Internationalisation of Business Clusters: The Case of Fruit Processing Clusters in Ghana

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DECLARATION

I hereby declare that this thesis is entirely my own work and that any additional sources of information have been duly cited. I hereby declare that any internet sources, published or unpublished works from which I have quoted or drawn reference have been referenced fully in the text and in the content list. I understand that failure to do this will result in a failure of this thesis due to plagiarism.

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ABSTRACT

Since Alfred Marshall propounded industrial clusters, the study of spatial organisation over the years has revealed numerous benefits of agglomeration to businesses, countries and regions. Until recently, discussions on the gains associated with internationalising clusters have mainly been situated within the developed economy setting. The key drivers of exporting clusters have mostly been related to cases within more functioning institutional environments. However, factors responsible for driving exporting activities in clusters within developing economies' setting are a current phenomenon in academic enquiry that has received minimal attention. Thus, the study aims to fill the knowledge gap by investigating the emergence of and dynamism within clusters, thereby understanding the key drivers of exporting fruit processing cluster activities in developing economies like Ghana.

The study focuses on spatial and internationalisation theories to draw out key concepts on networking and knowledge. The research adopts a mixed methods approach, using 99 surveys and 24 interviews, to empirically study actors in two fruit processing and exporting clusters. The findings show that, comparatively, palm processing businesses have a more socially embedded network structure that drives exporting activities in the cluster as opposed to the more formal business-like relationship in the pineapple cluster. As a result, parallel social institutions have emerged among the palm processing businesses which are enhancing their exporting capabilities. The findings also reveal how pineapple processors, due to their more outward-looking nature, have been able to externally acquire and transmit 'tacit' knowledge on MD2 pineapples through an entrepreneur 'gatekeeper'. Further evidence shows that processing businesses in the pineapple cluster are mostly set up to internationalise from the onset due to the presence of external investors and the exposure of entrepreneurs to international markets. The results provide a compelling case of born global businesses within a developing economy setting.

The research contributes to extant theoretical development and understanding of the key drivers of exports within clustered businesses. Particularly, it emphasises the role spatial organisation plays in exporting clusters within the developing economy setting.

Keywords: Cluster, internationalisation, networks, knowledge, gatekeepers, competition, cooperation, developing economies.

ACKNOWLEDGEMENTS

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ABBREVIATIONS AND ACRONYMS

BGV	Born Global Ventures
CSIR	Centre for Scientific and Industrial Research
EDAIF	Export Development and Agricultural Investment Fund
ERP	Economic Recovery Programme
FAO	Food and Agricultural Organisation
FDA	Food and Drugs Authority
GDP	Gross Domestic Product
GEPA	Ghana Export Promotion Authority
GoG	Government of Ghana
GPRS-I	Ghana Poverty Reduction Strategy I
GPRS-II	Growth and Poverty Reduction Strategy II
GSGDA	Ghana Shared Growth and Development Agenda
GSS	Ghana Statistical Service
GTP	Ghana Trade Policy
ID	Industrial Districts
MiDA	Millennium Development Authority
MMDAs	Metropolitan Municipals and District Assemblies
MNEs	Multinational Enterprises
MoFA	Ministry of Food and Agriculture
MoFEP	Ministry of Finance and Economic Planning
MoTI	Ministry of Trade and Industry
NBSSI	National Board for Small Scale Industries
NEG	New Economic Geography
NGO	Non-Governmental Organisation
NIV	Newly Internationalised Ventures
OECD	Organisation for Economic Cooperation and Development
OPRI	Oil Palm Research Institute
SMEs	Small and Medium-sized Enterprises
UNIDO	United Nations Industrial Development Organisation

CHAPTER ONE: GENERAL OVERVIEW AND PURPOSE OF THE STUDY

1.1   Introduction

Several models of firm agglomeration have emerged since Alfred Marshall's (1920) conned the idea of industrial clusters; albeit these have mostly emerged from studies conducted in developed economies. In the wake of globalisation and the increasing call for the development of models of firm agglomeration as policy tools for policy makers in developing economies (Hausmann and Rodrik, 2003; OECD, 2009; Krugman, 2011). Hence there is the need for research that specifically examines the potential of these models and their applicability in the context of developing countries.

Place-based models of firm agglomeration over the years have provided ample evidence for the important role that factors such as collective efficiency, inter-organisational networks and competition play in the performance of co-located businesses (Shcmitz and Nadvi, 1999; Porter, 1998; Martin and Sunley, 2003; Becattini et al, 2010). Similarly, internal and international inter-firm relationships and the flow of knowledge and information have been observed to influence models of firm internationalisation (Oviatt and McDougall, 1994; Bell et al, 2003; Coviello, 2006; Cavusgil and Knight, 2009; Krishna et al, 2012). However, whereas these models of both place-based agglomeration and internationalisation were derived from more established and functional institutional setups, their application within developing economies where institutions are less functional is matter of debate (Hoskisson et al, 2000; Stiglitz, 2011; Primi, 2013; OECD, 2015). The linkage between agglomeration and internationalisation models in a single study of exporting businesses in a developing economy like Ghana is also novel and requires a research work to examine the phenomenon.

Several studies conducted in sub-Saharan Africa, have claimed that factors such as 'intense' collective efficiency, trust-based social ties and public institutions are responsible for moulding the performance of industrial clusters (Schmitz, 1999; McCormick, 1999; Sonobe et al, 2011). In the Swame metalwork cluster in Ghana the presence of network relationships, collective actions and working relationships has been linked to supporting the operations of businesses in the midst of uncertainty and rising operational costs (McCormick, 1999; Sonobe et al , 2011). Despite the rising adoption of place-based theories in sub-Saharan Africa

(McCormick, 1999; Sonobe et al., 2011), the role that clustered businesses play in internationalisation – both within the sub-region and international markets, has hardly been examined. This is particular important, in a context where agglomeration theories are being endorsed as an alternative tool for industrialisation (Hausmann and Rodrik, 2003; Hausmann et al, 2007; OECD, 2009; Felipe, 2015). Hence, this research aims to critically ascertain the role that spatial agglomeration plays in the internationalisation of businesses in Ghana.

This chapter introduces the entire research by providing a brief background to the study focusing on Ghana's policy environment since independence and the need for the research. The aims, questions and methodology for the research are also discussed in this chapter. This is followed by an overview of the nature of the Ghanaian economy and in particular the eastern region where the study was conducted. The chapter also presents a historical perspective on trading routes in the west African region. An outline of the structure of the thesis concludes the discussions in this chapter.

1.2   Background of the Study

Ghana since independence has adopted several trade policies and strategies to promote internationalisation activities among businesses. However, trade policies have mostly been an integral part of government development policy. As a result, huge unsustainable public sector debt, coup d'états and abandonment due to change in government have led to these trade strategies not having the desired effect (Aryeetey et al, 2000; The Economist, 2002; Aryeetey and Kanbur, 2008; Killick, 2008; Iyke and Odhiambo, 2015).

