, while Tenant ET3 did not state any reason for non-engagement.

From the reviewed opinions of tenant firms, most of the start-ups identified that they preferred mixed ties, as they are utilised to access a variety of opportunities.

Additionally, as stated in the literature and evident in this study, the network activities designed by the incubator afford start-ups the opportunity to access value adding relationships, thereby improving tenants' chances in the marketplace. However, what has not been previously documented is how tenants react to the different network activities that take place within the incubator. In this study, the network activity preference of start-ups was reviewed, and a significant number cited mentor events and entrepreneurial events, while others mentioned training, industry and mentor access as preferred network activities. The remaining did not have any preferences or just kept away from network activities.

Having established in chapter 2 that entrepreneurship is context-dependent, and entrepreneurs leverage networks to access different resources, attention now shifts to tenant firms' perspectives of the influence of context to entrepreneurial networking and creation. Taking note of this, the influence of the social-spatial context of Yaba and Ikoyi support ecosystem on entrepreneurial networking is reviewed in the next section.

4.3.3 Tenant Companies' Perspective of the Socio-spatial Context in Yaba and Ikoyi on Entrepreneurial Networking.

Earlier, within the literature review chapter, it was identified that the founding conditions of a firm are critical for their development and that these founding conditions are either organizational or environmental (Bamford, Dean and McDougall, 2000). Therefore, it is advocated that this context of founding be examined to understand how and to what extent firms are socially embedded (Jack and Anderson, 2002), and the dynamic forces that shape them (Zahra and Wright, 2011). Here in this study the focus is on the socio-spatial aspect of the context, which explores the influence of the location on new ventures network creation with stakeholders and the type of network relations that exist between them all. Noting this, this section reviews how the socio-spatial context of Yaba and Ikoyi influences tenant firms' involvement in networking activities, the network types resident in these locations and the potential challenges start-ups face in accessing these networks (please see the table above for codes developed to support this theme). A variety of benefit was noted, including access to talent and community, socio-spatial proximity, access to knowledge, access to networks and network events, environment and infrastructure and opportunity and customer acquisition access.

Proximity factors like geography, social proximity and spatial proximity were identified, with overlaps as to how one dimension of a proximity influences the other. 9 of the 18 tenants explicitly identified how proximity factors facilitated entrepreneurial networking,

while 2 explicitly identified a negative influence of the location. For example, Tenant AT1 remarks:

"There are always stories about ecosystems like this. There is a lot of entrepreneurial energy from this location. You have a place like Incubator A, but before them, we had company X and company Y that offered trainings in software. I was previously trained in company X as a software engineer before I got my degree, and we were collaborating amongst ourselves; but Incubator A maybe brought us all together in one space and also made it possible for us to interface with investors. Incubator A was the first technology hub that became recognised in Nigeria.

Tenant CT2 adds:

"Interacting with the ecosystem here in Yaba provides insights. You can quickly test and narrow down difficulties and make released products easier to use *and the experience of these products to be better as well...This location facilitates communication; there is a lot of chatter around here. You are able to quickly watch the transmission, or should I say the evolution of technology, you are able to hear more ideas of how to execute these technologies and of course tell your stories as well, and that way you motivate people, and they feel like oh this thing can be done. You meet people from different fields here too and there are opportunities for collaboration. You might not be working in that field, but it broadens your idea and helps with what you are doing".*

For tenant companies within the Ikoyi location, the perception of the incubation location in regard to proximity dimensions mentioned earlier and the influence on entrepreneurial networking is mixed. Some tenants in Incubator D recognise a positive influence, while a tenant in Incubator B observed a negative influence as can be seen in excerpts of comments below:

Tenant DT3 adds:

"This location, Ikoyi, presents a landmark of people who understand how to treat opportunities. I have met a good number of people who have given me access to opportunities and have been able to tap into the market to acquire customers. This location is also home to a lot of tech start-ups, a location breeding with knowledge".

However, a different view is presented by Tenant BT4. For this tenant the proximity factor which favoured the other start-ups was a disadvantage. He explains:

"Now, this is Lagos, considering that I was living far away from the incubation location in Ikoyi, there were times I would spend 8-9 hrs in traffic going home. For us, this was not exactly helpful. At some point we had to move out of this location because the overheads were high at the end of the day and we were spending more time getting to the location. The logistics was a huge constraint".

6 other tenant across incubators A, B, D and E identified, talent and community as a benefit of the Yaba/Ikoyi location.

To give context, Tenant AT1 notes:

"Now a lot of technology talent work out of this location or around this location or in Incubator A because technology talent is easy to access. Being here also has some strategic benefits, you are not too far from universities Unilag and Yabatech. It is easy to get access talent from them. Yaba technology is respected for having good designers and Unilag also has an interesting pool of talents. This is a hot spot for technology, you can have access to knowledge as well".

Tenant ET2 adds:
"Being in Yaba gives you access to the start-up ecosystem because you can readily access the community, you quickly get information about what is going on in the location, you know who have raised money for instance".

To back access to talent and community, some other tenants identified the opportunity to access networks and network events, Tenant AT2 highlights:

"You have access to different networking events that happened across the different hubs in Yaba. It is usually open to everyone. Going to those events can also be beneficial because you can spot start-ups that you can potentially collaborate with. We have been able to collaborate with some start-ups".

Others, like tenant AT3, AT4 and DT1, note the impact of environment and infrastructure as a benefit of the Yaba/Ikoyi location. For example, Tenant DT1 remarks:

"I think the impact on being in Ikoyi is positive. First of all, it was cheap, compared to what you find elsewhere, Yaba to be precise or just around".

Following responses from tenant companies, the overwhelming perception of the influence of the social-spatial support context, particularly for tenants situated in Yaba, is positive. The incubation support location facilitates tenant access to technology talent and community, opportunities, knowledge transmission, collaboration and learning. Taking note of this, it was useful to examine how these opportunities influence the type of network partnerships tenant companies are able to forge, as well the potential challenges they face in reaching these network actors. Following this, six network types were identified in both locations: incubator/community, friendships, mentor/advisory, funder, fan/family and business networks. Not all the tenant companies have all these network types and some of these networks could have multiple contents. For example, a tenant companies' friendship network could also be a business and an advisory network at the same time.

Examples of these relationships can be seen in the excerpts below:

Tenant AT1 remarks:

"Friendships: these are people I work with. I get emotional support from them as well. We are very close, and we can have personal conversations as well. I find solace talking to them. As a founder you go through a lot, it is not easy. You also get a lot of no, so you need people to talk to'.

Mentors: they are very few. I go to them when business issues get serious. I do not meet them often because I do not want to abuse how much interface I have with them. I have meet some of these people at entrepreneurial events".

Tenant BT1 adds:

"I will say friends, because most of the companies were in the pre-incubation school with me. We have discussion about our struggles and encourage each other. They might not know what my business is about, but they understand the start-up struggle. We go out every Friday together, we call it destressing, just to go chill and have fun.

I will also say a community relationship. These are individuals who might have been in a cohort ahead of me, who have more experience than myself. I go to these individuals if I am looking for best practice examples or just advice".

Tenant CT2 explains:

"I have a couple. I think the first category would be fans and admirers because of the popularity of what we are doing, and they are encouraged by what we do and want to learn from us and also support us.

Then friends. They might not necessarily know about your business or technology, but these are individuals who we talk to about our visions together, encourage and help each other. I think for me, the incubator helped with this because before now it was just me and my brother. Without this support, I am not sure we would have been able to meet these people. We used to work in isolation but now we have to be proactive to not just interact with other developers, but with other critical actors that will help our business.

Then we have business relations. These are individuals who we share ideas with and discuss technology developments with".

A similar observation is made by Tenant DT1, who notes:

"I will say mentorship/ advisory networks mainly. These networks give us access to new opportunities and refer us to resources when the need arises. Personally, I do not like to keep multiple relationships because I want more meaningful relationships, relationships that could also pass off as friendships and a degree of trust with.

Community networks. This is mainly between other incubating firms in the cohort. The purpose, I would say, is to identify ways we can collaborate".

It can be deduced from the discussion so far, that business incubators within Nigeria and the location of incubation can aid to facilitate network access to network partners who will be instrumental to start-up survival and growth. However, for the tenant companies, the network support provided cannot control the speed of response time of network actors, that the right network partner is reached, or the suitability of the offerings of firms are proposing to network actors. This review of the social-spatial context within the Yaba/Ikoyi space allows for the understanding of the contextual factors that influence network creation mechanisms.

Following the discussion of the context, an understanding of tenants' perceptions of impact, quality and challenges experienced is used to explain the role of network cognition in the network creation process. This is captured in the next section.

4.3.4 Tenant companies' perception of network impact, quality and challenges

To present the tenants' perceptions of network quality, review how network impact is assessed and the network challenges tenants face, three themes were utilised. These themes also have codes and sub-codes to present more nuanced caption of tenant's views. These are outlined in the table 4.2

This discussion begins by reviewing tenant companies' perceptions of network quality to assess if the perception is different from the expectations of incubator managers.

Network quality from the tenant firm perspective is predominantly described as a value driven network. In some instances, there is an anticipation that value is reciprocated, while at other times the perception of value is described as an additive process. Across the incubators, 13 tenant companies described network quality as a relationship that permits value exchange between parties, while 4 tenant companies described network quality as a value-adding network and 1 tenant company viewed quality network as a trust driven network. For some tenants they were explicit about the output of anticipated exchange, which included partnerships, client acquisition, access to distribution channels, opportunity to make sales, ability to proffer solutions and improved efficiency of network partners. Others mentioned access to feedback, opportunity to utilise the competencies of network partners and guidance as anticipated exchanges.

For example, Tenant AT1 explains:

"As I mentioned earlier, I want to grow my business, so quality networking for me is being able to access new customers or partnerships; networks that will help me drive my business, a relationship that can add value to my business and I do the same for them as well".

Tenant BT3 further explains:

"It depends really. From a client's perspective, it is about getting paid. You solve their problem, they pay you. They use your products and then refer you to other businesses".

However, Tenant ET1 remarks:

"It is a networking relationship that is able to create value and add value both ways, that is some degree of reciprocity. Where you are offering a solution to your partners

and they are able to provide value as well, by either leveraging this opportunity to take advantage of their experience, so you ride on their competencies to build your business but also improve their own efficiency and growth as well".

For tenant companies who describe network quality as a value adding process, the anticipated exchange is similar to those who view network quality as value exchanged. However, the value-adding perspective of quality network is also expected to grant exposure, access to market insights, facilitate access to new relationships and be risk adverse. For example, Tenant AT3 remarks:

"For me, a quality network relation is about added value, which for me is 'was I memorable'? 'how well can you leave a lasting impression'? You do not necessarily have to talk about your business, but the aim is to have conversations that leave lasting impressions. That way you have received some exposure too for your business".

A similar view is also expressed by Tenant AT4 who notes;

"So, quality network is one that that can give me access to partnerships and possibly an opportunity to acquire customers. If you are partnering, it is like standing on a shoulder of a giant, and more exposure means we can sell more and make more money.

However, a different view on value-added quality networks is presented by Tenant CT2 who explains:

"For me, a quality network relation is being able to share ideas, to be frank and objective.....every emerging technology is made better through ideas. Also, it is someone who is willing to dare, who is not constrained by the location or technologies at their disposal, who is not afraid to compete globally, someone who our long-term goals align with, and is not about quick returns".

A similar sentiment is also noted by Tenant DT1 who states:

"For me a quality network relationship is a relationship that can develop insights on product, market or what competition is doing. So essentially a relationship that can give me information about something I do not already know".

Since network quality enables the understanding of how firms perceive the quality of network activities organised within the incubator, an examination of the tenant perspective to network impact will explain if a tenant firm's motivation for engaging was

fruitful and the expectations of quality networking were achieved. Therefore, at this point attention is drawn to the tenant firms' perspectives of network impact. 10 out of the 18 tenant firms across the 5 incubators acknowledge that the network support and activities that were organised within the various incubators had very high impact on their businesses. Most of the tenant firms cited the ability to make more sales, validity, opportunity to access feedback and advisory support and access to wider networks as the benefits of engaging. These network impacts fall into the category of economic, resource and legitimacy impact. For tenants who identified legitimacy as impact, they mention the incubator brand influence and an opportunity to access referrals as ways that legitimacy is achieved. For example, Tenant AT1 explains:

"The incubator brand helped us. This is because they trust incubator A and because they do, they trust us as well. Imagine if we met any of these people by ourselves, the trust won't be there. Some of the stakeholders ordinarily would not have known that you existed, but because of the incubator and these network activities, you get people who ask if we can get them technical talent or get a meeting with a bank who requested us to supply them with technical talent for a solution that they are creating".

Tenant BT1 further notes:

"The networks and activities have been very useful. The incubator B name alone provides us with opportunities, it is well known locally and globally. I remember applying for a grant, just stating an affiliation with Incubator B gives you an edge and some sort of approval. A lot of consideration is given to Incubator B portfolio companies because they know that we are well trained. The incubator itself has been a great advantage to us; we get a lot of exposure through the help of the incubator. Alumni before us have gone into another top entrepreneurial programme like Y combinator and Tech crunch. All these networks we have access to, without the help of the incubator, would have taken a longer time to acquire as well as a lot of hard work".

However, the brand of the incubator does not always have a positive impact on tenant firms, because in some instance firms have not been taken seriously or cannot exactly build their own reputation because of the perception some actors may have of the incubator. This opinion was cited by Tenant BT4 who remarks:

"The incubator B brand helped but it can be detrimental as well. One of the fintech start-ups had problems when he stated affiliations with the incubator B brand at one time, because some corporate still see them as students in training".

A similar opinion on the negative impact of the incubator brand as regards networking is also noted by Tenant DT1. He explains:

"We do not want customers to choose our product solely because of the name of the parent company. This kind of situation makes it difficult to assess if you actually have a good product or not. In our specific case the parent company had a large customer base, but not our typical customers; their customers were still very traditional. Now, because of the way our product was designed, it would not appeal to them and so they were not exactly useful to us".

Additionally, 9 tenants noted the ability to access resources and enjoy economic benefits where other ways brokered networks impact firms. To explain, Tenant DT3 notes:

"Yes, we have. Primarily networking is important for us because, for us, our main goal was to get partnerships with a big company and leverage their resources. But eventually, I would say, networking has been a big benefit because you can meet like-minded people who are creating amazing solutions within the space, which I would say is a big plus".

Tenant AT2 remarks:
"They have been very beneficial; we have been able to meet clients. We currently have ongoing business, are able *to make more sales and have gotten validation from key players in the real estate industry. We have also been able to get key players within the industry to act as advisors to us. I would say that they have created a platform that will enable us to connect with key stakeholders and individuals".*

Tenant CT2 adds:
"They have been useful. In the last few months, we have been able to move faster than we would have ordinarily worked and at the pace that would allow us to compete with the rest of the world. We also have the opportunity to meet with experts from around the world and from Nigeria as well; these individuals have been in the technology market both as developers and business experts. We have also had the opportunity to meet up with company founders. These are people who have actually started businesses, scaled and raised money as well. They share their experience with us and give us advice. Without this support, I am not sure we would have been able to meet these people. We used to work in isolation but now we have to be proactive to not just interact with other developers, but other critical actors that will help our business".