Pre-liberalisation

After independence in 1957, the quest for industrialisation led to the adoption of a model ofImport Substitution Industrialisation policy in 1961, with the national state   driving the process of capital accumulation (Killick, 2008; Aryeetey and Kanbur, 2008; Aryeetey et al, 2000). This led to an expansion of the manufacturing sector, generating 4% of Ghana's Gross Domestic Product (GDP), and employing 9.8% of Ghana's total labour force in 1965. The 'excessive' presence of the government in the economy led to the proliferation of state-owned enterprises (SOEs) which were heavily subsidised (Baah-Nuakoh, 1997; Aryeetey et al, 2000). This brought about the erosion of Ghana's foreign exchange reserves, increased its

debt burden, led to foreign exchange difficulties and increased trade deficit, which eroded all previous gains made (Aryeetey and Kanbur, 2008). Killick (2008) argues that the indecision of successive governments to choose a path for industrialisation after 1966 resulted in the continuation of the inward-looking state-led industrialisation policy.

Post-liberalisation

By the early 1980s, the social and economic difficulties experienced in the period of coups d'état brought the Ghanaian economy to its knees. This resulted in the Ghanaian economy being put on the path of liberalisation and economic neoliberalism under the Bretton Woods Institutions in 1983. The medium term plans adopted to ameliorate the situation were the Economic Recovery Programme (ERP) and subsequently the Structural Adjustment Programme (SAP).

A number of authors argue that the overall gains of the ERP and the SAP were marginal but the growing dependence on foreign aid and FDI, under Vision 2020 (Aryeetey et al, 2000). Instead it created macroeconomic challenges such as the rising debt burden which led to Ghana to adopt the Heavily Indebted Poor Countries (HIPC) initiative in 2001 (Killick, 2008; Aryeetey and Kanbur, 2008).

To ameliorate the situation and put Ghana 'back on the road' to achieving middle-income status, the country adopted two medium-term policies between 2002 and 2009, within the free market capitalism framework as defined by the World Bank and IMF. These were the Ghana Poverty Reduction Strategy I (GPRS-I) and the Growth and Poverty Reduction Strategy II (GPRS-II). Under the above framework, the private sector became the engine of growth and the launch pad of the Private Sector Development Strategy (PSDS) from which the Ghana Trade Policy (GTP) was born (MoFEP, 2005;MoTI, 2005). The trade policy, which emphasised value addition by the SME sector, was aimed at delivering trade facilitation, trade support services, production capacity building, improvement in standards, and domestic trade distribution (MoTI, 2004).

Trade policies adopted over the last decades appear to be very broad and do not address specific issues with respect to promoting exporting activities based on the location and place-based capabilities of businesses (GoG, 2005; GoG, 2015). The lack of place-based specific policies on trade in Ghana over the years is surprising considering the fact that spatial policies have been given a lot of attention and developing economies are increasingly pursuing them

to readdress imbalances between regions (Sepulveda, 2008; OECD, 2009; Storper, 2011, 2015; Cai and Liu, 2015).

Recent data shows that processed palm products and processed pineapple exports from Ghana have witnessed appreciable growth in recent times (GEPC, 2014; NBSSI, 2013). For instance, revenue from pineapples was estimated at €33 million in 2008 and exports grew by 12% in 2013, making Ghana the fourth largest exporter of pineapples to Europe (NRI, 2010; IGC, 2012; Johnson et al, 2015; Mensah and Brummer, 2015). However, it appears that policy makers have paid no attention to the role that location and place-based policy play in the exporting activities of businesses in Ghana. This is surprising since exporting businesses in the palm and pineapple appear to be operating in close proximity and are constantly interacting with other's subsidiary enterprises and government institutions such as policy implementing agencies, research institutions and technology innovation transfer institutions (NBSSI, 2010; GoG, 2014). It appears that positive interaction and synergies between private businesses and public support structures in the cluster are key factors to understand the successes of these internationalising clustered businesses. These phenomena require an empirical investigation to reveal the factors that support the internationalisation activities in these areas.

1.3   Why Study Clusters and Internationalisation?

There are three reasons why I am studying clusters: the first reason relates to the growing significance and successes of location and place-based policies as an alternative industrial development tool in some developing economies. The process of industrialisation in developing countries has evolved, particularly in the aftermath of the Second World War, from public sector-led industrialisation to private sector-led and, in recent times, spatial-based industrial policy (Cowling and Tomlinson, 2011; Singha, 2011; Lal, 2012; OEDC, 2015). The process which began with government-driven industrialisation proceeding to private sector-led industrialisation is changing. Pollard (1990) points out that industrialisation is a global process of structural change; moreover, the path of this structural change is dictated by the conditions and moment of take off in a particular country. These paths have been extensively debated by scholars, from the first 'Big Idea' – Import Substitution Industrialisation (ISI) as a catalyst for developing economies to industrialise after the Second World War, following the economic successes of Japan and Russia – to the birth of the second 'Big Idea' – Export

Oriented Industrialisation (EOI) – under the Washington Consensus[1] (Lindauer and Prichett, 2002; Rodrick, 2004; Singha, 2011; Lal, 2012; Coenen, 2015; Kohler and Khumalo, 2015).

Today, there is no clear-cut industrialisation policy being adopted, which has led to some scholars calling for a third big idea (Lindauer et al, 2002), and some scholars believe that nations must be allowed to gradually discover their own resource competences to compete in global markets (Hausmann and Rodrik, 2003; Hausmann et al, 2007; Felipe, 2015). The unique attributes of a place advanced in recent times in the industrialisation literature fit into the discussions on specific spatial characteristics driving the growth of economies or regions in developing economies as observed by Krugman (2011) and the OECD (2009; 2015). There seems to be a general consensus in the literature that the industrialisation process has evolved and the unique conditions in a country may influence its outcomes. Scholars have argued that most developing countries differ in social, cultural and economic endowment and so to confine them to a one-size-fits-all industrialisation policy seem to downplay the potentials that may emerge by understanding their unique spatial character (Hausmann and Rodrik, 2003; Hausmann et al, 2007; Felipe, 2015). As a result, location and place-based policies have been encouraged as an alternative policy tool in developing economies. The cluster policy is one such location and place-based policy (OECD, 2009; 2015; Kuwahata, 2015; Pradhan and Das, 2016).

Secondly, business internationalisation and spatial theories have received immense academic attention – albeit separately. However, little has been done to deal with both of the concepts together within the context of developing economies. This has been noted in the recommendation by Krugman (2011) when he calls for theories on spatial organisation in developing economies to incorporate the phenomenon of internationalisation. There is a growing body of work on the formation of clusters and their nature and structure (Porter, 1998; Martin and Sunley2003; Trippl et al, 2015), the network relationships, and the knowledge and innovation in clusters (Salancik, 1995; Borgatti and Halgin, 2012; Asheim et al, 2011; 2012; Balland et al, 2015). However, there appears to be a limited link between the structure and the dynamism in these clusters and the exporting activities of businesses.

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[1] The standard classical liberal economic package, consisting of free trade, Gladstonian finance and stable money

Similarly, internationalisation literature has equally been strong on the issues of knowledge and the spread of knowledge to the exporting activities of businesses (Garvey, 2009; Kalinic and Forza, 2012; Johanson and Vahlne, 2013; 2015), and the link between knowledge and the networking relationships of exporting business (Martinovic et al, 2013; Rasiah and Vinanchiarachi, 2013; Coviello, 2015). All these works on network structures and knowledge flow of exporting businesses appear to have little to no link to clustered businesses.