However, for some tenant companies, the network activities and support provided was not very beneficial to them, not solely because of the reputation but because of the limited competencies of the incubator, difficulty of network partners following through and mismatch in assessing the need of the tenant. For example, Tenant BT4 explains:

"So, with respect to Incubator B brokering introductions that have translated to value, which could be getting clients, the answer is no. This is again because of a number of factors, which isn't exactly their fault as well, when you consider that we are in an industry that they do not have competencies in, and they were fairly new in the ecosystem when our business started".

Tenant DT1 adds:

"I would say some of the networks we have been exposed to have not all been beneficial. An instance would be with a payment platform company that we met at the mixer. Other times, these networks do not follow through; we follow up with them but still are not able to access any useful information or feedback from them".

Tenant CT3 further adds:

"Not all of them have been beneficial. Sometimes we get people who do not have enough knowledge of what we are doing or are out of touch. We had to meet one of these industry experts who works for a GENCO. Now, these are people who generate electricity, we need to meet with a Disco, people who distribute, and when he was talking to us, the terms used were very technical".

In spite of the varied perceptions of tenant companies on the network activities and support received, some others just do not engage or are not seeking any benefits. Such is the case with Tenant AT3 who is not seeking benefits, and Tenants DT2 and ET3 who do not engage at all.

Thus far, discussion has covered tenants' perception of quality network and the different ways these quality brokered networks are assessed. What is yet to be covered are the challenges that tenant companies face when seeking to access brokered relationships.

The content of these relationships, as noted earlier, is not always distinctive; an individual can have multiple uses for the same network type identified and the use evolves with time. While it is indicative that the context of support, that is the location

where the incubator is situated, can influence start up entrepreneurial networking and the emerging network types. Attention then diverts to the challenges tenant firms face when engaging with these network actors within this location. A common challenge mentioned by 8 tenant firms is timing. However, the concept of timing, as observed, is multifaceted. Some discuss time from the perspective of being able to speedily reach the right network partner or talent, or the response time of the actor when a relationship is brokered. Others describe time from the perspective of the suitability of the solution proffered at the time the relationship was brokered, as the excerpts below show:

Tenant AT4 remarks:

"Of course, we experience challenges. I will give you an example; we were trying to acquire a new customer using a relationship brokered by the incubator. We went for the presentation and, I must say, we delivered a brilliant one. But we were told not to contact them, that they were going to contact us instead. We wanted the business as a matter of now, now, but there are always time lags when following up with businesses. You also do not want to compromise this relationship, as this might just be because they might not need a service you are providing at the moment".

Tenant DT1 adds:

"The biggest would be the product interest, because we are still in early stages. Some of the companies that we might have had the opportunities to meet are not interested in what we are doing at the moment''.

A similar view is raised by Tenant BT2, who explains:

"Businesses are built on relations; we have experienced challenges accessing useful contacts. For example, getting that meeting with a government agency X to get an authentication license that would help us deploy our solutions to companies has been a challenge. It took a while to find someone that I would say can be trusted enough to broker that relationship for us. So, I guess timing can be a challenge''.

A more insightful comment by Tenant CT2 explains:

"Yes, we have. Interestingly, the solutions and products that we have created have been embraced by businesses or individuals outside Nigeria and Africa. This shows the challenge of technology maturity in this part of the world. Technology maturity is still at

the beginning phases and when we design products, we try not create a full product but, in this part of the world, when we are seeking to do collaborations or find people to use our products, they want us to create a full product. We want to build products that can scale and are flexible and can be used across different industries, because to build products for a specific industry requires time and tailor-made products, and it is expensive".

In addition to time, 4 other tenant companies across Incubators B and E mentioned gatekeepers as a challenge. For example, incubator BT4 notes:

"The biggest is finding an introduction. This requires patience because you might end up burning the bridge if you reach out prematurely. I will say it is best to get an introduction. I have had to patiently wait on five people. A particular experience I can call to mind is when I was trying to reach a particular corporate, I had to pass through five individuals who were thought to have access to the corporate".

Tenant ET1 adds:
"Yes, sometimes it is the difficulty associated with getting into certain network circles. You need someone to broker these relations into those network circles and sometimes they might not want to do this, maybe because you have not established trust with them".

In addition to gatekeeper challenges, 2 tenants in Incubators A and D identify validity and limited network skill as a network challenge. For example, Tenant DT4 notes:

"In Nigeria, validity is very important. So, when seeking to access certain individuals you expect two reactions. For example, if a reputable company or person made the introduction, then this person would be more open to talk to you. However, if you try to reach out by yourself, most times you will not get any response at all or the audience to even speak".

For the challenge of limited network skill, just Tenant CT3 identifies this as a problem. He notes:

"At the beginning, I did not know what to say. When they do introductions, and I am left to lead conversation, I often finding myself wondering what I would say. Should I say good evening sir or just hello?".

Despite the challenges mentioned, some other tenants explain that once a network has been brokered, they do not have further challenges. Tenant CT3 notes:

"I would not say we have had difficulty accessing networks that have been brokered for us, because everyone that we have meet we have been able to get access to them".

Tenant BT3 adds:

"For us, once a relationship has become brokered, we did not have any challenges afterwards".

So far, the management and tenants' perspectives of the role of human agency in network creation has been noted. Network cognition has also provided insights to how they both perceive network impact, quality and challenges, by accessing how the context influences this decision. Attention now moves to the cluster perspective, to gauge how agency plays a role in network activation and cognition in assessing network impact, quality and challenges, this and is reviewed in the next section.

4.4 Cluster Firm Perspective on Network Brokerage

Earlier, in the literature review chapter, it was noted that clusters present a relational space that facilitates social interactions, collective exchange and interpersonal synergies (Camagni, 1991). Although network support is not as robust as it is within the incubators examined, some degree of network brokerage is facilitated by the trade association Capdan. From discussion with the Capdan official, a more direct method of network brokerage is used to facilitate network relationships for cluster firms. However, understanding how this method of brokerage influences cluster firms network choices and cluster firms' relationship preferences, that is preference between old and new relationships was examined. to understand how this method of brokerage influences cluster firms network choices and cluster firms' relationship preferences, that is preference between old and new relationships was examined. In the case of the clustered firms, old relationships represent cluster firms own relationships and new represent relationships that are the output of their engagement in the networking activities put together by Capdan.

In reviewing discussion on network preference, 10 of the 13 firms have a preference for old relationships, while the remaining 2 companies prefer mixed and 1 prefers a new relationship. For the majority who cited old relationships as a preference, they identify the role of trust and an obligation to reciprocate as a key factor.

Company A explains:

"I prefer old relationships. They are better off for me; trust has already been established. But new relationship is a clean slate, you need time to build trust and you also need time before this relationship can blossom".

Company M further notes:

"Of course, the old relationships, you know the person, you have done business with the person before and there is a degree of cordiality and it makes it easy for us to do business and look for how we can help each other. If it is someone new, you have to do a lot of background checks to know who you are dealing with. I would be careful with conversations with a new contact".

Company L adds:

"Well, even though I like to try new things, I will still hold on to the old relationships. Because I have known them, I have had experiences with them and so will know how to deal with them. But a new person, you do not know what to expect, it is a gamble, you have to study them. Ahh! I prefer old relationships; I have already established trust with these people, and everybody knows what they are supposed to do, I bring you business, you bring me too or anything that you know will help me ".

For the other three who want a new or a mixed relationship, they explain the reasons for this.

Company E states:

"Relationships help you to grow. Every right-thinking person would need relationships. I would say, perhaps, new. The old ones are already there and would always be there, while new relations possibly represent new information".

On mixed ties preference, Company H remarks:

"I am a friendly person, for me the same people I have related with since secondary school are people that I still interact with today and some I do business with.... for me, there is no preference, I want both. The newer the relationships, the wider my contacts I have access to. Older relationships make it possible for collaborations to happen, because these are people you have a more personal relationship with".

A similar opinion is mentioned by Company I. However, in his case, older relationships introduce new relationships. He notes:

"I thrive on both. I need both and I keep them. I have been introduced to new relationships through old ones. One old relationship means you get a thousand more".

Based on the response of cluster firms on network tie preferences, it is deduced that clustered firms rely mostly on old relationships because they are trust based and it is easy to match expectations. The behaviour demonstrated by the firms is similar to separation behaviour documented in Grosser et al (2019), where alters seeks maintain separation within a certain network to maintain power within a network structure. However, in the case of clustered firms, the choice of utilising and failing to intentionally seek new relationships is linked to time, limited interest and a way of staying competitive. In some other cases it is as a result of limited awareness.

For clustered firms, awareness of network opportunities and activities organised within the location vary; some firms have limited awareness of the what the association does or the network activities that are organized by the association in the location, and thus defer to brokering their own relationships. For these types of firms, social media platforms and or informal meet ups are utilised for brokering relationships. For example, Company B remarks:

"I had never heard about Capdan till they came to my office requesting for trademark...as far as I am concerned, there is no union, networking here is very informal. Most of the time it would be between friends, and business discussions happen over drinks sometimes or just using WhatsApp".

Company D adds:

"I know about Capdan and some businesses have received support through this association...However, I have not enjoyed any kind of support. For network activities, I am not really aware of any that take place here. In my line of business, we have a

WhatsApp group, we chat on this group, we also update the group with information about new technologies or products that get into this location. Sometimes, when customers come and request for things you do not know that are in existence, it is easy to just reach out to your neighbour because we are all together here, you inquire from colleagues and they can update you on these products. Sometimes you can buy it from them and then sell to customers. I also have personal connections with individuals in other locations that deal in technologies like the Alaba Market or the Trade Fair center, but mostly business connections in Alaba".

There are other firms who are aware of the network activities that are organised by Capdan in this location but do not take part because they do not see value to them or just do not have the time to engage. These categories of businesses rely on referrals and social media to broker relations, like Company G notes:

"We have an organisation called Capdan. They organise events from time to time, like free trainings and workshops. I would not say this has helped me or my business and people often do not attend them either. Most people are not interested in these workshops, people believe that they are not exactly beneficial because people feel it is a waste time and that information given to them, say for instance how to run a business, they already know. Most times, I believe that we know more than what they are teaching us about. So, for us, the relationships we have built are based on the work we have previously done in the past. If you do a good job, you get referrals to potential customers or clients. We also utilise social media platform to interact with potential customers and suppliers".

A similar same sentiment is echoed by Company I, who notes:

"So, in this location, they organise trainings and sometimes trade fairs; and I think it is coordinated by Capdan, but I do not have time to even interact with other businesses, I am mostly occupied.... In my 8 years, I have never advertised, the important thing is the work you are doing, it speaks for you".

There are also firms who are aware of the network opportunities organised by Capdan and the functions of the association. These firms take advantage of these network opportunities provided but expressed mixed sentiments. For example, Company C notes:

"*We have different kinds of events here, sometimes financed by our foreign partners; we have done a training with Microsoft for workers and customers and this is one thing that that association called Capdan helped to facilitate. This present leadership of Capdan has been really great, they have been helping us, it is through Capdan that I got to meet some of my partners. We have also been able to go aboard for trainings with foreign companies like IBM, Epson, Microsoft and Sage through the awareness that Capdan provided. I have attended about 7 events put together by Capdan. At some point, foreign technicians from Epson in Japan sent engineers to train us on how to service printers. Hp also gives us training on how to repair laptops and printers. Now in recent years, there has been a lot of politics played within Capdan, this politics has become detrimental to us. The division currently within Capdan has also made our foreign partners wary, which is not good for us and am worried about the continuity of all the things we are getting now*".

Company F shares a similar sentiment:

"*Yes, there are. We have an association called Capdan and from time to time, they call for seminars and other opportunities for possible knowledge exchange via trainings. Also, the foreign companies* whose products we sell *also organise trainings for dealers from time to time. Those trainings for me were beneficial because I feel like you get information that will be beneficial to your business. Capdan also tries to reach out to experts as well or established businesses that are even resident in this market to give information on best practice. But then, we have a problem of continuity, it looks as though their charms have worn off and they have been quite inactive for some time*".

Following the views presented above, it is actually difficult to assess which network activity is preferred, as firms in this location seem to be more proactive about facilitating their own networks themselves. In exceptional cases where they decide to engage, there is a lack of trust on the sustainability of the activities, and as such it seems that firms still prefer to broker their own relationships themselves. However, to understand the reasons for these choices and decisions, this study examines cluster firms network motivation to explain how they are able to make sense of network opportunities that exist within the cluster. This is discussed in the next section.

4.4.1 Cluster Firm's Perspective of Motivation

Some emerging themes captured from the interviews that aid in explaining why certain relationships and network ties are preferred and pursued by cluster firms are explained

using these themes; motive, network quality and network impact. These themes are further explained using the codes outlined below.

Network Motivation

Motive

- trust
- information and knowledge access
- impact
- inspiration

Network Quality

- assessed as a multi-layered process

Network Impact

- partnerships
- access to market information and knowledge
- favours and Referrals

From the interviews, different motives for enacting and pursuing relationships were identified. They include trust noted by 4 firms, opportunity to access information and knowledge noted by 6 firms, personality and to draw inspirations noted by 5 firms. The first motive discussed is the trust motive. Firms mention that the ability to trust is often rooted in repeated exchange relationships that have occurred between themselves and other firms in the past. For them it is used as a tool for testing the character of network partner. As Company D highlights:

"I am motivated to network when I trust the person, and when the person has demonstrated some honesty from past deals. For example, if there are any issues with whatever I might have purchased from a business, the person should be able to resolve this, and I expect to do the same".

A similar sentiment is mentioned by Company J, who notes:

"For me to interact with another business here, trust has to be there. For example, imagine you are purchasing something from another business and the person inflates

prices. Now it might not matter at the initial stage because the person does not have time to check prices, but once they find out that you have been cheating, that is the end of that relationship".

Company M further states:

"For me it is trust driven, a network that is built on trust, because if you have a relationship with some individuals and they cannot trust you, it is in the negative...if anybody wants to link your business up with a network that would be useful, the person must know you well, they must have good things to say about you, the person knows your values and what you can offer as well. Your services can also speak for you, even if they do not know you in person, but they most have some experience with your brand as well".

Another motive that triggers networking between businesses in this location is the ability to access information and knowledge. Company B notes:

"To stay competitive in this location, to make more profit and make sure that I am in line with my long-term plan; my long-term plan is to be number 1 in phone accessories sales and it has a lot of categories. I have to network with people to know these different categories, to know which items to bring in, the pros and cons of these items. So, for me, I am seeking information and also an opportunity to gain knowledge".

Company E adds:

"For me, it is all about knowledge acquisition, I want to expand what I know because if you partner with another kind of business you will be forced to learn what they are doing... I want to know beyond what I do, the more information and knowledge I can get access to, the more I am able to grow my business. When you rely solely on what you do, I believe that you are restricting yourself. However, when you network with others, your growth will be faster".

For other cluster firms, the motive is driven by their personality, an intrinsic desire to be being able to drive impact, which is sometimes influenced by previous experiences of firms, or just the desire to make a difference. For example, Company F explains:

"I believe that we are on earth to serve and leave a lasting impact; when I relate with colleagues, suppliers, customers, corporates, anybody really, it is about acquiring

knowledge that will help you deliver on the value you promised. For me, this is my motivation".

Company C adds:

"For me, it is about helping people, because I know how I started. I used to trade pirated software and I did not have a shop. The police and the copyright commission were always after me. I know people who still operate business this way, people I used to stand on the road with. Now I have an established business with foreign partners and moved to empower people because I do not want them to have the same experience that I had".