Finally, the literature has observed that developing economies have weak financial and legal systems, inadequate infrastructure and inaccurate information systems (Hoskisson et al, 2000; Stiglitz, 2011; Primi, 2013; OECD, 2015). Furthermore, most models and theories on clusters and internationalisation are set within a more stable market structure. Therefore, to have exporting business clusters within an unstable market structure, offers an opportunity to produce knowledge within an area of study that has witnessed little research, particularly in developing countries. In particular, there appears to be little research conducted in Ghana that focuses on the relationship between the institutional environment and exporting business clusters.

These gaps identified in the body of work spurred on the researcher to investigate the activities of exporting clustered businesses in developing countries in order to provide a credible contribution to the literature.

1.4   Research Aims

This research aims to examine the factors that influence business clusters' internationalisation in two exporting clusters in the eastern region of Ghana. It builds upon the existing body of literature on clusters and internationalisation by combining them.

1.5   Research Questions

- What role does competition and cooperation in the supply chain play in cluster dynamics and resource accessibility in Ghana?

- How do Ghanaian businesses in clusters learn and adopt innovations for their operations?

- What factors influence the internationalisation activities of fruit processing businesses clusters in Ghana?

1.6   Literature Review

The theoretical foundation for the study draws on the theoretical and practical dimensions of spatial organisation theories and internationalisation theories to conceptualise its key themes in the research. As a result the two chapters of the study address extant discussions on these themes from which the conceptual framework is derived. These broad sections are discussed in the sections below.

1.6.1   Theories on enterprise agglomerations and clusters, and policy implications

Two broad theories are examined in the first literature review chapter as the basis for appreciating how activities are organised in space. These theories are the so-called New Economic Geography (NEG) and the Industrial District (ID) models.

The NEG, led by Krugman (1991, 2011), and the cluster theory by Porter (1990) adopt market signals such as cost and prices in theorising agglomeration and therefore conform to the neoclassical theory. However, their epistemological orientation has been criticised by scholars in the ID model to have ignored intangible factors, such as history, networking and knowledge, which are critical in explain spatial organisation (Martin and Sunley, 1996; Martin 1999; Motoyama, 2008; Storper 2011). Therefore, the ID model believes that examination of spatial phenomenon is incomplete without an inclusion of intangible factors influencing spatial organisation (Brusco, 1982; Becattini, 1990, 2010; Amin and Thrift, 1992; 1994; Scott, 1998; Storper, 1997). This research however adopts Porter's (1998; 2003) work on the Industrial Cluster Model because it has been widely regarded by scholars, international organisations and governments for its simplicity and flexibility in explaining how firms organise themselves spatially (Martin and Sunley, 2003; Motoyama, 2008). The cluster model puts competitive advantage as central to a location. The competitive advantage has been attributed to the presence of 'highly specialised skills and knowledge, institutions, rivalry, related businesses and sophisticated customers' which constitute Porter's diamond (Porter, 1998, p 90). These dimensions of cluster make its adoption appropriate for the discussion of clustered businesses' internationalisation in Ghana.

1.6.2   Internationalisation of businesses: drivers in developing economies

The chapter also focuses on Traditional Internationalisation School (TIS) and International Entrepreneurial School (IES) theories in conceptualising the key factors that support exporting activities of businesses. The two theoretical schools of thought recognise the importance of experiential and objective knowledge in the internationalisation process. However, where TIS believes that the presence of 'psychic distances' between countries requires incremental commitment towards internationalisation (Bilkey and Tesar, 1977; Johanson and Vahlne, 1977; Reid, 1981; Anderson, 1993; 2009; Garvey, 2009; Kalinic and Forza, 2012; Vahlne and Johanson, 2013), IES argues that globalisation and the spread of ICT means firms may internationalise without the need to build such incremental commitments (Oviatt and McDougall, 1994; Bell et al, 2003; Coviello, 2006; Knight and Cavusgil, 2004 Cavusgil and Knight, 2009; Dib et al, 2010; Efrat and Shoham, 2012; Krishna et al, 2012).

The chapter ends by discussing the institutional support structures for internationalisation. The case of public institutional in clusters range from more limited assessment to more concerted strategies adopted through the agencies and departments to facilitate the internationalisation process in developing economies. These strategies include the application of export subsidies, export processing zones, trade finance, trade promotion organisations, and other factors for successful export promotion strategies (Stiglitz, 2007; UNIDO, 2009; Belloc and Di Maio, 2011; Martinovic et al, 2013; Clarke and Ramirez, 2014).

1.7   Methodology

The research adopts Mixed Methods Research (MMR) to study palm and pineapple processing business clusters. As a result both quantitative and qualitative techniques were adopted. The quantitative technique involved a questionnaire survey to collect quantifiable data from 99 processing businesses in the two clusters. Semi-structured interviews and direct observations were critical in the collection of non-quantifiable information from 24 participants – artisans, processors, farmers, distributors and head of government institutions – in the qualitative techniques. Using thematic analysis, data from both the qualitative and quantitative sources were triangulated in order to offer insightful understanding of the operations of clustered businesses and their internationalisation activities. The use of in-case and cross-case analysis further ensured a comparative examination of the operation of the two

clusters. The key findings are presented in graphs, tables, pictures, drawings and quotes throughout the empirical chapters.

1.8   The Study Area

1.8.1   Ghanaian context

The examination of clustering activities in Ghana requires an understanding of the location and topography of the country in order to appreciate the discussions. Ghana is located on the west coast of Africa, about 750 km north of the equator between the latitudes of 4 and 11.5º north and longitude 3.11° west and 1.11° east. It is bounded by three francophone countries − north by Burkina Faso, west by La Cote D'lvoire and east by the Republic of Togo − and the Gulf of Guinea (Atlantic Ocean) (Dickson and Benneh, 1994; GoG, 2016).

The nature of Ghana's land area and the climatic condition support all forms of agricultural activities. Land in Ghana is relatively flat and the altitude is generally below 500 m, with more than half of the country below 200 m, and the country has a total land area of 238,537 Out of a total land area of 23 million hectares, 13 million hectares (57%) is suitable for agricultural production. The average temperature for the two seasons of agriculture is generally between 21 and 32°C (70-90°F), which supports the vegetation structure and promotes agriculture. These climatic and topographical characteristics support the cultivation of various crops (Dickson and Benneh, 1994)

Population and Ethnicity
According to the 2010 population census, the current population stands at 24.6 million with females making up 50.8%. The most populous regions are Ashanti (19.4%), Greater Accra (16.3%), Eastern (10.7%) and Western (9.6%); together these four regions account for about 56% of the total population. Despite being the third most populous regions, the east region is only the sixth largest region in Ghana, covering 8.1% of the total land area of the country. This has implications for the labour supply in the region.

The official language in Ghana is English but most Ghanaians are able to speak one or more local languages, which facilitates the movement of labour across regions. There are several ethnic groups in Ghana. The largest ethnic group, the Akans, accounts for 47.5%, followed by Mole Dagbani (16.6%), Ewe (13.9%) and Ga-Dangme (7.4%) (Census, 2010). The dominant ethnic group in the Eastern Region where the two case studies can be found is the Akan

(52.1%), followed by the Ga-Dangme (19.9%), the Ewe (15.9%) and the Guans (7.2%). Echoing the results found in the national data, a large proportion of the population in the region can read and write in English, which facilitates the transmission of information within businesses (GSS 2002; 2012).

Political and administrative structure

Ghana is governed by a constitution approved by a referendum in 1992 which provides for a three-tier system of governance: the Executive, Legislature and the Judiciary. These institutions act independently and interdependently of each other. Additionally, the constitution provides the basic framework for competitive elections to the District Assemblies, the lowest unit of representation in government and an elected legislature representing the 270 constituencies in the country. There is also a local government system which is enshrined in the Local Government Act, 1993 (Act 462) and provides a four-tier structure consisting of 10 Regional Coordinating Councils at the Regional level, six Metropolitan, 49 Municipals and 161 District Assemblies (MMDAs).

The constitution calls for a multi-party system of democracy and since 1992 there have been six successful democratic elections which have been judged as free and fair by the regional and international communities. The stability in Ghana's democracy has arguably encouraged investments and economic growth (NDPC, 2010; KPMG, 2012).

Macroeconomy

In terms of the macroeconomic environment, the GDP of Ghana has been volatile since the turn of the millennium, with the year 2011 recording the highest growth rate of 15%[2] from 8.4% in 2008. By 2012, Ghana was labelled as an 'emerging economy'[3] by the World Bank (The Economist, 2013). The growth however has plummeted since 2011, with the Ghana Statistical Service (GSS) estimating a growth rate of 4.2% for the year 2015. The World Bank (2015) attributes such decline to instability in the gas supply from Nigeria, depreciating currency and inflation. The inflation annual average inflation rate in 2015 was 17.5%, rising

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[2] 15% is attributed to the discovery and exportation of crude oil
[3] Emerging economies are low-income, rapid-growth countries using economic liberalisation as their primary engine of growth in regions such as Asia, Latin America, Africa, and the Middle East and transition economies in Europe (Hoskisson et al, 2000)

to 19.2% for the month of March 2016 from an annual average of 9% in 2011 (GSS 2002; 2012 ISSER, 2015; GoG; 2016). These variations in inflation have a lot of implication for business growth and investment.

In terms of sector outlook, the agricultural sector growth rate has been declining since 2000 while the service sector has been growing. The declining fortunes of the agricultural sector have particularly been attributed to the rising demand for land for illegal mining and the growing real estate industry (Ghana Business News, 2015; Citifmonline, 2016). The agricultural sector contributed 30.4% to GDP in 2000 and the service sector stood at 48.8% of GDP in the same period. Compared to the agricultural sector's average growth of 4.16%, the service sector grew at an average of 8.94% between 2007 and 2013 in real terms. By 2014, the agricultural sector's contribution was 21.5% of GDP and was projected to decline further to 19% in 2015 (Budget Statement, 2015). This is not surprising because the average real growth rate of the agricultural sector declined to 2.38% between 2011 and 2015, compared to an average of 5% in the two decades prior to 2010. The service sector, on the other hand, had almost 50% of GDP by 2014 and has an average growth rate of 8%. In addition, the manufacturing subsector has been rising and its growth has been attributed to the expansion of the oil sector, since Ghana began drilling oil in commercial quantities in 2010 (ISSER, 2014; Oppong et al 2014; KPMG; 2015; Oppong et al, 2014; Budget Statement, 2015 Ghana Business News, 2015).

These declines in absolute and real agriculture growth rates have a range of implications for the study of agro-processing businesses and the livelihood of most Ghanaians, since the agricultural sector and it subsidiary industries remain the largest employer of the Ghanaian economy (ISSER, 2014). In particular, these declines have the potential to influence the government's trade policy objective that seeks to modernise agriculture in order to increase Ghana's agro-processing potential (Budget Statement, 2015). The performance of the agricultural sector in the long term also has the capacity to influence the fruit supply and sustainability of the agro-processing industry as a whole, more so when there is a growing demand for non-traditional exports in the international markets (KPMG; 2015). The situation would affect the prices of raw materials and increase the overall cost of production in the manufacturing sector. The situation also has the potential to threaten food security and worsen the already fragile terms of trade since businesses would have to resort to importing raw materials to sustain their operations. The research therefore is timely as it examines the

forward linkages between the agricultural and industrial sectors within clusters in order to appreciate how the production of palm and pineapples in two areas of Ghana supports processing businesses' exporting activities.

1.8.2   Eastern region

Agriculture has remained the dominant economic activity in the region and accounts for about 53% of employment (GSS 2002; 2012 ISSER, 2015). The climate and the soil structure support the cultivation of several crops. Some of the main crops cultivated are cocoa, palm fruits, pineapples and oranges. Palm oil is predominantly produced in the Kwaebirem district and it forms an important part of the district's economic activity (IFC, 2011; Osei-Amponsah et al, 2012). Similarly, pineapples, oranges and mangoes are suitable for cultivation in the region and their cultivation and processing are concentrated in the Nsawam municipality (Kuwornu et al, 2013; Ghana District, 2014). The Kwaebibirem district and the Nsawam municipality (Figure 1.1) will be the location for the study. The two locations offer two distinctive clusterings of economic activities that have experienced a considerable degree of success in recent years.

Figure 1.1 The study area

 (Source: Adopted from Ghanaweb, 2008)

The study focuses on business clustering of palm and 'pineapple' processing in the Eastern Region of Ghana. Though businesses in the pineapple cluster process other fruits, such as oranges and mangoes, the expression 'pineapple' is adopted by the researcher since it is the most dominant crop processed. The term 'fruit processing' includes all forms of value addition in relation to the harvested pineapple and palm fruits. In the case of pineapple processing, the preparation of the fresh pineapples by trimming, waxing and packaging, and turning them into fresh cuts, concentrates and dried fruits are all classified as part of pineapple processing. Palm processing on the other hand includes: the extraction of crude palm oil and any other refinery that occurs after the extracting of the palm oil. All these processing activities come under the sub-category 'processors' in the methodology.

Palm processing businesses in the region are estimated to have contributed about 300,000 metric tonnes to Ghana's annual palm oil production of about 500,000[4] metric tonnes, out of which only 100,000 metric tonnes are exported (Osei-Amponsah et al, 2012; Indexmundi.com 2015; MoTI, 2016). In the case of pineapple, 29180 metric tonnes of processed pineapple fruit were exported from the region in 2008. The total volume of processed pineapple exports is estimated to reach 60,000 tonnes by the end of 2017 (FAOSTATS 2009; NRI, 2010 MoTI, 2015). These findings are critical to the development of processing business activities in the region.