A similar sentiment is also shared by Company I. He explains:

"I used to hoard knowledge but overtime I have come to realise that I can empower more people by sharing the knowledge or information that I have. If I can share what I know, people will refer others to me. The more you share. the more opportunities you will be exposed too. This for me is a motivation".

The last motive discussed is inspiration. Firms note that through interactions with other firms, they are able to draw inspiration and learn lessons that they can apply with their business. Company A explains:

"Every day you get to work and see people carry out their businesses. You are motivated by the actions of these people; you see them strive and you learn from them. Their experience motivates you and helps you to keep pushing. Even though things might be slow, you continue to push because of the inspiration these other people give you. So, for me it is to learn about people's business practices and experiences".

Company H adds:

"When you have relationships with people, you can have conversations with them. You learn from people's experiences and these usually serve as a guideline for running my own business. For example, you can hear stories about new ways people get scammed. I might not have personally experienced it, but I learn from it and I am more prepared and able to spot them when I see a pattern. This for me is my motivation".

As noted earlier, network motivation and social exchange was advocated to be used hand in hand, so as to understand the reasons behind the network actions of firms.

Network motivation explains why relationships are pursued or initiated, while exchange allows firms to assess the quality of the relationships enacted or pursued. Taking this into account, attention moves to cluster firms' perspectives of network quality, to understand how they measure the relationships they broker for themselves in this location. Network quality in the cluster is a multi-layered process which starts with firms assessing the personality of a network partner; qualities like integrity, respect and humility are important for cluster firms, and this determines if they can trust you. When trust is established, there is an expectation for value exchange or value-addition. This value could be information, ideas, referrals, partnerships established through subcontracts or just feedback. 10 cluster firms alluded to this quality assessment process. For example, Company B gave this view:

"*My definition of quality relations is trust, integrity and honesty. Basically, someone whose yes is he yes, and of course someone I have similar values and principles with you. Business is not all about profit, all these play an important role in a relationship with me. So, when I see this, I know I can trust you and also look forward to a relationship that is reciprocal; where we are able to share ideas, or new information*".

Similarly, Company D adds:

"*Quality networking is bounded by trust, sincerity, integrity and honesty. Trust is crucial in facilitating these networks and building your business. There are some individuals who have messed up their goodwill in this location. An example would be when an individual goes to an exporter to get goods, probably on credit, but some would not honour this because of how this individual behaved in the past*".

Company E further explains:

"So essentially quality is about balance, being responsible and keeping up with your expectations. For me it is about doing right by me. I expect you to keep up with your responsibility with me and I will also do right by you ...whatever our expectations are of each other, we need to keep up with it, for there to be a balance. If this is lacking in the relationship, I call it off immediately. For example, I have a contract with a corporate to supply equipment that I do not have. I reach out to a partner and you supply fake goods to me, you are denting my image, and I would not want to be in business with you".

While most firms view network quality as process-oriented, some other firms view it from a price perspective. For example, company K explains:

"The basic thing for me is price. Quality relationship is determined by price. If your price is right, I am happy to do business with you. If it is not okay with me, I look for someone else".

Timing was also identified as a means for assessing network quality. For example, Company C notes:

"For me it is relationships that stand the test of time, it does not matter how long it has been, they still remember our business".

Since network quality presents an understanding of how firms perceive the quality of network activities organised within the cluster, an examination of the cluster firms' perspective of impact will explain if cluster firms' motivation for enacting these relationships was fruitful. Therefore, at this point, attention is drawn to cluster firms' perspective of network impact. For the majority of the cluster firms, network impact is described from the perspective of partnerships, and then the opportunity to access market information and knowledge. 4 firms are able to enjoy the dual benefit of partnership and access to knowledge and information, 3 enjoy partnership benefits and 2 enjoy market information access. For the remaining firms, referrals and the ability to call in favours were perceived as impactful to them.

For firms who identified partnership as a benefit of networking, usually executed by subcontracting the sale of products for a commission. For example, Company D, who perceives network impact as a partnership and the opportunity to access knowledge and information notes:

"I will say it is good to interact with other businesses, because when you talk to people you know where to get good products. Some people might bring in their product and it will be cheaper than what you are currently buying at, and for you to survive in this location you need to get goods at the lowest price possible. If you are a free person and interact with people, people will even reach out to you and suggest that you investigate prices because some other dealers might be selling at a discounted price. Sometimes, we have partnerships too with each other; they can help you sell some of your wares for a commission and you do the same for them".

Another insightful comment by Company E reveals this position. He notes:

"Building relationships means you have first-hand opportunity to learn what different people do and get knowledge as well. With respect to knowledge creation and sharing, this place is called Computer Village, but it is wider than just computers; you have people who sell phones here; people who are involved in courier service and companies that build apps. It is a convergence of knowledge, so it gives you the opportunity to know other areas of business.

Information sharing is done passively and informally here, and this affords you the opportunity to get the knowledge that comes with it and as they come, although I would say proximity for one facilitates this. We also do partnership here. Sometimes you might have something I do not have, or I have something that they need. This forces me then to learn about what they are doing, which is different from mine. and this is also how knowledge is transmitted again".

A similar sentiment is also noted by Company L. He remarks:

"Being in this location and doing business here, you need everybody. For us, we bring in about 3000 laptops for sale every month. You need to move these laptops. How do we move them if we do not interact with other businesses? You need to build business relationships. And the thing is that sometimes you may also not have everything, because this business is very capital intensive, so you need people that might also be dealing in other kinds of products and you need to reach out to them from time to time".

Conversely, other firms view network impact just from access to information perspective. For example, Company B states:

"So, I chose this location first to access market information. However, you cannot know about every new product in the market or buy everything; you need to use other people's experiences and assess people's ideas as well. This can only be made possible if you network, if you interact with others in this location and this for me is a benefit".

Additionally, Company F adds:

"I will say networking makes it easy to identify new opportunities and access information that will help grow your business position. No man is an island, and this has been own experience with engaging with other businesses here".

A similar sentiment expressed by Company A notes:

" ...This is a business environment, which requires you to interact with businesses. If you do not establish relations with other businesses, you fail to get the exposure to take advantage of opportunities that will help your business and also knowledge you need for your business growth, so networking gives you exposure and information".

While network brokerage and motivation of cluster firms have been discussed to understand how tenants make sense of network opportunities, what has not been documented so far is the how the context of the Ikeja Computer Village where these firms are domiciled, influences how they respond to network opportunities or why certain network decisions are made. Taking note of this, the influence of the social-spatial context of Ikeja on entrepreneurial networking is reviewed in the next section.

4.4.2 The influence of the Socio-spatial Context of Ikeja on Entrepreneurial Networking.

The focus on the context of Ikeja Computer Village aids the examination of the influence of location on entrepreneurial networking. An examination of this location will also aid in identifying network types cluster firms can leverage and possible challenges firms face especially when brokering relationships for themselves. To discuss this three themes proximity, network categories and network challenges are used. These themes have sub-themes represented using codes elaborated on below;

Socio-spatial Factors

Benefit of Location

- access to customers
- access to market, information and knowledge
- business acumen
- collaboration

Network Challenges

- knowledge hoarding
- intellectual theft
- dubious characters

Network Types

- friendship and/or business relations

For cluster firms, the reputation of Computer Village acts as a trigger for entrepreneurial networking in this location. This reputation draws customers and other network actors to this location. This forces firms in this location to interact in order to meet demand, keep up with technology changes and devise ways to stay competitive. However, the output of business interactions with each other provides a double-edged benefit to firms (to be discussed later). The sentiment about how the reputation of location triggers interactions was raised by the majority of the firms interviewed, and gives firms access to customers. Detailed insights are given in the excerpts below.

Company B remarks:

"As I said, this place is a hub in anything related to IT. It gives you the opportunity to meet new people every day. These people give you contact to people who can help you import goods, then you are also exposed to new products and competition which prompts you to buckle up and strategize".

Another detailed insight on the influence of this location was provided by Company E, who explains:

"...Computer Village sees an influx of customers to this location; there is a belief that this is where it happens. The quality of customers that come to this place gives you an opportunity to interact with people from different areas of expertise and different parts of the world. You have the opportunity to deal with corporates more as opposed to just private individuals. You are also able to interface with multinational companies and this makes it possible for you to have more sales, because these businesses are continuously expanding. This location impacted the speed of my growth. If I were in another location doing this business, I do not think I would have grown this way. When I started I had just one shop and in the space of two to three years, I have been able to get another location. You can see that the speed of growth is reflective because of the huge influx of clients and customers, which happens to facilitate our business transactions. Also, my business was initially focused primarily on networking, but I had clients that started making demands for security devices as well, probably because they had seen it in other shops. I go online to read about this equipment they are demanding, to see how it work. When I travel out, I make demands of these gadgets".

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Company A also notes that in addition to been able to access different network actors, the location is a learning ground, which helps to boost their firm's business acumen. He explains:

"I have not had any business before I started this, but since starting in this area, I have learnt a lot about business. I meet people who carry out business in this location and I learn from them. I get to know what is going on in the market, like when you can make more sales and when you might not make as many sales. If you are in this location, you are at an advantage because you can easily interact with people, both people you do not know and people who are already established here. You learn from them and they give you advice".

A similar sentiment was also pointed out by Company H, who shared this view:

"This is the HUB for ICT, as far as gadget is concerned. This place has a reputation for being the center for transactions based on gadget sales. If you are in this center, there is a belief that you will likely get genuine products at competitive prices too. There are some times that you have demand, and you might not have the stock; you can meet a colleague and the person would be able to sell to you immediately or give you because we all do business in the same environment. If I was in another location, this would be difficult. This location is like a school, you learn trade every day, you can quickly spot opportunities as they come. For me, it took me about 2 years to learn the basic market language and I still have a lot to learn. There are times when a particular product becomes scarce, you study the market, and this is easy to do because you are having conversations with colleagues and news spreads as well".

However, as mentioned earlier, the impact of location on networking is a double-edged sword and this is because firms have access to the same customer or network partners. As a result, they resort to knowledge hoarding. Firms use this strategy as a way to stay competitive within this location. Other challenges firms face are intellectual theft and dubious characters. These problems are not exactly tied to the location but to the overall challenges of networking that firms face.

For example, Company B remarks:

"As I mentioned before, when I network, I seek people who have like minds like myself, but people are scared of intellectual theft. An example would be when I confide in a colleague about a product idea I have. The person in question will use the information

I have given them in confidence to harm me. So, this sometimes makes me scared to engage in networking. Everybody here self learns. If you have a problem, you sort it out yourself; you either go online or physically going around stores".

A similar experience is shared by Company J, who adds:

"*...this location does not encourage knowledge exchange; you need to source it by yourself if you want to stay in business. It is either you fly, or you die. It is case of a lion and the deer and both need to outrun each other to survive. Everything you learn here is personal effort, you learn on your own. The only time where businesses share information or knowledge is when the person does not see you as a direct competitor so, for example, I would not mind sharing information with a laptop dealer. I can make referrals to them but once there is a direct competition, we are like enemies. This is the mentality here, because you are going for the same customers and I have to stay relevant*".

In addition to the challenge of knowledge hoarding and theft, firms encounter dubious people, sometimes even with people they have an established relationship with. This opinion is raised by Company F, who explains:

"*.... most individuals do not understand what it takes to keep a relationship. By the time you trust them based on your own standards, values and belief system, you get disappointed. Sometimes a supplier might send products over to you with missing element and you call, and they assure you it will be sorted, but they do not sort it out. You lose your funds both ways because you will not be able to sell the item. Sometimes from a customer perspective, some individuals can be dubious. There is a cheque that I have for over five years and have been unable to cash that cheque. This individual is someone I have been doing business with for some time now. These scenarios cast doubt in our relationships, and when we see sign of similar patterns, we do not want a repeat of them*".

Company H adds:

"*Yes, a couple of challenges. First is when there is a breach in agreement. This happens when you buy a product that is not good, and this individual does not want to take responsibility. Also, when we interact with customers online using social media, we have had experiences with fraudsters who create fake credit alerts, so basically, they buy products from us and send us fake credit alerts. Now because of the way our banking*

systems works and mobile network challenges, we are unable to quickly verify these alerts. Sometimes, the buyers also get robbed as well whilst they come here to purchase products from us".

Additionally, Company E stresses:

"...people are really dubious; they do crazy things. Someone can come to you posing as a credible business. Then there have been situations where clients pay with counterfeit money; this a client that you have had relations with for a period of time. We have had severally bad experiences here".

The social-spatial context of Ikeja Computer Village presents mixed blessings and opportunities for entrepreneurial networking. While firms in this location take advantage of the reputation of this location to reach several network actors, the porosity of this location also exposes firms to potential economic losses, which will impact their overall attitude to networking. This passive attitude to networking can explain why, when firms were asked about the types of relationships that are leveraged in this location, it was difficult for them to explicitly identify them. For the firms who were able to identify network types, 4 companies mentioned friendship and 3 mentioned business networks, both network types were echoed most. Like the tenant firms, these relationships have multiple contents which sometimes unravels with time. For example, Company B explain:

"I have business and friends' networks; when I started, I had some friends, but I dropped them when I saw people who were smarter than myself. Knowing these individuals is not beneficial for my business to be a step ahead. You also find that some individuals do not like growth and if this is the case, you need to move away from relationships like this because they are not going to give you new information. The business relations are people who I transact businesses with, like my suppliers, but there are cases when a supplier becomes a friend".

Company H adds:

"I have just one category, just business relationships, people I do business with, that is people who I buy and sell with. Sometimes these people are my friend too".

A similar sentiment is also noted by Company K, who highlight:

"Mostly, I have friends, some of these people I have been friends with them for a very long time or we might have worked together, and we have a very close relationship with them. Also, business colleagues, but these individuals, well some of them become friends after a while".

Chapter 5

5.1 Discussion

Thus far, the previous discussion on entrepreneurial networking and networking, in general, has been focused on the structural and relational attributes of networks. However, as mentioned earlier, these attributes are insufficient in describing network nuances, dynamics and impact. The focus on just the structure and relational properties of networks also undermine the role of the individual in enacting, forming and creating network structures and relationships. As a result, studies like Mckveer, Anderson and Slotte-Kock and Coviello (2010) and Jack (2014) have advocated for the need to account for why individuals and groups enact certain networks, how and why the structure and processes of embeddedness affect entrepreneurs, and how this contributes to variations in the form of entrepreneurship generated. Others (Brand, 2013; Burt, Kidluff and Tasselli, 2013; Mckveer, Anderson, and Jack, 2014; Kidluff and Menges, 2015) have advocated for contextual integration in network studies to improve understanding of how individuals interpret network opportunities and impact from their contextual perspective. Within this study, network creation mechanisms are reviewed from the actor's perspective with a specific interest in incubator management and tenant companies in business incubators and entrepreneurs across varying stages in the Otigba cluster in Lagos, Nigeria. This was done by examining their network motivation and brokerage, both identified in this study as sense-making agentic tools. Additionally, the network cognition of these various actors was also examined, with specific attention paid to how the context and network sense-making tools influence these network actor's perception of network opportunities, network impact, challenges and the network partnerships to leverage.

The preceding chapter presented the analysis and findings from 35 semi-structured face-to-face interviews conducted in three locations: Ikoyi, Yaba and Ikeja. This chapter discusses the results from these contexts.

To do this, chapter is broken down as follows:

- section 5.1 reviews the research aims and questions of this study.
- the discussions on network creation mechanisms from the management, tenant and cluster perspective are then discussed in section 5.2

- section 5.3 explores the contribution of the study to theory and presents an updated framework detailing other network properties that can inform entrepreneurial network study.
- The final section (5.4) presents implications for policy and practice

5.2 Research aim and research questions

The overall aim of this research was to examine the mechanisms for entrepreneurial network creation within business incubators and clusters and to understand the role of human agency and cognition in the process. To achieve this aim, the research questions enumerated below guided this process:

1. What is the role of network brokerage and motivation in enacting and pursuing network relationships in the context of business incubators and clusters in the Lagos technology ecosystem?
2. How do firms react and take advantage of network opportunities and activities that take place in business incubators and the clusters?
3. What is the influence of the socio-spatial environment on network creation mechanisms and the kind of relationships that network brokers and firms are exposed to?
4. How do network brokers and firms perceive network impact and challenges within the business incubator and the clusters?

This discussion chapter provides answers to these questions. These discussions are broken into three parts and presented as follows: the incubator management's perspective, the tenant firm's perspective and the cluster firm perspective. Discussion in the next section commences with the management perspective of network creation mechanisms and the role of their agency (motivation, brokerage process, behaviour) and cognition in the process.

5.2.2 The Incubator Management's perspective of network brokerage, motivation, social-spatial context influence and impact.

Discussion starts with management' perspectives on network brokerage, the finding of this study is consistent with Sa and Lee, 2012, Pettersen et al. 2015, Cantu, 2017 and Shih and Aaboben, 2019, who all identify that both the direct and indirect brokerage process is utilised in incubators to facilitate a tenant's access to network actors. In direct brokerage the incubator is actively involved in building relations with network actors,

while indirect brokerage does not require incubator management's active participation but is facilitated through incubator brand and previous relationships with network actors. In this study, indirect brokerage is facilitated by incubator reputation, also identified as brand in the literature, and the number of years of support. Additionally, reputation as a means of brokering relationships occurs in two ways. The first is where the incubator brand name or years of experience is leveraged, and the second is where the tenant firm's reputation is boosted using marketing; in this instance this becomes direct brokerage. Studies like Sa and Lee (2012), Cantu (2017) and Shih and Aaboben (2019) identify that direct brokerage within the incubator is facilitated using network activities like conferences, meetings, referrals and face-to-face meetings. However, they all fail to note that these activities all serve different purposes and that the targeted stakeholders and value attached to these brokerage activities will vary. This notion regarding purpose to brokerage was raised by Tortoriello and Alorio (2018). Their study asserts that brokers often have different strategic orientation when relationships are brokered. In this study, varied activities are organised across the incubators. The focus of these activities and target network partners are all summarised within Table 5-1 below:

Table 0 :Summary of Incubation Network Activities and Focus

	Incubator A	Incubator B	Incubator C	Incubator D	Incubator E
Activity	**Mentorship sessions**	**-**	**Mentorship sessions**	**Mentorship/Training**	**Mentorships/Advisory**
Focus	For moral support, access markets and feedback.	-	For emotional and moral support. Exchanging ideas with mentors.	This doubles as a training event. Tenants are trained in business strategy, product, development and machine learning.	Emotional support. Doubles as an advisory session. Opportunity to access market insights and best practice.
Activity	**Entrepreneurial events** **(Innovation Showcase)**	**Entrepreneurial events** **(Master Class)**	**Entrepreneurial events** **(Founder's Day)**	**Entrepreneurial events** **(Partner Day)**	-
Focus	Pitch solutions to stakeholders. Interface with potential customers and meet existing customers.	Meet industry players to pitch solutions. Seek to acquire customers.	Pitch solutions to stakeholders. Interface with potential customers.	Opportunity to get to know industry players and stakeholders and assess fit.	
Activity	**Internal Social Events (TGIF)**	**Internal Social Events (TGIF)**	**Internal Social Events (TGIF)**	**-**	**-**
Focus	Opportunity for start-ups to relax, share experiences, encourage and learn from each other.	Opportunity for start-ups to discuss challenges and encourage each other, exchange	Opportunity for start-ups to relax, share experiences, encourage and learn from each other.		

		feedback and offer referrals.			
Activity	**Advisory/ Training (Expert sessions)**	**Training (Soap Box)**	**Training**	–	–
Focus	Feedback/ advice from experts, training and build personal connections.	Tailored and organised to meet specific start-up needs	Opportunity to identify synergy amongst start-ups. Provide training to start-ups. Opportunity for start-ups to share experiences and give back to each other.		
Activity	**Funding event (Demo Day)**	**Funding event (Capstone)**	**Funding event (Demo Day)**	**Funding event (Mentor Mixer)**	**Funding event (Demo Day)**
Focus	Pitch to investors for additional investment.	Pitch to executives of parent companies for investment.	Pitch to investors for additional investment.	Opportunity to seek collaborations, discuss partnerships and seek potential for investment.	Opportunity to pitch to investors for funding.
Activity	**Hackathons (Technology-led events)**	**–**	**Expert sessions (Tea Breaks)**	–	–
Focus	Build solutions for technology ecosystems. Meet other start-ups in the ecosystem.		Opportunity to access market insights and best practice from experts.		

Source: (Author's culled from interviews)

This table presents the network activities organised across the five incubators. The observation noted is that for some incubators, networking activities are intense, while in others the networking activities are not as diverse. However, it is noted that each network activity is designed with a particular focus in mind. This possibly demonstrates that the incubator acknowledges that the network needs of tenant firms are not static or the same.

The incubators in this study are more like the network intermediaries identified in Halvey, Halali and Zlatev's (2018) study. Their study described a network broker as an intermediary that connects (either directly or indirectly) two disconnected alters. This brokerage method and focus utilised by the incubator management suggests the display of the Tertius Iungens behaviour where the broker connects or introduces individuals in different networks to each other. This observation is also similar to Ebbers (2007) study,

which identifies that the TIO behaviour is resident within tenant firms but facilitated by the incubator management. In this study, the managers themselves display the TIO behaviour.

Furthermore, previous studies like Hansen et al. (2000), Bruneel et al. (2012) and Shih and Aaboen (2019) identify that business incubators act as internal or external connectors, hubs and brokers to various actors that play a role in the entrepreneurial process. What is not mentioned in these studies is that incubator networks are not endless, and sometimes they would also need access to network gatekeepers to successfully broker these relationships. In the context of Lagos, Nigeria, managers identify access to gatekeepers such as decision makers, innovation heads, ecosystem influencers and regulatory bodies (mostly government bodies), in order to facilitate network access for tenant firms. The use of social media like LinkedIn is also utilised. What is indicative from the managers' responses is that access is easier because of the established reputation of the incubators.

This study also agrees with Chell and Baines (2000), Lechner and Dowling (2003), McAdam et al. (2006), Eflring and Hulsink (2007) and Sa and Lee (2012) who advocate for mix ties, because they are useful for accessing different opportunities, for exploring different growth perspectives and for achieving the collective aims and goals of both the incubator and the tenant companies. However, to cater to the dynamic needs of the tenant firms at the different stages of growth, managers mostly utilised mix ties made up of network ties easily within their reach (i.e., strong ties / old relationships and weak ties /new relationships). The notion presented by managers was that the fundamental aim is often to fulfil needs or add value to their tenant companies. Managers utilisation of mixed ties demonstrates sustained Iugnes behaviour, noted in Grosser et al., (2019) where a broker plays a continuous coordinative role between parties by maintaining their relationships over a period of time.

However, like Obstfeld, Borgatti and Davis (2014) note, network behaviour also reveals brokers motivation. Taking note of this view, this thesis specifically examined incubator managers' motivations for enacting network relations. This study reveals two major motives: the first is to meet the needs of tenant companies (necessity), and the second is to offer reciprocal services as well as to assess fit. This perspective of necessity within this study contradicts discussions earlier identified by Oliver, 1990, Spielkamp and Vopel, 1999, Roelandt and Hertog, 1999, Edquist, 2006, Lundvall, 2007 and Godin, 2009. These studies view the motive of necessity as either mandatory where non-

compliance leads to punishment, expulsion, loss of network or requires active participation to access network benefits and complementary knowledge that is often shaped by government policy. For incubator managers in this study, there is no expectation that policy from the government will change the motive of managers and no coercion, because their purpose to enact and pursue network relations is to meet the needs of tenant companies.

Additionally, this study shares the sentiment of the motive of reciprocity identified in Oliver (1990), Powell (1990) and Uzzi (1997) as networks triggered by goals collectively pursued individually or in a group to achieve co-operation and intentional interactions between actors. This study adds that managers also assess strategic fit between tenant firms and network actors while trying to find suitable network partnerships.

This study agrees with Christakis, Fowler and Imbens (2010) that different networks present different network output for tenant firms, and this can either be resource impact (such as finance, opportunities, information, knowledge, market insights), emotional impact or expertise impact. What is often not mentioned, however, is how brokers, which in this case represent incubator management, assess the quality of these relationships. Although previous network studies have highlighted relational properties like trust, content, intensity, relational closeness and openness (O' Donnell et al., 2001; Hoang and Antoncic, 2003; McAdam, 2004; Moran, 2005; Adams, Makramalla and Miron, 2011), to the best of the researcher's knowledge, what is yet to be captured is how the quality of the networks tenant firms are exposed to is assessed. In this study, managers identify network quality as the depth of knowledge and experience, quality based on reciprocity and progress and quality based on shared interest and personality. These quality networks are then assessed using metrics like tenant firms' acquisition, things like number of customers acquired, cashflow, distribution and opportunity tenants' firms are able to access from networks brokered are utilised as benchmarks. Another metric used to assess these brokered relationships is time as managers explain that time allows tenant firms to trust actors, thereby enhancing seamless relationships.

However, the ease in facilitating suitable networks for tenant firms is also influenced by the context of support. In this study, the socio-spatial context, which represents the geographic location of firms, networks and network relations between entrepreneurs, financiers, incumbent firms and institutions that promote and support entrepreneurial actions (Parhankangas and Autio, 2004; Welter, 2011; Zahra and

Wright, 2011; Autio et al., 2016) was examined. Managers noted that the Yaba/Ikeja context has a positive impact in facilitating networking and network activities. They identified environmental factors like centrality of location, ability to avoid traffic and access to infrastructure such as the internet as a benefit of the support context. In addition to environmental factors, proximity factors like social and spatial proximity all play a key role, with the proximity factors making access to partnerships, talent, community and information easier.

All these factors mentioned influenced the type of network patterns managers were able to access. These network patterns are similar to network patterns mentioned in Sa and Lee (2012), Pettersen et al. (2015) and Fernandez, Jimenez and Roura (2015). However, the mentor and co-incubation networks are additional network types that this context has.

Since context influences network access and the type of actors reached, every context also has its own network challenges. Within the Yaba/Ikoyi context, the challenge identified is time and access to talent. The time challenge is explained differently across the incubators, some managers associate time with readiness to accept local solutions that are technology enabled or limited understanding of technology or just lack of openness to local technologies. Others describe time as how fast conversations progress when networks are brokered or the response time of network actors. Progress is restricted by the nature of the individual's incubators interface with, the goal of network actors and procedures.

In sum, it can be argued that timing and proximity are jointly important for managers in brokering relations, but this is influenced by environmental factors present in the context of Yaba/Ikoyi. Although location was identified as critical in facilitating access to technology talent, it is also a challenge as managers identified that they are unable to access suitable talent worthy of incubating or finding suitable talents for tenant firms.

The incubator managers perception to network creation mechanism allows the examination of network nuances from the broker actor perspective. Attention now moves to the beneficiaries of brokerage, which in this case are tenant firms.

5.2.3 The Tenant Firm Perspective of Network Brokerage, Motivation, Social-spatial Context Influence and Impact.

This study examined how tenant firms make sense of network opportunities brokered for them, as well as why they engage in the network activities that are available within their incubators. Previous incubation network studies have suggested that the colocation of firms in an incubator creates a symbiotic environment needed for exchange and resource pooling (Duff, 1994; Lyon, 2004). Equally, Lavie (2006) and Marlow (2007) add that networks brokered internally or externally allow firms to explore new connections beyond existing connections. However, what remains unknown is how tenant firms utilise these networks and which of these (internal, external or their own existing networks) they prefer. In this study, the majority of the tenant companies across the 5 incubators wanted a mix of both the old and the new relationships. Their old relationships are relations they had pre-incubation and the new represent relationships that they have been exposed to in the incubator. Tenant firms view old relationships to be more trust-based and new relationships as opportunities for accessing partnerships, insights or access to new opportunities. However, trust for tenants' firms also has some dark sides, some tenants do not believe that they will get honest feedback from old trust-driven relationships. Additionally, tenants' firms also highlight time suitability, access to mix opportunities and link to different networks as the reasons behind mixed ties preference. Like the managers, the majority of the tenant firms demonstrate Tertius Iungnes behaviour, but for a brief period, as they are open to access networks facilitated for them, utilise own networks or introduce other tenant firms to network contacts, this is albeit for a short time, as the benefits either recede or can be re-enacted. This situation is what Grosser et al. (2019) identify as 'Brief Iungnes'. Equally, the utility of mixed ties by tenant firms lends credence to the network evolution and dynamism mentioned in Jack et al. (2010) and Anderson and Jack (2002), who note that new ventures networks exist as diverse dynamic relationships that can induce different changes.

Moreover, since network relations are brokered for firms directly and indirectly, discussion on how tenant firms respond to these network activities are equally captured to ascertain if the focus of these organised activities is achieved. The direct brokerage, which in this case represents the network activities highlighted in the previous section, is reviewed. Following responses from tenant firms across the incubators, the two most utilised or preferred network activities are the entrepreneurial events and the mentorship events. Some tenants do not have any preferences at all, as they believe

that each network activity presents its own unique opportunity. Tenants who mentioned the preference of entrepreneurial events are spread across the four incubators, with the exception of Incubator E. This event is mainly organised for start-ups to pitch solutions, meet existing or potential customers, assess fit and meet with industry players. Responses from tenant firms affirm that these objectives are met, as they are able to gain exposure, acquire more customers, get faster referrals/ connections, make more sales and get feedback from customers or industry players.

Conversely, with the exception of Incubator B which does not provide this network opportunity, the mentor network focused on facilitating face-to-face meetings and ideas exchange and utilised by tenant firms as outlets for accessing insights on business best practice, feedback, ideas exchange and an opportunity to learn from successful businesses. Equally, the emotional impact of mentors was also acknowledged as firms noted that they were able to develop more personal relations with mentors who go above and beyond to assist them and also provide access to a wider network. Earlier studies like Sa and Lee (2012), Pettersen et al. (2015) and Fernandez, Jimenez and Roura (2015) on incubation network patterns have not included mentors as network types leveraged by start-ups.

However, as Burt (1992), Galaskiewiez (1979) and Westaby (2012), mentioned, without strong motivation purposeful interactions diminish, because it is self-interest that pushes individuals to create and maintain networks or anticipate returns from enacted networks. This study also adds that network motivation enables firms to choose, create and decide which interactions to pursue as well as the anticipated returns from choices made. Taking note of this views expressed, the tenant firms' motives were assessed to understand why the network activities and ties chosen were utilised. For tenants' firms, the three main motives mentioned by tenants are personality, reciprocity and legitimacy. For firms whose motives are triggered by their personality, these are internal to the individual and not influenced by external forces. The personality of the individuals discussed can be triggered by their desire to help others or their desire to just meet people without necessarily seeking any benefit. Although the intention for firms is not to assess any network benefit by engaging in network activities, they still mention that they have been able to get referrals, access ideas and are more confident of handling possible challenges that they might face.