1.8.3 Historical perspective on the emergence of trade in Ghana

Inter and intra regional trading is nothing new with respect to Ghana. In fact, trading activities have been integral to Ghana's economy for centuries and this goes some way to explaining the nature of the trading that exists today. As far back as the 4th century, regular inter- and intra-regional trading activities took place between people of the Forest (the area Ghana currently occupies), Savanna, Sahel and Sahara (Adu-Boahen et al, 1986; Mikell, 1989; Boone, 2014). Trade and trading routes among West Africans were closely linked to the prominence of empires (Ghana, Mali and Songhai) that controlled the region's resources (gold, salt and slaves) and controlled trading. The kingdoms Bono-Manso and Begho (in now Bono-Ahofo region of Ghana) in the people of Forest were products of trans-Saharan trade in

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[4] Ghana per output is ranked as the 8th largest producer of palm oil in the world

the 14th century (Mikell, 1989). The trading was extended through agents/distributors popularly known as 'Dyula-Wangalra[5]' who acted as the middlemen, buying and selling items from different locations within the West African regions and beyond. These operations allowed them to acquire and trade in commodities not found in their home countries (Adu-Boahen et al, 1986; Mvuyekure, 2004). According to Adu-Boahene (1986), there were six principal routes in the north-south trade and two routes in the west-east trade with trading points in the north such as Fez, Algiers and Tripoli seen as critical points for trading with the Mediterranean and European regions (Figure 1.2). The presence of these routes and middlemen ensured that the trans-Saharan inter- and intra-regional trade persisted until the Portuguese arrived in Ghana.

The arrival of the Europeans added more competition to inter- and intra-regional trade and 15th century saw the redirection of trade routes towards the south. In Ghana, the coastal region became the central point for receiving goods from the hinterlands (Boahen, 1965; Adu-Boahen et al, 1986; Mvuyekure, 2004). The Portuguese arrived at the coast of Ghana in 1471; they were followed by other Europeans such as the Danish, Dutch and British. The presence of the Europeans in the coastal areas attracted traders from hinterland to, initially, sell gold, spices, dyes and timber before the plantation system in the Americas led to the transatlantic slave trade (Boahen, 1965; Mvuyekure, 2004). These European traders in the gold coast initially did not penetrate into the hinterlands but rather depended on the Fanti coastal dwellers to mediate their trading activities from their respective posts at the coast. In fact, the Akwamus, who controlled an extensive part of Ghana's coast, were seen as pioneers in the development of gold trading with the European traders (Boahen, 1965; Devisse, 1988). The carting of these goods to Europe and beyond through their respective vessels deepened inter-regional and international trade. Today, the same medium is being adopted in inter- and intra-regional trading. Inter-regional trade routes are mostly through the air and sea ports in southern Ghana and intra-regional trading networks and routes are through the borders into the west African region.

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[5] The Dyula-Wangara people are described as an insular endogamous clan of occupational merchants who marry from their groups and travelled as whole families along established commercial routes
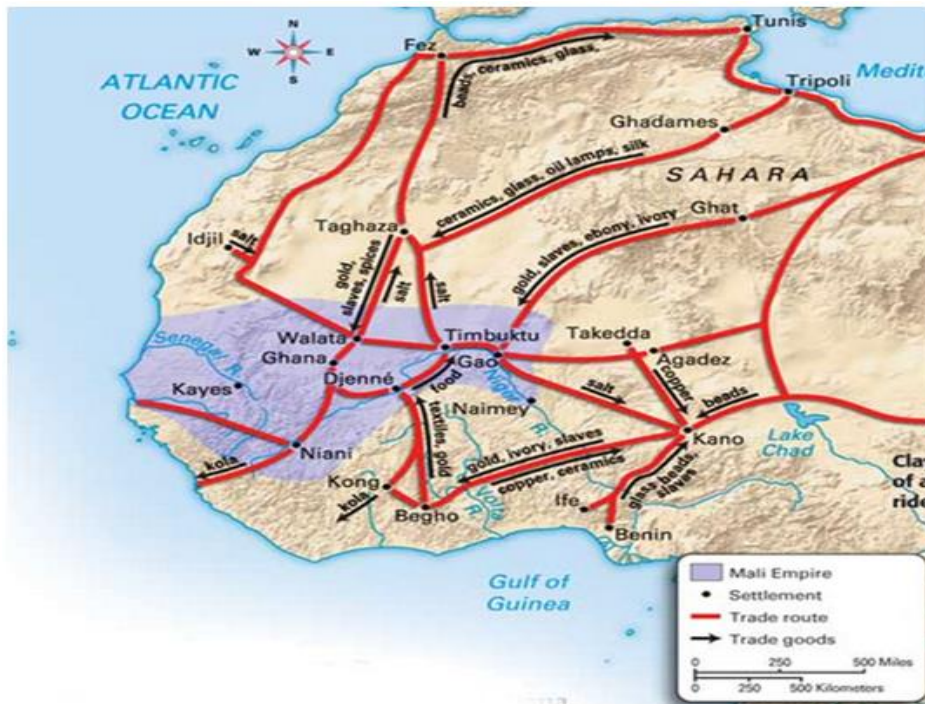
Figure 1.2 Trade routes before the 15th Century

(Source: Mvuyekure, 2004)

1.9   Structure of the Thesis

The thesis is divided into eight chapters. The overview of the study is provided in the introductory chapter (Chapter one), whilst the literature review is contained in chapters two and three. Chapter two develops a critical perspective on spatial organisation by looking at its theoretical and practical aspects by emphasising the significance of networking, knowledge and innovation in clusters.

Chapter three critically examines internationalisation drivers and barriers to business, with a specific focus on business networks and knowledge transfer for internationalisation. A review of the institutional environment within which businesses operate and the effect institutional structures have on business internationalisation in developing economies are examined in this chapter. The key themes from the literature are merged to create a conceptual framework to guide the methodology adopted and empirical discussions in subsequent chapters.

The methodology is developed to offer in-depth study in Chapter four. A mixed methods approach was used in both the data collection and analysis in order to broaden the insight into the phenomenon within the two clusters.

Chapter five is the first of the three empirical chapters. It examines the emergence of these clusters and the reasons for processing businesses' location; the relationships within the supply chain networks in the clusters; and the output growth of the processing businesses in the two clusters. The chapter seeks to understand the relationship between various actors in the clusters and how these actors influence the operation of processing businesses in the clusters.

Chapter six focuses on the way processing businesses learn, adapt and innovate within the two clusters. A comparative analysis is developed across three key dimensions: sources of knowledge and information transfer in clusters; new knowledge and technology adaptation from the international environment; and processing businesses' perceived levels of innovation within the clusters. The rationale is to understand how knowledge and information flow in the two clusters; the key gatekeepers of external knowledge; and the level of innovation in the clusters.

Chapter seven is structured into three sections: the structure of external market activities in the clusters; processing businesses' export relationships with distributors and customers; and public support for processing businesses' internationalisation. The aim is to offer a more comparative examination of how businesses in the clusters respond to marketing, networking and public sector support in their internationalisation.

Chapter eight summarises the main research finding from the three empirical chapters. It reflects on conceptual framework in light of the findings from this study and draws on the evidence to highlights the theoretical contributions, and the practical and policy implications. The final part of the chapter discusses the limitations of the study and offers suggestions for future research.