Furthermore, firms also listed the need to establish legitimacy and reciprocity as other motives for choosing to pursue and engage in certain network activities. Legitimacy in

this study is expressed as the opportunity to access funding opportunities, being memorable, exposure and future collaborations, while reciprocity is explained as a value/vision driven endeavour and governed by the ability to exchange and access information and then share vision. This motive of legitimacy and reciprocity as captured in this study is similar to studies like Oliver (1990), Shaw (2006) and Cooper, Hamel and Connaughton (2010). However, a subtle difference noted is that tenant firms' motives to reciprocate is not triggered by co-operation and intentional interactions hinged on goals and interests that are collectively pursued, but on the obligation to return favour to the network parties they were involved with. A number of respondents strongly noted the importance of looking for opportunities to reciprocate so that both parties involved could benefit.

However, a few also note the dark side of this in terms of being beholden to others, particularly those in gatekeeper positions. Sometimes the individuals might be looking to profit when relations are brokered at other times, a possibility to compromise on moral or business ethics is noted. These can also be identified as a network challenge. These views, as mentioned by tenant firms, are also in line with Huggins' (2000) study that recognises that network motivation explains the attitudes and preconceptions used to harness valid exchange and interactions.

Like the incubator managers, tenants' firms also assess network quality. For tenants, a quality network is either value-exchange driven, value added driven or trust driven. The majority assess network quality from a value-exchange perspective, and where tenant firms explicitly identify value-exchange, the anticipated outcomes include partnerships, client acquisition, access to distribution channels, opportunity to make sales, the ability to proffer solutions and improved efficiency of network partners. Others mentioned access to feedback, opportunity to utilise competencies of network partners and guidance as anticipated exchanges.

Some of these anticipated outputs are aligned to a tenant firm's motive and the overall network impact achieved. Most of the tenant firms cited the ability to make more sales, validity, opportunity to access feedback and advisory support and access to wider networks as the benefits of engaging in networking activities. These aforementioned network impacts fall into the category of economic, resource and legitimacy impact. However, as discussed earlier and observed by McAdam and McAdam (2008), these are not all resident in one network tie, but in several relationships and network activities that tenant firms are able to access.

However, as previously stated, the network context influences network access and the type of actors reached, and the Yaba/Ikoyi context impact on tenant networking uncovers the role of proximity. Overlaps between the different dimensions of proximity (social and spatial) also exist. The incubation location facilitates tenant firm access to technology talent and community, opportunity, knowledge transmission, collaboration and learning. Tenants' firms within this location are also exposed to different network actors. The main ones identified are community, friendship, mentor, advisory, fan and business networks. However, not all the tenant companies have all these network types and some of these network could have multiple contents.

As the network nuances of tenant firms, which represent beneficiaries of brokered networks by incubator managers, have been examined, attention is now drawn to the cluster firms in the Otigba Computer Village in Ikeja.

5.2.4 The Cluster Firm Perspective of Network Brokerage, Motivation, Social-spatial context Influence and Impact.

In contrast to tenant firms in incubators, cluster firms lack active, sustained, and intentional network brokerage. Firms here exhibit separation behaviour, in which brokers intentionally separate relationships within a network to take advantage of disconnected individuals. The separation broker separates alters when they are in danger of losing their position as a middleman, preventing alters from getting to know each other just to gain control of the network (Grosser et al., 2019). Control is crucial to these entrepreneurs, as they fear losing business if information gets into the wrong hands, especially with individuals they do not trust. They resort to knowledge hoarding as a protective measure.

 Network brokerage occurs mostly through training, fairs or self-brokerage. For networks that are self-brokered, this is triggered by customer interaction and partnerships. Self-brokered networking activities in the Otigba Computer Village location are coordinated by leveraging social media platforms like WhatsApp, informal face-to-face gatherings, referrals and partnerships with other firms co-located in the cluster. Indirectly, the reputation of the cluster acts a big pull for building network relations and serves as an instrument for indirect brokerage, even though the facilitated networks are often business or trade networks.

Unlike the tenant firms, the majority of cluster firms chose old relationships over new ones. In the case of the cluster firms, old relationships represent cluster firms' own

relationships and new ones represent relationships that are the output of their engagement in the training and trade activities put together by the trade association Capdan. Additionally, firms note that pursuing new relationships often requires time investment but are necessary for verifying who the network actor is and building trust. This location is best described as a low-trust environment where individual firms prefer to broker their own relationships and there is very limited willingness for firms to collaborate. This creates a culture of knowledge hoarding or very limited willingness to share knowledge. This notion of low trust environment is also noted in Lloyd and Smith's (1993) study. They note that in low trust environments, small firms may be reluctant to collaborate with competitors or share information with other firms in the same space. The same scenario plays out within this location as cluster firms resort to social media or informal brokerage methods like sub-contracting when pursuing relations. When cluster firms decide to engage in network activities organised by the trade association, there is still lack of trust in the sustainability of the network opportunities and activities present within the cluster.

However, an examination of the motives for pursuing network relations uncovers the reason for the choices made. Cluster firms again identified trust, the opportunity to access information and knowledge and the opportunity to learn as the main motives for network engagement. Trust motive is reinforced where cluster firms have successfully completed repeated exchanges with each other. For cluster firms who are moved to networks because of the opportunity to learn from other businesses, they note that networking with other cluster firms is inspirational, as they learn how to run businesses and survive in the cluster. This is interesting to note, as cluster firms initially mentioned knowledge hoarding and unwillingness to share information as a detriment of this location. However, exploring how cluster firms assess network quality gives the answer to this question.

Network quality in the cluster is a multi-layered process which starts with firms assessing the personality of a network partner. Qualities like integrity, respect and humility are important for cluster firms and this determines the level of trust. When trust is established, there is then an expectation for value-exchange or value-addition. This value could be information, ideas, referrals, partnerships established through subcontracts or just feedback.

With regard to how the support cluster context influences networking, the location's reputation is observed as a trigger that facilitates this. The reputation of Computer

Village draws customers and other network actors to this location. This forces cluster firms in this location to interact in order to meet demand, keep up with technology changes and devise ways to stay competitive. Invariably, this influences cluster firms' business acumen as context shapes firms to identify creative ways to stay competitive. However, the output of business interactions with each other provides a double-edged benefit to firms. Despite the influx of customers and other network actors that come into location, cluster firms all have access to the same customer or network partners. As a result, knowledge hoarding is resorted to. Cluster firms use this strategy as a way to stay competitive within this location.

The social-spatial context of Ikeja Computer Village presents mixed blessings and opportunities for entrepreurial networking. While firms in this location take advantage of the reputation of this location to reach several network actors, boost sales and grow business, the porosity of this location also exposes firms to potential economic losses by their encounter with dubious individuals, which also impacts their overall attitude to networking.

Across the two entrepreneurial contexts presented above, the roles of network actors in the network creation process have been presented. Network motivation and brokerage have aided in explaining the role of agency in the network creation process, and this is useful in understanding why and how network actions are enacted or pursued. Equally, this section has also captured the perceptions of network impact and quality from the different network actors to explain their different cognitions. Attention is now drawn to the contributions to theory.

5.3 Contributions to Theory

This work contributes to knowledge in several ways:

1. First, this study is a departure from the structural and relational perspectives of discussing entrepreneurial networking. Specific attention in this study is paid to network creation mechanisms in different contexts and the role of human agency and cognition in the process. Network brokerage and motivation were used as sense-making agentic tools to explain an individual's role in the network process. Motives trigger network action and act as a pull for network actors to decide which brokerage methods or ties to utilise in brokering or taking part in network activities. In this study, direct and indirect brokerage methods were made use of and both broker (incubator managers) and beneficiaries (tenant companies

and cluster firm) exhibited different motives for engaging or brokering relationships.

2. This study also draws attention to network behaviour by observing network ties utilised by brokers and beneficiaries. An observation from this study reveals that context and motive play a role in framing this behaviour. Within the interventionist context of the incubator, the majority of the managers and tenant companies utilise both old and new ties. This is indicative of network openness and has proven to be useful in achieving the motives that trigger network enactment and engagement in the context of the incubator. The behaviour demonstrated within the incubator context is the Tertius Iungnes behaviour. However, for firms in the location induced cluster context, the majority of the firms preferred their old trust-tested relations and were less open to engaging in network activity. Hence, where network activities are induced, it is often self-driven, informal and more personal and can only be facilitated where there is an established long-term exchange relation which would have passed the trust test. What is indicative within the cluster environment is a denser network and separation behaviour.

3. This study also draws attention to the place of trust in network creation. In making sense of the network relationships, this study notes the importance of trust. Trust, while being important to managers and tenants' firms, is seen in different lights. The tenants do not seem to see beyond the people they link to, while the managers, probably with more experience, see links as being network brokers in their own right. However, with cluster firms, trust is a multilevel process, where firms assess the character of potential networks through repeated exchange.

4. Additionally, the context also influences how trust is regulated and can impair network participation. In low trust environments like clusters, small firms are reluctant to collaborate or share knowledge with other firms in the same space, because they are perceived to be competitors and believe that when some information is divulged to the wrong people it can be potentially harmful to their business. A different scenario plays out in the incubator's context of Yaba/Ikoyi. Firms in this location are open to building relationships and looking to add value to co-tenant by way of information sharing, partnership or simply the desire to help.

5. This study also attempts to explain the influence of the context within the network creation process. Extant studies note that firms are embedded within network structures. However, this study adds that whatever network structures

are created are by-products of interactions between individuals and the founding conditions within the context. It can be seen that in support contexts, where network support is not as robust, there is no incentive to engage in networking activities and firms are more comfortable brokering their own relationships. This is the case between tenant firms in the incubator and cluster firms in the cluster. Tenant firms displayed an openness to utilise mixed ties and engage in network activities organised within the incubators, whereas cluster firms preferred old trust-based relationships and would likely create dense closed networks. They were also more interested in brokering relationships themselves.

6. This study presents the role of cognition in the network creation process. Network cognition helps brokers and beneficiaries to evaluate entrepreneurial networking within their context. Cognition was useful in explaining network opportunities presented within the locations, identifying the kinds of network partners firms accessed and leveraged, the factors that facilitated networking and networks present and the challenges they faced in accessing network actors. However, a distinct observation made in both contexts and across discussions with the three network actors was the challenge of time. All three actors discussed that time is needed in building trust, accessing the right network partners or even catching up with market needs.

Finally, this study sets the stage for additional studies exploring entrepreneurship and entrepreneurial networking in Africa, especially in SSA. Despite a large number of studies focused on entrepreneurship in Sub-Saharan Africa and Africa in general, this study offers a unique perspective that considers agentic, cognitive, and contextual attributes in building, and scaling start-up businesses and entrepreneurial networks. The framework below highlights the major factors contributing to network creation and impact in the Yaba/Ikoyi business incubator environment and the Ikeja Otigba cluster. These can be explored further to understand the role and impact of networks on entrepreneurship in Nigeria. The figure below presents a summary of the major indicators captured in this study.
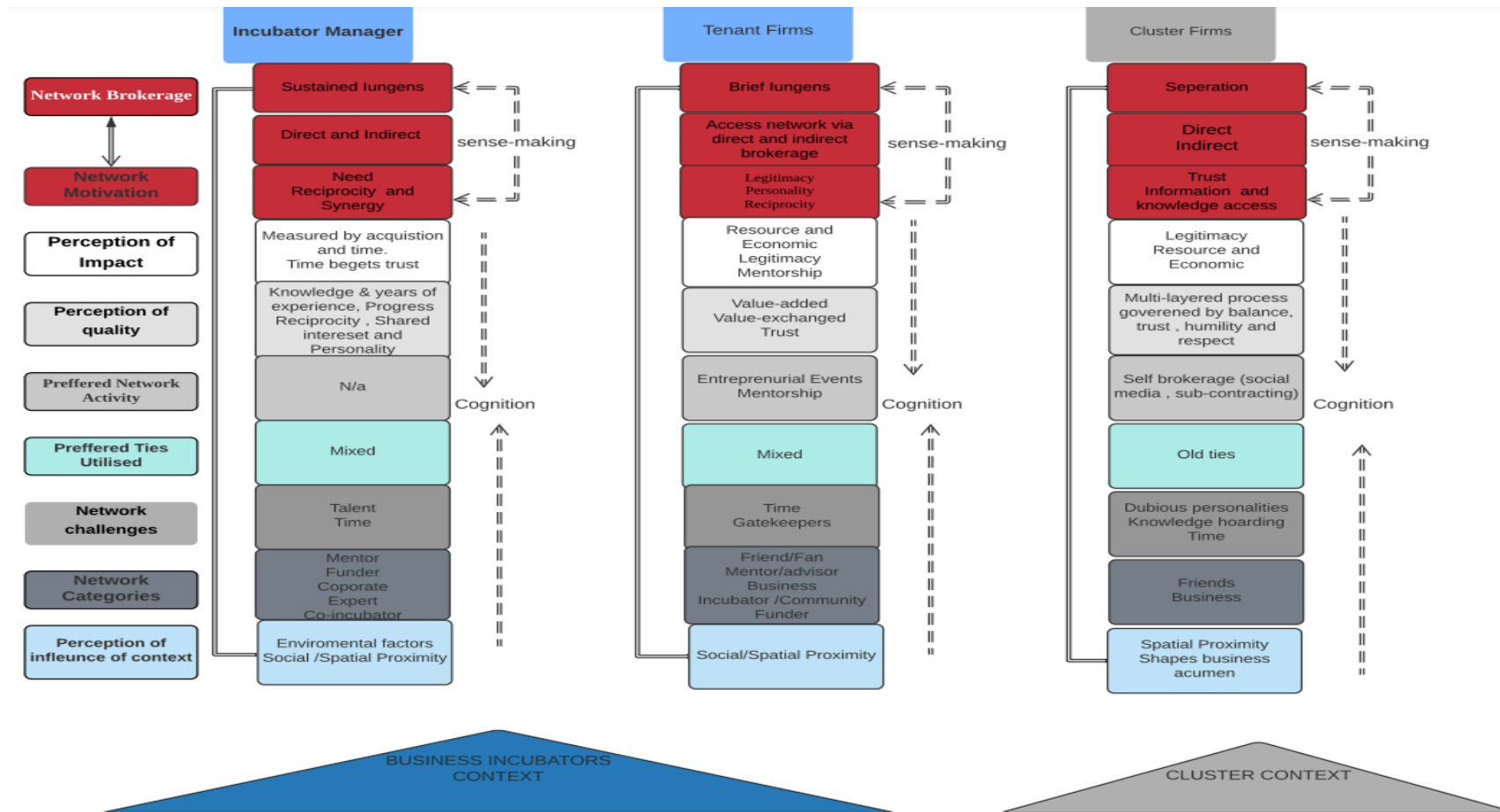
Figure 5-1:Framework Detailing Actors Interaction with other Network Creation Properties

Source: Author's

The above framework presents different network properties and influencers that can be explored to determine how networks are formed from an individual's perspective. It is crucial to recognize that these factors are shaped by the context in which actors reside in. In Chapter 2, the conceptual framework emphasized the importance of understanding context factors and sense-making to gain insight into actors' awareness of network opportunities, as well as their perception of the impact of network relationships. The discussion on network impact in this discussion chapter departs from the structural and relational discussion of network impact. The framework above explains how the different actors react to network opportunities, how they make sense of opportunities using agentic tools, and how context regulates how these opportunities are perceived. This framework indicates that the response to sense-making and cognition varies from actor to actor, as well as context to context.

Incubator managers begin sense-making by understanding network brokerage and motivation from their own perspective. As an incubator and broker, the incubator displays sustained Iungens behaviour, which occurs when the manager plays a continuous coordinator role and maintains relationships with tenants over time. Earlier in Chapter 2, incubators were identified as external or internal connectors, hubs, and brokers to various actors. These relationships with actors are maintained by constantly and continuously building and maintaining their network of relationships. In this study, these relationships are built and maintained using direct and indirect methods. Direct methods used by managers in this study included organising entrepreneurial events, mentorship sessions, social events, expert/advisory sessions, referrals, and face-to-face meetings. They also broker relationships indirectly by leveraging the incubator brand name and their years of experience. Management's actions and methods are dictated by their motives, which include meeting the needs of tenants (necessity) and providing reciprocal services as well as assessing the fit between tenant firms and network partners.

Nevertheless, sense-making decisions are also affected by contextual factors, including the understanding of how the context affects them, their awareness of patterns of relationships that they utilise, as well as the ties they choose to use. In the case of incubator managers, mixed ties are utilized, which is a combination of new and old relationships. The interaction between sense-making and context triggers the process of cognition.

The managers' cognition is influenced by the interaction between contextual factors and sense-making outputs and this is useful in understanding their perception of network quality and impact. Network impact for managers is determined using acquisition and time. Acquisition metrics like customer acquisition, cash flow, etc., are used to determine network impact. They note that time is also a measure of impact, as it helps the network participants build trust, enhancing relationships. Managers also identify time as a measure of impact, as it helps the network participants build trust, enhancing relationships.

For tenants, the situation differs. They display "brief Iugnes", a situation that makes them more open to leveraging networks provided to them, leveraging their own networks, or finding ways to introduce other tenants to network contacts. However, these introductions are short-lived. To do this effectively, they also rely on "mixed ties", a combination of old ties from their networks before they were incubated and new ties, new relationships they can now access while incubating. Furthermore, as beneficiaries of the facilitated relationships, tenant firms choose which network activities they wish to participate in, and entrepreneurship events and mentoring are among the two most popular activities among tenants; tenants engage directly with network actors in both network activity, and indirectly by taking advantage of the space to collaborate and interact with other start-ups.

Tenant firms' network behaviour and brokering methods are determined by the motives by the motives of legitimacy, reciprocity, and personality. Like incubator managers, tenant firms' sense-making and contextual influence trigger the cognitive process. Above conceptual framework shows a significant difference in tenants' perception of network impact and quality. Tenant firms identify impact as the ability to access resources and economic factors (i.e., the ability to make more sales, the opportunity to access feedback and advisory support and access to wider networks), business legitimacy and mentorship as their own perception of impact. A tenant firm's network quality can be categorized into three categories: value exchanged, value-driven relationships and trust-driven relationships. The properties of these relationships have already been discussed earlier in this chapter. Incubator managers and tenant firms share the same environment, but their network patterns and the notion of context influence, as well as the challenges they face, are different. This again reinforces the place of cognition within the network creation and networking process.

To round off the section, attention is drawn to the cluster in Ikeja, which is different from the incubator environment of Yaba/Ikoyi. This context is identified as a "low-trust" environment, an environment where firms are reluctant to collaborate with competitors or share information with other firms in the same space. In the Otigba cluster, the behaviour exhibited by firms here is separation behaviour. This is because firms here are particular about control because they fear losing business if information gets into the wrong hands, especially with individuals they do not trust. However, the brokerage method used in this cluster is both direct and indirect. Firms prefer to deal directly with one another and use social media platforms such as WhatsApp or informal face-to-face gatherings. The cluster association, CAPDAN organises training and trade activities. Indirectly, the reputation of the cluster environment also serves as a pull for building network relationships in the cluster. In this cluster, the motives that trigger network creation and engagement include trust and the opportunity to access knowledge and information. Cluster firms achieve these motives by leveraging existing relationships also viewed as old ties. This is because they note that new relationships often require time investment but are necessary for verifying who the network actor is and building trust.

The conceptual framework shows a significant difference between incubator managers, tenants and cluster firms' perception of network impact and quality. Network quality in the cluster is a multi-layered process that starts with firms assessing the personality of a network partner. Qualities like integrity, respect and humility are critical for cluster firms and this determines the level of trust. When trust is established, there is then an expectation for network impact. Here, the firm's perception of impact from a trusted relationship is legitimacy, resource and economic impact.

Another notable difference noted between incubator managers, tenant firms and clusters are the type of network categories that firms in the cluster leverage. This is because of the challenges they experience and their perception of the influence of the cluster. Please see the framework above for this.

In the next section, the implications for policy and practice are discussed.

5.4 Policy and Practical Implications

The results and discussions presented in the previous section reveal the importance of networking for entrepreneurs in the Yaba/Ikoyi/ikeja locations and across the business incubator and cluster contexts. Incubator locations were more intentional about designing networking activities and offered various network support opportunities. However, the incubator management will benefit from actively engaging firms at the point of application to start thinking about their relational needs. In this way their response in providing network support is proactive, rather than reactive. It would also allow them the opportunity to focus energy and resources in building the right network and in a timely manner. From discussions with tenant firms, the majority of the firms seem to have a preference for the mentor network interaction and entrepreneurial events. Much more time and investment can be channelled into brokering these kinds of network relations or organizing events more frequently.

Additionally, the incubator management will also benefit from evaluating the network support that they have provided from time to time, to see if it matches with the initial relational needs of start-ups or assess if the needs have changed. This way, managers can make sure that the support provided matches with the needs of tenant firms.

The government absence within the technology ecosystem is visibly noted. Thus, the incubator team would benefit from more collaboration with the government especially in relations with entrepreneurial events or attracting mentors for tenant companies. This could either be by seeking to sponsor events or offering some kind of tax rebate to firms who volunteer time to mentor these new businesses.

From the cluster perspective, it might be worthwhile having an independent body away from the trade association. If they do this, they will be able to focus solely on interfacing with the government on policy and tax matters. Additionally, the presence of an independent body would create consistency and sustainability, as changes in trade association administration would not interrupt network progress made. This newly established body would be focused exclusively on interacting with cluster firms from time to time to understand their network needs, identify synergies between firms and encourage more collaboration beyond sub-contracting. Constant interface with cluster firms would facilitate trust-building within firms and the association and would provide a platform that would encourage firms to be more vocal about the actual relational needs that would be beneficial for their business. This would also be an opportunity for

cluster firms to be exposed to other businesses within the cluster, and thus beyond the firms that they always engage with. The conclusions from this study are presented in the next chapter.

Chapter 6

6.1 Conclusion

In concluding this study, this chapter presents the limitations faced by the researcher in carrying out this research and points to areas where further research could be undertaken to enhance and fill research gaps. Discussion begins by exploring the limitations encountered in the next section.

6.2 Limitations of the study

Before proceeding to discuss areas of future research, the limitations of this research must be accounted for. The first limitation this research faced was limited economic resources and time. Lagos is notorious for traffic congestion, so getting from one location to the other often required hours spent in traffic and lost time. Although this commute to the different interview locations was facilitated by taxi services, it was also very expensive and not sustainable. Nonetheless, it was a preferred option because it guaranteed safe commute, as sometimes these interviews with participants were completed in the evenings, where traffic was at the peak and public transport was not easily accessible or safe. As a result, the researcher was only able to reach interviewers with the available resources at their disposal.

Another limitation of this study is the fact that a snowballing technique was used to reach participants. Managers, tenant firms and cluster firms were often reluctant to engage with you if you did not come by referral, as the nature of discussion on networking already had an atmosphere of distrust. Taking this into account, inevitably the researcher had to use their own connections first and then get referrals from connection to reach more participants.

This limitation presented a challenge for understanding the scope of study further as the researcher was unable to access other incubator locations or cluster firms. It was very difficult to access businesses or get them to give time to do these interviews with businesses if a referral was not done by someone whom the parties involved trusted. Even in cases where a referral was made, some participants still would not grant an interview and would also not communicate their reservation or their unwillingness to participate.

Another limitation of this study is the research design chosen. Case studies are criticised for being just conceptual, only useful for exploratory study and the inability to produce generalisable outcomes. It is worthwhile stating that the observation made from this case study may only be peculiar to these cases explored and might not be true for another context.

Additionally, the methodology adopted in this study also presents a limitation as qualitative study is criticised for lack of order and limited replication. Despite this sentiment, it is important to state that qualitative study provides an opportunity to explore a particular research phenomenon in more detail to capture specific nuances. As such, this process can be messy when compared to quantitative study but presents opportunities to get a richer and more detailed understanding of a phenomenon.

Despite these limitations, this study was still able to present interesting findings that will aid future research. This is discussed in the next section.

6.3 Areas for further research

It has been established that firms need access to network relations to mitigate the liability of 'newness' and 'smallness', and that the additional support from active brokers and favourable founding contexts will allow entrepreneurial networking to flourish. What would be useful to see in future research is a comparison of network creation mechanisms across the same incubator models outside the Yaba/Ikoyi axis.

Furthermore, future research should be able to assess if other incubators in Lagos are influenced by the same contextual factors and if they interface with the same network actors. This would also be useful for assessing or comparing the perception of impact noted by tenant firms and identifying indicators that can be used as benchmarks for identifying network success factors for incubators across Lagos, and possibly Nigeria as a whole.

Additionally, a longitudinal study that captures the network motivation and behaviour of tenant firms would be useful in assessing if their motives and behaviours towards network opportunities change as their businesses evolve and leave the incubator, or if they remain the same. It will also be useful to assess the influence of the context in creating or reinforcing these motivations and behaviours.

Finally, it was mentioned earlier that the focus on structural and relational attributes of the network does not give a holistic picture of the networking process or tell the full story about how these network structures are formed. What will be useful is to assess how motivation and behaviour of network actors co-evolve to create certain network structures across various support contexts. A mixed study can be used for this.

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8.0 Appendices

Appendix 1:

Summary of Business Incubator Definitions

"A facility which promotes the early-stage development of a for-profit enterprise within the confines of a building"	Plosila and Allen (1985)
"Real estate projects with shared space and administrative arrangement and organize the business development process"	Campbell et al. (1985)
"A facility with adaptable space which small businesses can lease on flexible terms and reduced rents where support services are available and shared''	Kuratko and LaFollette (1987)
"Large buildings operated to nurture young companies by providing low-rent space, shared office services and management advice''	Lumpkin and Ireland (1988)
'Centralized physical facilities that 'incubate' new and small ventures by providing them with varying support services and other assistance.''	Udell (1990)
"Are multi-tenant buildings providing affordable, flexible space, and a variety of office and support services which share a common purpose: to nurture small fledgling firms into healthy businesses''	Weinberg et al. (1991)
"Locally based institutions that provide shared physical space and business support services to new and young firms''	Markley and McNamara (1995)
'Organizations that offer fledgling companies a number of benefits—office space, funding, and basic services such as recruiting, accounting, and legal—usually in exchange for equity stakes''	Hansen et al. (2000)
"An enterprise that facilitates the early-stage development of firms by providing office space, shared services and business assistance''	Hackett and Dilts (2004)
"Evolving innovative organizational form that is a vehicle for enterprise development''	Peters et al. (2004)

"An innovative system designed to assist entrepreneurs, particularly entrepreneurs in technology, in the development of new firms"	Lee and Osteryoung (2004)
"Any organization that provides access to affordable office space and shared administrative services''	Bollingtoft and Ulhøi (2005)
"Property-based organizations with identifiable administrative centers focused on the mission of business acceleration through knowledge agglomeration and resource sharing''	Phan et al. (2005)
"Incubators seek to combine technology, capital and know how to leverage entrepreneurial talent, accelerate the development of new companies and speed up the commercialization of technology".	Zedwitz and Grimaldi (2006)
"An enterprise development centre aimed at accelerating the successful development of start-ups and companies through the provision of targeted resources and services".	Abudh et a., (2007)
"Business incubation is an initiative that systematises the process of creating successful new enterprises, by providing them with integrated range of services".	Buys and Mbewena (2007)
"As the outcome of a network model of powerful business connections that enables value creation through firms establishing and exploiting interactive ties among incubating firms and networked firms"	Hughes, Ireland and Morgan (2007)

"Organisations that supply joint location, services, business support and networks to early stage ventures"	Bergek and Norrman (2008)
"Business incubators, a popular entrepreneurship policy intended to help new businesses avoid the risks of failure and generate economic growth".	(Amezcua, 2010)
"A business incubator is a shared office-space facility that seeks to provide its incubatees (i.e. "portfolio-" or "client-" or "tenant-companies") with a strategic, value-adding intervention system (i.e. business incubation) of monitoring and business assistance"	Arthur, Gary and Christine (2011)
"Tools to accelerate the creation of successful entrepreneurial companies"	Bruneel et al. (2012)
"They can be considered as a remedy for the disadvantages that small and new firms encounter by providing numerous business support services and they are useful in fostering technological innovation and industrial renewal".	(Olaopa and Siyanbola,2012)
"Business Incubators (in the narrower sense) are business-incubating organizations that support the establishment and growth of new businesses with tangible (e.g. space, shared equipment and administrative services) and intangible (e.g. knowledge, network access) resources during a flexible period and are funded by a sponsor (e.g. government or corporation) and/or fund themselves taking rent (or less frequently equity) from incubatees".	Hausberg and Korreck (2020)

Appendix 2:

Criteria for classification *Based on the characteristics of the facilities, the goals of the operating organization and industry they serve by facility.* *(Brooks,1986)*	**Real estate incubators** **Primary objectives** Filling a niche in the real estate market by offering inexpensive lease space on flexible terms to small users.		**Economic growth incubator** **Primary objectives** Encourage business formation in growth industries. Serves business in early stage of development. Give hands-on assistance.		
Criteria for classification *No criteria for classification* *(Martin ,1997)*	**Real estate incubators** **Primary objective** Real estate appreciation	**Non-profit enterprise development incubators** **Primary objective** New firm creation Job creation	**Academic incubators** **Primary objective** Faculty industry collaboration Commercialise university research	**For profit seed capital incubators** **Primary objective**	**Real estate incubators** **Primary objective** Real estate appreciation

	Virtual venture incubators	Intrapreneurial Incubator	Private Incubator	University Business Incubator	Contemporary
	Sell proprietary services to tenants **Secondary objective** Create opportunity for technology investment opportunity.	**Secondary objective** Generate sustainable income for incubator. Utilize vacant facilities	**Secondary objective** Strengthen service and instructional mission Capitalize investment opportunities Create good will between institution and community	Capitalize investment opportunities Product development	Sell proprietary services to tenants. **Secondary objective** Create opportunity for technology Create investment opportunity
Criteria for classification	**Virtual venture incubators**	**Intrapreneurial Incubator**	**Private Incubator**	**University Business Incubator**	**Contemporary**

Earlier works by Thomas Edison to systemize the invention and commercialisation of knowledge *(Etzkowitz, 2002)*	**Primary** **objectives** Explore initiative for economic and social development **Secondary** **objective** Create a support structure for firms in	**Primary** **objectives** Encourage the development of new technologies not necessarily rated to the core business of the firm	**Primary** **objectives** Supply capital to entrepreneurs of spin out companies to grow their firms **Secondary** **objective** Create synergies among resident firms	**Primary** **objectives** Create a firm formation from academic research	**Incubator Model** **Primary objectives** To improve firm formation through educational process