CHAPTER TWO: THEORIES ON ENTERPRISE AGGLOMERATIONS AND CLUSTERS, AND POLICY IMPLICATION

2.1 Introduction

The chapter provides a theoretical and practical understanding of place as a policy instrument for industrialisation. The principal subject matter for consideration include an understanding of the new industrial policy thinking about space; discussions on theories and strategies of agglomerations; and the nature of clustering experiences in developing economies. This study is particularly interested in the factors that promote cluster formation and functioning, in order to make sense of clustering as a policy tool.

2.2 Spatialisation of Industrial Policy Thinking

For over four decades now, spatial agglomeration has been widely researched due to the benefits that accrue to firms as a result of close proximity (Martin and Sunley, 2003; McCann and Folta, 2008; Porter and Watts; 2011; Scott and Storper, 2015). From a period of large-scale vertical hierarchical production structure or Fordism, successive macroeconomic disruptions have caused a change in the industrial strategy of nations and the world at large (Piore and Sabel, 1984). In their work, 'The Second Industrial Divide', Piore and Sabel attributed the external shocks in the economic system and institutional performance to the distortions in the production structure. As a result, a more disaggregated production system began to emerge with small- and medium-scale private sector businesses dominating the production sphere and producing at various sections of the production chain. As a result of spatial concentration along the production chain, small- and medium-scale private sector businesses offer a more 'flexible specialisation[6]' in the production process and therefore are able to meet the demand and supply structure of the world economy (Piore and Sabel, 1984). In the light of these changes, production strategies in developing economies such as in Ghana have shifted from being largely state-managed and inward looking, to a more disintegrated,

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[6] The concept describes transformations in the production process stimulated by new technology, skill and market development

private-led production structure (Aryeetey and Kanbur, 2008; Aregbeshola and Adewale 2012). These small- and medium-scale units of production, according to Piore and Sabel (1984), were found at various sections of the supply chain in the production process. Their structure and mode of production ensures a quick response to changes in technology and consumer demands. A body of literature was published in the 1980s and 1990s on these 'flexible systems of production' in some Italian districts, Silicon Valley in America and Baden-Wurttemberg in Germany (Becattini, 1979; Brusco, 1982; Piore and Sabel, 1984). The production structures, their concentration in a given location and their unique socioeconomic attributes facilitated debates on theory and practice relating the role of small- to medium-sized firms as drivers for industrialisation.

Krugman's works led to modifications in the neoclassical assumption on trade and economic growth (Brackman and Garretsen, 2009; Fingleton and Fischer, 2010). The neoclassical economics theory on comparative advantage (which postulates that labour is the only variable factor whose productivity is constant, is in perfect competition in production and has no transportation costs) provided no explanation for the agglomeration phenomenon (Behren and Robert-Nicoud, 2009). Krugman introduced the notions of imperfect competition and transport cost into trade, and he subsequently opined that labour mobility across regions led to a fully-fledged generalised equilibrium model which predicted the occurrence of agglomeration in a place (Behrens and Thisse, 2007).

Today, there is strong conceptual and empirical data showing a positive relationship between local and regional industrial agglomeration externalities and productivity increases, as has been observed in East Asia (Fan and Scott, 2009), the European region (Marrocu et al, 2013), and American districts (Delgado and Porter, 2014). Several dimensions of spatial agglomeration have been empirically studied to provide understanding of this phenomenon in space. The benefits of spatial agglomeration cut across nations and regions (OECD, 2007; Fan and Scott, 2009). However, these benefits are attributed to the interplay of social, economic and cultural conditions present in a given location. As a result, elucidating the desired benefit of any spatial agglomeration may require an understanding of the dynamics and the operation of businesses within a spatial agglomeration (Enright, 2000; Motoyama, 2008; Menzel and Fornahl, 2009; Dunning, 2014). The variations in regions mean that an industrial policy needs to be tailored to suit a country's individual circumstances – a localised growth in the spatial economy. Businesses in these locations could harness their strengths by

taking advantage of their proximity and relationship, which generate externalities and spillovers that enhance the production process (Singha 2011). These spatial differentiations accentuate the power of place by generating the needed industrial drive for development in the quest to industrialise. There should be an understanding of the interplay of intrinsic factors in space; careful analysis of the macro-, meso- and micro-level interactions must be carried out because such factors produce the uniqueness of each geographic space.

Two broad traditions of thought are examined in the following section: the New Economic Geography (Krugman, 1991; Porter, 1998; Bekele and Jackson, 2006) and the Socioeconomics of Co-location (Brusco, 1982; Scott, 1998; Sepulveda, 2008). The first tradition, which is founded on the works of Paul Krugman (1991, 1995, 1998), provides a theoretical explanation for the agglomeration of economic activities and the importance of these agglomerations. The Socioeconomics of Co-location in turn focuses on the non-traded factors that influence the relationship between firms and the socioeconomic and political environment in which they operate (Amin and Thrift, 1992, 1994; Becattini, 1990; Brusco, 1982; Scott, 1998; Storper, 1997).

2.3   Krugman's New Geographical Economics

Marshall's earlier work in the 19th century forms the foundation of Krugman's new economic geography (NEG) about the occurrence of agglomeration in space. Krugman postulated a micro-foundational study of spatial externalities which highlighted the significance of geography in economics, (Krugman, 1991; 2009; Fujita and Thisse, 2008, 2013; Hodder and Lee, 2015; Cotelo et al, 2015). Based on 'the relative factor endowments' concept, under the Ricardian comparative advantage theory, Krugman formulated a 'new trade theory' which argues that imperfect competition and increasing returns are the reasons for spatial agglomeration. This new trade theory led to the birth of NEG (Martin and Sunley, 1996; Behrens and Roberto-Nicoud, 2008). Acknowledging the validity in Marshall's industrial location theory, Krugman postulates a 'core-peripheral' model which demonstrates that pecuniary externalities generate centrifugal and centripetal forces that produce the nature of agglomeration in a place (Krugman, 1991, 1999, 2011; Cotelo et al, 2015).

The centripetal force is harnessed by Marshallian external economies which are captured as labour market pooling, specialist input and services, and knowledge and information flows. To Krugman, knowledge flow and spillover cannot be easily identified; therefore, he

excluded them from the model. Importantly, Krugman identified immobile factors such as land, rents and pure external diseconomies as the dispersion force, which he collectively labelled as centrifugal force. In effect, the spatial formation of economic activities is a result of agglomerating (centripetal) forces and dispersion (centrifugal) forces (Krugman, 1999). Krugman argued that agricultural regions are characterised by constant returns to scale with intensive use of immobile land; while the manufacturing regions are characterised by increasing returns to scale with modest use of land. This argument set in motion Krugman's core-peripheral model. The model showed that manufacturing will take place at sites with relatively large demand or near to the firm's main market in order to minimise transport costs. With lower transport costs and circular causation, manufacturing will generate concentration in non-rural towns due to the large market and goods and services produced there. This means that firms are able to exploit increasing returns by selling more goods in the larger market without losing much business in the smaller market (Fujita and Thisse, 2009).

However, Krugman admits that not all industrial locations or agglomerations are a result of optimal allocation or decision and therefore the causes of agglomeration are not fully explained by his model. As he explains, the initial pattern could simply be "an accident of history". He argues that, once established, the initial regional pattern tends to become "locked in" through a cumulative process based on increasing returns, as a result of forward and backward linkages (Krugman 1991a). These increasing returns, Krugman indicates, affect economic geography at different scales, from the location of a particular industry at the bottom of the scale, to the divergent regional development at the grand level. Despite the advantages that come with specialisation, Krugman cautions that overspecialisation, by concentrating all economic activity in an industry, will lead to less attention being paid to other industries and may make a region vulnerable to random external shocks; a shift in demand, for example, may render the entire industrial base obsolete (Krugman, 1999).

Recent works such as Fujita and Thisse (2009), building on the core-peripheral model and assuming mobility of labour using market size and relationships between firms and labour, try to generate explanations based on Krugman's core-peripheral model. They argue that the circular causation under the home market effect would lead to the eventual agglomeration of all firms in a single region (core of the economy). In addition, Fujita and Thisse (2009) contend that agglomeration in European economies is associated with very low labour mobility. This, they claim, is the result of inelastic labour supply, which causes wages to rise,

and increases in consumer demand for final goods due to rising income. Krugman (2009) further incorporates the new trade theory into the NEG by analysing increasing returns and transportation costs. He argues that *"as long as trade theorist shied away from increasing returns, economic geography is not an inviting field"* (Krugman, 2009 p. 567). In his more recent work, Krugman contends that, since NEG focuses more on tangible causes of the spatial concentration of economic activities rather than intangible ones, the theory is less relevant in developed economies as compared to developing economies (Krugman, 2011). For instance, Krugman (2011, p. 6) argues that the performance of China in recent times, with the dominance of industrial localised stories of clusters in Wenzhou, Yanbu and Pengjiang, *"fits gratifyingly well into the NEG frame of the US manufacturing belt in the 19th century"*[7]. This has led to the rising contribution of developing economies to the total world manufacturing, and their appreciation of place as the core peripheral model is put into practise with labour mobility at its centre (Krugman, 2011; Basile et al, 2016)

Martin (1999), Boschma and Frenken (2006) and Ivanova et al (2016) have all argued that the NEG's use of assumption and mathematical models in their debate, and the fact that the NEG analysis of place remains largely static, aligns it with neoclassical economics. Boschma and Frenken (2006) argue that Krugman's work has moved neoclassical economic theory closer to evolutionary economics, which aims to understand the spatial distribution of routines over time. Evolutionary and neoclassical approaches share a common methodology of modelling, including the usage of the concept of neutral place and the possibility of lock-in and irreversibility (Boschma and Frenken, 2006; Ivanova et al, 2016). However, whereas Krugman's view of NEG explains agglomeration using pecuniary rents, evolutionary theory explains agglomeration economies from knowledge externalities.

However, Storper (2011) acknowledges the micro-foundational nature of NEG in discussing trade cost factor mobility and scale economies but he indicates that NEG is a replication of the central place model. Martin (1999) on the other hand argues that, due to the abstract and oversimplified nature of the NEG model, it does not lend itself to empirical estimation or application. Aside from its simplicity, Martin (1999) agrees with arguments among scholars

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[7] Krugman admits that localised industrial production is more outward looking towards the global market and therefore calls for a rethinking of the logic of the NEG.

that the NEG neglects a host of other important spatial factors that significantly influence the agglomeration of economic activities, such as local infrastructure, local institutions, public sector and global competition (Martin and Sunley, 1996, 2015; Storper 2011).

Most importantly, Martin and Sunley (1996) argue that the narrow epistemological orientation of NEG has led to a neglect of essential socioeconomic structures of society that influence agglomeration. Martin (1999) argues that the NEG has been long on mathematical modelling and exceedingly short on empirical application. He argues that, due to the love for theory, real-life situations have been oversimplified, making the applicability of the theoretical models generated more questionable. Martin believes that the role of increasing returns and externalities of spatial agglomeration in a location requires a holistic understanding of the interplay of socioeconomic factors and actors in that space. Therefore, neglecting a host of important forces severely limits one's ability to explain the occurrence of a phenomenon in space. Martin (1999, p. 75) states that, "*for one thing, it means that 'messy' social, cultural and institutional factors involved in spatial economic development are neglected*".

In addition, the 'locked-in' notion of history in Krugman's model has been criticised as not being continuous and therefore it loses track of significant changes that may occur in a location. Motoyama (2008) argues that history is not static and the study of agglomeration as a snapshot of an economic phenomenon is inaccurate. He argues that history does not end with the establishment of spatial equilibrium; history evolves before, during and after the attainment of spatial equilibrium. Martin (1999) believes that the NEG treatment of history is metaphorical. Given that several socioeconomic factors are necessary to generate spatial agglomeration, the historical component will continuously be occurring and shaping the nature of agglomerations (Martin, 1999).

In a commentary on Paul Krugman's more recent work, Storper (2011) disagrees with the assertion that the NEG is now middle-aged in developed economies and there is the need to focus on developing regions. Storper points out the relevance of the NEG model in moving from the discussion on agglomeration of core and peripheral regions to other forms of agglomeration. Krugman explains that, like the derivation of an imperfect competitive market, there are several dynamisms in agglomeration in developed economies that must be explored, for instance, the practicality of merging NEG with the non-traded factors that has discussed as a criticism to the theory.

Storper (2011) also argues that geographers are too much in love with messiness and there is the need for geography and NEG to strike a balance in the explanation of spatial agglomeration. He contends that the exclusion of technological spillover in the NEG model, due to issues of tracing the extent of such externality and focusing only on tradable externalities, generates limitations to his empirical model. He also argues that the epistemological orientation of the NEG and the limited incorporation of non-traded factors make policy applicability difficult (Storper 2011).

Despite these criticisms, the New Economic Geography's thinking has demonstrated theoretically how agglomeration occurs and the necessary tradable externalities that may emerge from agglomeration. However, as has been noted by several authors (Martin and Sunley, 1996, 2015; Martin, 1999; Motoyama, 2008) and admitted by Krugman, the NEG's model takes a partial look at agglomeration and remains theoretical static and descriptive since economic phenomena are measured at a point in time. These affect the NEG theory's ability to comprehend the real issues of spatial organisation as a continuum and a non-static entity. It is this limitation that the socioeconomics of co-location has sought to addresses.

2.4 Socioeconomics of Co-location

A different stream of scholars pose that socioeconomic, cultural, institutional and historical factors are at the centre of factors influencing enterprise agglomeration. These streams of work emphasise the network relationships that produce intangible externalities for firms in co-location. Works by Piore and Sabel (1984), Brusco (1982) and Becattini (1979) among others seek to project the non-traded benefits firms gain from co-location. The extensive work accomplished by scholars under this stream has led to the proliferation of literature on inter-firm collaborations, competiveness and cooperation embedded in different locations.