Criteria for classification	Mixed Incubators	Economic development Incubators	Technology incubators	Social incubators	Basic research incubators
	their early stages of development				
	To identify technology with commercial potential				
	Provide firm founders access to finance and business advice				
Based on sponsor/stakeholders and objective and missions *(Aernoudt, 2004)*	**Primary** **objectives** To fill business gaps	**Primary** **objectives** To fill regional or local disparity gap	**Primary** **objectives** Fill Entrepreneurial gaps	**Primary objectives** To bridge social gap i.e. providing employment for	**Primary objectives**

	To creates start-ups and employment generation	**Secondary objective** Regional development and business creation	**Secondary objective** Stimulate innovation, encourage technology start-ups and graduation	disabled, low skilled, immigrants and political refugees **Secondary objective** Integration of social categories and employment generation	Bridge the discovery gap **Secondary objective** Churn out spins offs

Criteria for classification	Public or Regional incubators	University business incubators	Corporate private incubators	Independent Private incubators	
Observation of incubation in the past 20 years.	**Primary objectives**	**Primary objectives**	**Primary objectives**	**Primary objectives**	
Based on research conducted in Italy	Provide Space	Offers services including shared office services, business assistance, access to capital, business networks and rent breaks	Supports the emergence of new independent business units	Provides intangible resources like knowledge transfer and skill competencies	
Objective of the incubator and target client of incubators.	Infrastructure	Also, offer services including faculty consultants, student employees, university image conveyance, library services, labs/workshops and equipment, mainframe computers related R&D activity, technology transfer	Provides intangible resources like knowledge transfer and competencies		
(Grimaldi and Grandi, 2005)	Bridge communication channels using their networks		New companies or incubates are usually research spins		

	Market intelligence Financing opportunities Increase visibility Day to day support .	programs, employee education and training, and other social activities	overs carried out within source organisation **Secondary Objective** Profit maximization		
Criteria for classification *Competitive focus*	**Regional incubators** **Primary**	**University incubators** **Primary**	**Independent commercial incubators** **Primary** **objective**	**Company internal incubators** **Primary**	

and strategic objectives.	**objectives**	**objectives**	Profitability	**objectives**	
Using the indicators of industry *geography* *and segment* *Carayannis and Zedtwitz,2005*	Create regional employment and growth Such as employment retention, innovation and capacity building.	Fulfil public mission first (regional employment and growth and then go on to serve goals only indirectly to operational profits		Profitability	
Criteria for classification is based on porter 1986's competitive scope and research conducted in the different incubator in Italy	**Regional incubators** **Primary** **objectives**	**University incubators** **Primary** **objectives**	**Independent commercial** **Incubators** **Primary** **objectives**	**Company internal incubators** **Primary** **objectives**	**Virtual incubators** **Primary objectives**

(Von and Grimaldi ,2006)	Develop regional economy	Promote academic entrepreneurship	Create successful start ups	Exploit or leverage internal ideas	Support would be employers
	Provide funding	Improve competitive focus on academic start ups	Provide funding	Networking	Competitive focus
	Provide physical infrastructure		Provide infrastructure support		Internet and ICT industry
	Below market price	Provide funding	Hands on service		Provide Funding
					Private
	Boost regional competitiveness	Provide access to networking university networks	Networking		Networking
			Strong industry networks and partnerships		Regional
					Online

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Criteria for classification	Missionary structure incubators	Entrepreneurial incubators	Bureaucratic Incubators	Professional incubators	Adhoratic incubators
Organisational mode	Support social projects	Specialised in single sector			
Difference in HR structure	Very particular about values, beliefs ideologies and social well being		Specialised in several sectors	Academic in nature	Technological in nature
Influenced by		Interested in mostly random projects mostly at the decision of the incubation manager		Particular about professional standards	
The works of Pichault and Nizet (2000) configurational approach and Mahe (1993) social mix	(value laden)		Tend to adopt objectives		
(pay, employment,					
Promotion and participation				Flexibility varies	
Level of formalization		No set way of doing things	Particular about laid down rules and structures		

Degree of flexibility *Centralisation or decentralisation* *Bakkali and Sammut 2014*				

Appendix 3:

Information Sheet

NOTTINGHAM BUSINESS SCHOOL
Nottingham Trent University   **Code Number:**

Participant Information Sheet for interviews

Thank you for agreeing to consider participating in this research project. Before you decide whether to grant us an interview, it is important that you understand the reason why this research is being carried out, and what your participation will involve. We would be grateful if you would take time to read the following information carefully and discuss it with colleagues or other people if you wish. Please, feel welcome to get back to us if anything is unclear, and to take as much time as you need to decide whether or not to take part.

What is the purpose of the study?

This study is motivated by the increasing global interest on entrepreneurial networking on new venture survival and growth, and the influence intervention tools like businesses incubators and relational spaces like clusters in triggering and facilitating these networks.

The main purpose of project is to develop more understanding on how regional clusters and business incubators environment facilitates access to network actors and how these relationships created in these contexts influence's entrepreneur's perception of impact. This will inform support model initiators, draw attention to the relevance of networking for businesses and proffer policy solutions to the government.

I am particularly interested in learning about the nature of support, especially regarding to networking opportunities available in this location. I would also want to learn about how your business environment, or the government has influenced your decision to engage in business networking and possible barriers that might have deterred you from engaging.

Additionally, I would want to understand your motivation for engaging in these networks, your decision in changing network relations and how these relations have influenced your business.

For this purpose, I will also be examining the Otigba cluster in Ikeja and the Yabacon valley in Yaba; as well as several business incubations centres across Lagos

The main method of gathering information will be interviews.

Who is running this study?

The Principal investigator for this project is Chiamaka Kwazu, a doctoral student in Business at Nottingham Trent University, and is being supervised by Dr Kostas Galanakis (Nottingham Trent University) and Dr Piers Thompson (Nottingham Trent University).

Who is funding this study?

This study is self-funded

Why have I been approached

As a beneficiary / stakeholder in this process, your opinion is valuable in enriching researcher's understanding on what your individual experience has been and possibly get an insight on how these would inform government policy and other stakeholders.

Do I have to take part?

Your participation is entirely voluntary. You might have be referred to us, but you are free to take part or not, as you choose. No one will be informed if you chose not to participate or otherwise. Participation is completely independent from access to incubator services or

government funding. A choice not to take part will not affect access to any of these forms of support in any way.

If you do decide to take part, you will be given this information sheet to keep, and you will also be asked to sign a consent form. You will still be free to withdraw at any time. However, after final notice of withdrawal is sent, (**in this case, 2 weeks after interviews have been conducted**) I will not be able to withdraw responses as data analysis would have commenced.

If you decide not to take part, or to withdraw, you will not be asked to give us any reasons. You can do this by sending an email to me at n0670717@ntu.ac.uk.

What do you want me to do?

We would like you to take part in an interview lasting approximately an hour. It will take place in your workplace and will be arranged at a time convenient to yourself. The topics to be covered would be sent in advance. The interview will be carried out by one of the research team, following a pre-set schedule.

We will ask for your written permission to tape the interview, to ensure that the information you give us is accurately recorded.

What will happen to the information I give in my interview?

The tape of your interview will be transcribed. The research team named above will then analyse the information and feed it into our results. No individuals outside the research team will be given access to the transcripts of your interview.

At the end of the study, all the transcripts would be locked in the secured cabinets provided by Nottingham Trent University doctoral school. With a back-up recorded data and transcriptions stored on the password protected NTU cloud service.

However, the transcripts will be fully anonymised before they are stored. Any information that identifies you or your organisation, or that gives any clues to your identity, will be removed unless, otherwise stated. We are confident that these precautions will ensure that no-one will be able to trace your transcript back to you or your organisation.

How will you protect my confidentiality and anonymity?

The tape would be solely handled by me the principal investigator, but transcript will be handled only by members of the research team in line with data protection principles and our approved research protocol. The electronic version of your transcript will only have a participant number included to identify it. Another file held separately will link participant numbers to contact details. Both files will be stored on password protected encrypted drives.

Hard copies of research notes are kept in locked filing cabinets, and electronic files are kept on password protected computers which are not accessible to any other university staff.

Transcripts will be retained for up to 15 years to aid in future publications

You will not be named, unless permission was expressly received at the time of collection.

We will exercise all possible care to ensure that you and the organisation you work for cannot be identified by the way we write up our findings.

What are the possible disadvantages and risks in taking part?

The main cost to you will be the time needed to be interviewed. The main risk is that you might give us information that is detrimental to you or your organisation, or that runs counter to data protection laws.

We are confident that the arrangements described above will prevent any of your information being shared with anyone outside the research team. For this reason, we believe that the risk of detriment is very low.

What are the possible benefits?

We hope that you will find the interview interesting and will take satisfaction from helping to develop knowledge of this important topic. We also hope that you will find the results of the project helpful to your work as the results of this research is intended to help organizations like yours.

What will happen to the results?

I will write up the results in a report to aid the completion of my Doctorate Degree in Business and possible publications in conferences, book and academic journals.

We will also publish a short, executive summary of our results and recommendations. And will circulate it widely amongst policy makers and local managers.

Please feel very welcome to contact the project office for further information, at the following address: Chiamaka.Kwazu@ntu.ac.uk

Appendix 4:

NOTTINGHAM BUSINESS SCHOOL
Nottingham Trent University

Please read and confirm your consent for taking part in this interview for this project. Kindly tick or cross appropriate box (es) and sign and date form in appropriate places.

1.   I confirm that the purpose of the project has been explained to me, that I have been given information about it in writing, and that I have had the opportunity to ask questions about the research

☐

2.   I understand that my participation is voluntary, and that I am free to withdraw at any time without giving any reason and without any implications for my legal rights or access to any other services

☐

3   I understand that my decision to take part or not to take part in project would not be   communicated   to   any   other   **third   party**.

☐

4. I understand that after **final notice** of withdrawal is *sent* **(2 weeks after interview is conducted)**, I relinquish rights to withdraw my responses from project.

☐

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5.   I agree to take part in this project   ☐

_____   _____

Name of respondent   Date   Signature

_____   _____

Name of researcher taking consent   Date   Signature

PROJECT ADDRESS:

c/o Chiamaka Kwazu, Doctoral School, Nottingham Trent University, 50 Shakespeare Street, Nottingham NG1 4FQ

Appendix 5:

Appendix 6:

Analytical Memo

Coding process and Documentation

Research Questions

1. What is the role of network behaviour and motivation in enacting and pursuing network relationships in the context of business incubators and clusters in Lagos technology ecosystem?
2. How do firms react and take advantage of network opportunities and activities that take place in business incubators and the cluster?
3. What is the influence of the socio-spatial environment on network creation mechanisms and the kind of relationships that networks brokers and firms are exposed to?
4. How do network brokers and firms perceive network impact and challenges within the business incubator and the cluster?

Research Question (Anchor Code)	Empirical Indicators (M)	Empirical Indicators (TC)	Empirical Indicators (C)	Thoughts on answers
RQ1: Network motive	**Need** "We work from the need of the start-ups; we try to identify someone who an expert in their field and we	**Reciprocity** **Shared value and vision** "If I see you share in the vision of the future of technology and you	**Information and knowledge** "For me it is all about knowledge acquisition, I want to expand what I	Perspectives on motivation all differ. From the management's perspective the motivation is driven two main factors. First,

are assess if they are actually able to meet the needs of the start-up in question and vice-versa".

Incubator A

"Relationships are unlocked based on need. When a start-up approaches us requesting support to access a network, we look at our network and find a contact, if we do not have, we reach out to people within our network who may know them"

Incubator E | understand the opportunities in this market, then I am happy to try to get to know you"

CT1

Legitimacy

Market insights

"It is to get insights; I would say picking people brains to get feedback and perspective"

AT3 | know because if you partner with another kind of business you will be forced to learn what they are doing, so that you will understand"

Company E

Learn from other

"Every day you get to work, and people carry on their businesses, you are motivated by the actions of these people, you see them strive and you learn from them" | is their desire to meet the needs of tenant firm, an often-referenced point is the need of the start-up, by either seeking to connect start-ups to network actor.

The second motive is their desire to also identify areas of fit and reciprocity where if start-ups meet network actors, they will be able to meet the expectation of actor, vice versa.

For tenant firm's legitimacy, personality, exposure and reciprocity are all triggers for pursuing networks |

		Partnerships	**Company A**	
Reciprocity and Synergy		"So, for me it is to grow my business, this could either be through seeking partnerships or to acquire new clientele or seeking access to distribution channels"		Tenants explain that reciprocity is value and vision driven, while legitimacy is viewed by firms as the ability to either access market insights or get access to partners.
"Ask and give, what can this partner offer portfolio companies, can we match the expectation".		**AT1** **Exposure**	**Trust Motivated** "For me it is trust driven, a network that is built on trust, because if you have a relationship with some individuals and they cannot trust you, it is in the negative"	The personality motive is driven either buy their desire to help or just meet people. For firms who desire to meet people there are often added output, although firms mention that they do not actively seek them
Incubator B		**Brand Awareness** "So, motivation for us is exposure and access, Incubator B has a platform that will exposure our company to the world of tech giants in Africa and to meet relevant people. They also have a huge connection to	**Company M**	For cluster firms factors like trust, access to information and knowledge and the desire to learn are motives that trigger network enactment.

		the rest of the world, like Silicon Valley. So, I will say it makes it easier to meet people and raising funds in future".		

BT2

Personality

Help out

"I like to help out, so most of my conversation/ interactions with people is centred around listening to them and seeking how I can help. I want to know about your challenges, and I am vested in helping you resolve them. For me, I

		believe that the more I help the more I Learn and develop myself as well and prepare myself and business for potential challenges I might face".		
		DT3		
		Meet people		
		'It is personal for me. I am an extroverted person, I always like to meet and get to know people, I would say this is a motivation, there no strategic reason for me. Also, there may be the opportunity to access tech talent or advisory		

		information. But then again, I would say, it is not a strategic motivation, although sometimes there are benefits that can come from it". **BT3**		
RQ1: Network brokerage methods	**Direct Brokerage** Events Marketing Meetings Partnerships	**Direct Brokerage** Entrepreneurship Showcase Mentors meetings Pitch events Social events	**Direct brokerage** Trainings and trade shows **Self-brokered** No, I am not, I create my own relationships, I don't know about any events that take place here **Company A**	Network brokerage in the incubator is done directly and indirectly. Tenants and managers recognised various network activities that take place in the incubator, all network activities are forms of direct brokerage. Equally, indirect brokerage also takes place, managers note the place of their reputation and brand as facilitators in brokerage while firms identify the place of

			space in easily collaborating with other firms within the incubator.
Indirect	Industry events		
Reputation and Brand:	Technology events		For cluster firms, both direct and indirect brokerage occurs. The main direct brokerage activity are trainings and trade shows, or self-induced through partnerships and collaborations. Trainings are often organised by international third-party companies who are often suppliers of products and trade shows by trade union organisation within the market (CAPDAN).
"We leverage our reputation while we broker relations for start-ups". **Incubator E**	Referrals Trainings	**Indirect Brokerage** **Brokerage facilitated by location reputation**	
	Indirect Brokerage **Space** "For one collaboration happen naturally if you were	"Computer village is a commercial place, people always come here to buy goods. In bad days, you will likely have at least one customer. So, in comparison to other areas people would also	Cluster firms also mention the role of the reputation of the location in brokering new customer relationships, this is how indirect brokerage occurs.

		co-located in the same space, so the space provide was one way. When you are having problems, you can have conversations with each other. So, for example, if you are having any challenges, you can meet the CTO of another company and ask if they had ever encountered such problems, sometimes they are able to give you input. You can also meet other founders and you realise that they have networks that will be beneficial to you". **BT4**	come here to patronise your business". **Company G** "As far as gadget is concerned, this place has a reputation for being the center for transactions based on gadget sales. If you are in the center there is a believe that you will likely get genuine products at competitive prices too". **Company H**	

| RQ1: Network behaviour | Network Tie preference | Mixed Tie | Tie preference | Based on the brokerage methods and motives mentioned, all three actors where then asked their network tie preferences

For managers, the top response was that there was no preference, they note they use both old and new network ties and whatever tie leveraged is to satisfy the needs of their start-ups.

For tenant companies the top response as well is no preferences, firms acknowledge the use of both ties because they observe that network utility and needs are not stagnant. |
|---|---|---|---|---|
| | **No preferences**

"For me, there is no preference, what drives our search is dependent on what the start-ups need".

Incubator D

"We don't have a preference; we are more | "For me, both are essential because human play a part in different phases of your life, likewise in business. The people you have a teething stage might not stay through your business lifecycle, there are times when you have to let go of an old relationship because your value has changed or your relationship with | **Company I**

Old

"Old is preferably, because these are relationships that are trust based, you know them and know what to expect from them"

Company G | |

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| | interested in people who can add value to our start-up companies"

Incubator A | them has become negative".

AT3

"Both, because an old relation can be relevant in future and the new ones might not be suitable at that time and vice-versa".

ET1

"I think it depends, but I would say new relations add value to business, However, old relationship is trust-based because I have worked with | "Old for me, it cannot be compared with new, you have already known the limit, trust is established, you know what to expect

through old ones "

Company j | Firms also mention the place trust and new value as another reason for keeping both relationships.

Some other firms also mentioned preference of new ties as it signals new opportunities.

For cluster firms, an overwhelming majority wanted old ties because they mentioned that they had established trust and have been tested. |

		them before, for me both are useful". **DT4** **New Tie** "Hmmmmh, new relations because old will always be there, new relationship is a signal for new opportunities" **AT2**		
RQ 2: Preferred Network Activity	NA	**Mentor Activity** "In all these activities organised, the mentor sessions are the most useful	**Firm reaction to brokerage activities**	Taking cognisance of brokerage methods, motives and tie preferences mentioned above, the reaction of tenant and cluster

| | | for me, I am able to have a personal relationship with mentors and pick their brains as well". **DT2** **Entrepreneurship showcase** "I value the innovation showcase, just imagine having 60 people in the room at the same time, you get to meet them all at once face – face, and you can have a discussion about what you do" **AT1** | **No awareness, self-induced brokerage (direct)** I had never heard about Capdan till they came to my office requesting for trademark, as far as I am concerned, there is no union, don't know of any network events here. The networks are informal, there is no union, most of the time it would be between friends. Business discussions happen over the drinks sometimes or just using WhatsApp " **Company A** | firms to different network activities present within their location was noted. Firms were asked their preferred network activity. The top three preferred network activity was access to mentorship, entrepreneurship showcases and no particular network preference. Firms who chose mentor access mentioned the ability to have a more personal relationships with mentors and share ideas and insights. The entrepreneurship showcase was an opportunity for firms to get exposure to a wide variety of actors. Those who did not |

		No preferred activity "It really does depend, it depends, essentially, I would say they all have their varied benefits. No preference, each has its own benefit". **CT1**	**No interest in network activities** "I do not have time to go to any event organised, I am mostly occupied". **Company J**	have any preference recognised that each of the network activities had their benefit. For cluster firms most are not aware of network activities and so broker theirs informally, others who are aware do not engage because of time or do not see value to it. Understanding brokerage methods, motive and tie preferences provided some context that was useful in understanding network behaviours of the three network actors. The motive, brokerage method and tie preference of managers indicates the sustained TIO behaviour noted in Grosser et al., (2019), all five managers all seek to not

| | | | | just introduce tenant firms to network actors within their networks, but also design network activities and leverage both their strong (old) and weak (new) ties to meet start up needs or position tenant firms to also be in the position to give back.

A similar network behaviour is also noted with tenant firms. In examining motives, tie preferences and tie usage, behaviour indicative is the TIO, firms might have the brief TIO. Motives, tie preferences and reaction to network activity all demonstrate their willingness to be very active in meeting people to either just build relations, help other tenant, add value to partner network actors and build their businesses as well. |
|---|---|---|---|---|

				For cluster firms, the situation is different, the motive, brokerage method and tie preference observed among cluster firms is indicative of a separationist behaviour, however, instead of being governed by power like Grosser mentioned, they are governed by trust.
RQ3: Influence of context	**Influence of Context**	**Influence of Context**	**Influence of context**	The context plays a very critical role to network creations. All three network actors recognise this.
	Infrastructure and environment: Access to internet, centrality of	**Access to Knowledge** This location is home to a lot of tech start-	**Access to customers** The impact of this location has been positive, you have access to a large	Managers recognise the role of infrastructure and the environment, access to information, talent and partnerships as some benefits of

location, limited traffic **Access to information:** Stay informed **Partnership:** potential partners for our start-ups **Talent:** opportunity to access to talent **Network Categories** **Co-incubation:** network with	ups, a location breeding with knowledge. **DT2** **Talent and community** This environment is technology based; a lot of companies located around this location is driven by technology. You get to meet tech like mind, sometimes you meet people who are doing the same thing in different industries. You have app developers, animators, in fact virtually all the	customer base, because a lot of people come here, business is all about customers **Company J** **Access to market information and knowledge** Been in this location gives you the opportunity to always get information from hardware dealers, you know what trending is. **Company K** **Business Acumen**	being in either within the Yaba or Ikoyi location. Leveraging on the benefits of the location they are able to access different resident network actors like the co-incubator networks, funders, mentors, experts and corporates. Tenant firms share similar sentiments with managers but add that the location also provides access to network and network events, community, access to knowledge and experience socio-spatial factors of being co-located within the Yaba or the Ikoyi space

another incubator **Corporate networks:** clients who are members of our community, we do work for them **Expert networks:** individuals have knowledge that will benefit start-ups **Funder network:** funders, investors and grants **Mentor network:** coach and emotionally	facets of what makes a technology business work. You have a community here of like-minded individuals, who you can leverage on to get information and resources from. **AT3** **Socio-spatial Factors** Just been in Yaba location broadens your horizon, there is also a concentration of organizations that are more inclined towards technology, these individuals can be leveraged wither	This location also gives you a strong business acumen, if you can survive here, you can survive anywhere. There is a lot of competition here, so this location makes you street smart. Company L **Collaborations** Although some people hoard knowledge, people collaborate when it comes to sub-contracting, you cannot do this business alone and you cannot have everything, so we	The top three networks ties tenant firms are able to access by virtue of their locations include mentors, friendships, Incubation/community and associate /business networks. For cluster firms the story is different, the location influences firms to sharpen their business acumen, provides opportunity for collaborations and provides an opportunity to access customers, market information and knowledge. Some cluster firms also identified some negatives of the location; like knowledge

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			hoarding because of competition and cost of business. In comparison to tenant firms, firms within clusters have to provide infrastructure and they come at high prices. Cluster firms mentioned two network ties utilised their friends and business networks.
support our start up	to validate your business model to **AT4**	interact with each other and we are able to supply things to each other	
Network Challenges **Time** Another issue is timing, getting people into our network or the overall attitude of corporates. Most of them are not yet open to using local solutions. Also, not everyone understands technology yet, so might not be interested in	**Environmental Factors** I think the impact on being in Ikoyi is positive. First of all, it was cheap, compared to what you find elsewhere **DT1** **Knowledge of networking events and networks** Yes, it has actually, one of the individuals that came during the	**Negatives Impact of location** **Knowledge Hoarding** Knowledge hoarding is also prevalent, because most business operate as sole proprietors, and everyone is trying to survive in the midst of the intense competition **Company F**	Both contexts also expose network actors to different network challenges, for example, managers mention the presence of gatekeepers as they recognise that their networks are not finite ad that they also need access to some gatekeepers, same problem is acknowledged by tenant firms, who note that even though the management tries to limit challenges with network gatekeepers, they still have to contend with them.

	what we are offering	show case day were from the government and then we had someone come from LSETF and then an official from the ministry of tourism was also interested in what we were doing, they had a concept for creating a virtual museum. I think eventually we might have met them, but we got them on a platter of gold, been in this location facilitated access to these relationships. **CT1**	**Cost of business** The cost of doing business is very high, the rent is high. You have to virtually do everything yourself from providing electricity, to internet and all **Company I** **Network Categories**	However, this gatekeeper problem is not noted within the clusters. On a general scale, all three network actors also experience different network challenges. For example, managers mention time and difficult accessing quality entrepreneurial talent as their own challenge, while some start-ups point to time as a major challenge when relating with brokered relationships. Others mention that they do not encounter any challenges.
	Incubator C **Talent:** Yes, of course we do, it is not always a seamless process, getting founders into the programme is the first challenge, to access talent, especially quality, you need to demonstrate that you have something to offer. Also, the			

	challenge of getting top talent to build solutions as most would just want to offer skills for a lot of money. Start-ups would not be able to afford these talents as well. **Incubator C** **Network gate keepers** **Acknowledge the presence of gatekeepers** Nigeria with a distinct sale	**Network challenges** **Time** Even though the incubator tries to broker relations, they still do not know everyone we need. Also, sometimes it takes time for us to reach certain individuals, sometimes they are also not just interested in having any relations with you or the solution you are selling. **BT1** **No Challenge**	Business Network Friends **Network challenge** **Dubious Characters and difficulty finding trustworthy characters** Yes, people are really dubious, they do crazy things. Someone comes to you posing as a credible business, they have been situations where clients pay with counterfeit money, this a client that you have had relations with for a period of time, we have	For cluster firms the main challenge mentioned is dubious personalities of some individuals, which can make trust difficult.

	cycles and hierarchy and several network gate keepers	I would not say we have had difficulty accessing networks that have been brokered for us, because everyone that we have meet we have been able to get access to them.	had severally experiences here.
	Incubator B		**Company E**
	Business heads: business heads of particular unit	**CT1**	Trust is still playing a role, most individuals do not understand what it takes to keep a relationship, by the time you trust them based of your own standards, values and belief system, you get disappointed.
	Ecosystem influencers: they have the ability to boost credibility of start-up companies	**Network Gatekeepers** The biggest is finding an introduction. This requires patience because you might end up burning the bridge if you reach out prematurely. I will say it is best to get an introduction, I have had to	Sometimes a supplier might send products over to you with missing element and you call, and they assure you it will be sorted, but they do not sort it out. You lose your funds both ways because you will not be able to sell the
	Policy and Regulation: give input from a policy or		

| | procedure standpoint | patiently wait on five people. A particular experience I can call to mind is when I was trying to reach a particular corporate, I had to pass through five individuals who were thought to have access to the corporate

BT4

Limited Network Skill

At the beginning, I did not know what to say, they do introductions, and I am left to lead conversation but I often finding myself | item. Sometimes from a customer perspective, some individuals can be dubious

Company F | |

		wondering what I would say. Should I say good evening sir or just hello CT3 **Network Categories** Mentor- Advisory Incubator or community Friends Associate and Business		

	Network Impact Assessment	Network Impact Assessment	Legitimacy	
	Acquisition: There is no standard for measuring impact in CChub as the impact varies, it could be in terms of cash in their cash flow or new customers they have acquired **Incubator A**	**Resource and Economic** For impact, I would say 60-70% in terms of values, because these networks give you opportunities and of course access to new networks, to move faster with deploying our solutions and possibly meet other new customers, which could be access to customers or other funding by virtue of access grants	**Business exposure and knowledge** I do, this is a business environment, which requires you to interact with businesses, if you do not establish relations with other businesses you fail to get the exposure to take advantage of opportunities that will help your business and also knowledge you need for your business growth **Incubator A**	

	Time begets Trust: Time is important, especially because trust is key in these networks **Incubator C** **Perception of Network Quality** **Quality Based on knowledge and experience**; depth of experience a network partners have, so we measure from the depth of knowledge	**ET1** **Legitimacy** **Incubator Brand Influence** The incubator brand helped us, this is because they trust incubator A and because they do, they trust us as well. **AT1** **Referrals** We also have the opportunity to meet with experts from	**Partnerships** Yes, it does although some people hoard knowledge, people collaborate when it comes to sub-contracting, you cannot do this business alone and you cannot have everything, so we interact with each other and we are able to supply things to each other **Company I**	

individual demonstrates when they convey sessions	around the world and from Nigeria as well; these individuals have been in the technology market both as developers and business experts. We have also had the opportunity to meet up with company founders, these are people who have actually started businesses, scaled and raised money as well. They share their experience with us and give us advice	**Favour and referrals** I would speak from my own company perspective; I get to meet people through the relationships i have been able to build here. This people give me referrals. If you do a good job, you will also have people referred to you	
Incubator A			
Quality based on progress: For us quality relationship is are companies making progress, delivering value to shareholders and meeting milestone. Everyone is happy is based on progress made and outcomes as well.		**Company C**	
	CT2 **Mentorship**	**Resource and Economic** **Access to market information**	

	Incubator D		So, interacting with other businesses in this location has benefits, here eh. you can access market information.
	Quality based on reciprocity: Between founder companies and start-ups, a quality relationship, is a relationship that is mutually beneficial, a win, win scenario. **Incubator D**	Yes, they have been very impactful. As a matter of fact, I do not think that I have attended any that was a waste of my time, they have all been useful. To start with, the business concept needed some mentorship and funding. The mentorship we received gave us the opportunity to ask very hard questions, so much so that on one hand our perspective has been broadened and focus redirected. We have been able to sieve through assumptions, validate and throw	However, you cannot know about every new product in the market or buy everything, you need to use other people's experiences and assess people's ideas as well. This can only be made possible if you network, if you interact with others in this location and this for me is a benefit. **Company B** **Perception of network quality**	

		out the ones that didn't make sense. CT1	**Assessed as a multi layered process, governed by balance, trust, humility and respect**	
		No value So, with respect to Incubator B brokering introduction that have translated to value, which could be getting clients. The answer is No. This is again because of a number of factors. This isn't exactly their fault as well. BT4	Well, it is about mutual respect, some degree humility, you need to be humble, humble enough to walk into certain offices. **Company L** **Trust as a measure of quality** It is a relationship that is built on trust that helps to establish a bond.	

			Company A	
		Perception of network quality		
		Quality as value exchanged		
		Reciprocity		

| | | A quality relation is value driven, that is both parties involved are able to gain value from the relationship. It could be monetary, educational or research value.

ET1

Partnerships

I want to grow my business, so quality network for me is being able to access new customers or partnerships, networks that will help me drive my business, a | | |
|---|---|---|---|---|

		relationship that can add value to my business and I do the same for them as well		
		Quality as value - added		
		Exposure		
		For me it about being memorable and also added value, how well can you leave a lasting impression		
		Market insight and feedback		

		Quality for me especially within the business scene is genuinely interested in what we are doing and believes in us and see potential. They are able to give us advice and potentially give us good feedback about our business direction and focus		