2.4.1 Industrial districts

Inspired by a volume of publications on industrial clusters in Italy (Becattini, 1979; Brusco, 1982; Belussi, 2015; Balland et al, 2016), Piore and Sabel introduced the 'flexible specialisation' school, and argue that capitalism has entered a new paradigm in its development since the small-scale, efficient production systems have adopted latest technology and are meeting the needs of small, specialist niche markets (Piore and Sabel,

1984). The re-visitation of Marshall's seminal work on industrial location and economic agglomeration is at the heart of these developments. Marshallian industrial districts (IDs) capture the advantages that industrial districts produce to include the build-up of a local pool of expertise and know-how, and a culture of labour flexibility and cooperation resulting from dense social interaction and trust. The concentration of these small, locally owned firms in a district with relatively low scale economies of production are engaged in extensive intra-district trade among buyers and sellers. The Marshallian ID asserts that co-located buyers and sellers engage in long-term contracts and commitments and make key investment decisions locally. There exists a flexible labour market that commits more to the growth of the district rather than the firms and which has a low level of out migration. Due to these factors, a unique cultural identity bond is built which ensures that the district enjoys external economies (Marshal, 1929; Markusen, 1996; Becattini, 2002; Schilirò, 2012; Belussi, 2015).

In another breath, Becattini's (1989) work on industrial districts agrees with Marshallian ID, but he added that there must be both specialisation in the production of a dominant output in a community of people and a parallel institutional system that has evolved over time. This ensures the transmission of innovation through the institutional system created – consisting of the market, the firm, the family, the government, political associations, trade unions and private business associations. He adds that specialisation ensures that the firm's operation is a single step of a few steps in the production process in a district which brings about localised division of labour. The work in the Italian district informed by Marshall-led Becattini (1978) and other scholars to conclude that the ID is a model of a naturally and/or historically bounded place characterised by the presence and interpenetration of a community of people, and a production apparatus (Becattini et al, 2010).

Markusen (1996) explains that the Italian IDs hypothesised features, aside the Marshallian ID, include a high degree of cooperation among competing firms in the sharing of risk in stabilising markets and in sharing innovation. She adds that there must be a strong regulatory role of the local government and a strong trade association, which provide the mechanism for sharing risk. She argues that the high exchanges and cooperation rest on the trust that exists in these districts. Becattini et al (2010) indicate that the trust and knowledge in the districts support firms to engage in similar or complementary activities, exchanging intermediate resources and outputs through local markets, as well as within formal or informal business teams. In effect, an essential aspect and feature of industrial districts is the combination of

competition and collaboration between firms and their socio-cultural environment. Schilirò (2012) in turn sees IDs as a spatial agglomeration of interdependent businesses with flexible firm boundaries and disaggregated production structures that cooperate. He adds that IDs both compete and harness trust in reproducing sustained collaboration among economic actors in districts, which has become the focus of industrial growth for many developing economies (Schilirò, 2012).

According to Carbonara (2002), the critical factors that govern the operational success of IDs include division of labour among firms; production specialisation accumulated through specific knowledge; interlink between economic and social systems; learning and innovation; and the presence of socio-cultural values. Firms in the IDs operate at different levels of the production value chains and concentrate their production on a section of the value chain. They are therefore able gain superior knowledge on how to produce that portion of the final good efficiently. According to Brusco (1982), Becattini (2002) and DiGiovanna (2002), the peculiar social and cultural factors in each district provide the stimuli for their growth. Knowledge of operation (often tacit knowledge) and innovation are embedded in the fabric of the socio-cultural fabric of the district, and through their interaction with the production system they are transferred into outputs. The presence of skilled and unskilled labour, the roles of the trade unions and of local governments and other institutions reduce operational risks and provide needed competitive advantages. This is due to the presence of shared infrastructure, marketing, training, technical and financial services which, without the cooperation and networking relationship, an individual small firm could not harness. It is this socio-cultural nature of the production environment that the neoclassical economic theories have not been able to capture.

It is interesting to note from literature that the existence and operation of IDs depends on the socio-cultural and economic uniqueness. This means that, although there may be striking similarities in operations, no two IDs could operate and function in the same way. Since an essential feature of ID generation is the socio-cultural peculiarity of the district, scholars have questioned how the success of IDs can be transferred. If the success of any ID is as a result of an embedded socio-cultural attribute and socio-cultural attributes are culture specific, then there could be no such situation as an easy transfer of the whole success story of IDs. Hence, despite extensive work on IDs in Europe and America, these studies have largely remained context specific (Harrison, 1992; Carbonara, 2002; DiGiovanna, 2002).

Most of the literature on IDs refers to successful stories in the 1970s and 1980s. In recent years, globalisation has been diminishing the relevance of one of the key features of the IDs theory – the self-sustaining nature of the IDs. By self-sustenance, it means investment and innovation decisions are endogenous to the ID; moreover, there exists a lower degree of cooperation or linkages with firms external to the district. Carbonara (2002) and Schilirò (2012) argue that globalisation and the spread of information and communication technology are creating competitive situations which are pushing IDs to abandon their traditional structure. IDs have evolved due to globalisation, technological view change and the multi-circular nature of policy support. Becattini et al, 2010 argue that the two main critical nodes driving the IDs evolution are:

- The expanding intrusion of science-based knowledge in the world of production

- The nature, intensity and scale of the increasingly global networks with which IDs have to engage for knowledge, goods/services and labour exchanges

External influences are coming from relations with national university systems, relations with international networks of innovation-related actors and radical investment in research and development which are *"altering not only the delicate balance between scientific and 'practical/tacit' knowledge, but also the delicate balance between cooperation and competition that drives IDs' vitality and dynamism"* (Becattini et al, 2010, p. 7). From the ensuing discussion, the self-sustaining structure of IDs has become questionable as no ID is immune to global integration. These scholars conclude that IDs would have to embrace global innovation structures if they are to survive. If we consider that technology and innovation change regularly, and that consumer demand has become more sophisticated, the issue then is how IDs would respond to these changes that are exogenously determined.

On the performance of IDs in recent times, Schilirò (2012) projects the vibrancy of the Italian IDs; he argues that through cooperation these IDs are still actively transforming some regions in Italy. However, other studies on IDs' performance also in Europe tell a different story (Schilirò, 2012). The work of Garfamy (2011) on five IDs in Sweden and Spain adopts specific qualities such as their pre-existing conditions, local traditions, products and production characteristics, marketing strategies and local policies to demonstrate their abysmal performance. Garfamy (2011) concludes from his findings that the adoption of short-term cost cutting strategies for long-term collective strategies in Spain is halting ID

development. In addition, he indicates that lack of entrepreneurial culture, encouragement for self-starters and creative territorial energy around many large firms has led to the mishaps in the development of IDs in Sweden (Garfamy, 2011). The issue then is why are some IDs still active and performing while others are struggling? There may be other underling factors that are worth knowing. The arguments, in recent discussions, are focussed on innovation and changes in the global economies and how IDs are accommodating these changes. It is in light of this that Garfamy (2011) calls for greater government support for local and sector associations among small firms in order for these firms to develop and innovate to meet the globally changing demand.

In sum, the theory on IDs highlights the agglomeration of firms and other intermediary institutions whose systems of operation are embedded in the socio-cultural and economic structure of a location. As a result, their interactions and networks generate externalities that sustain the operations of the ID. However, globalisation is altering the nature of these IDs as new knowledge and networks emerge outside the districts. The issue then is what is the nature of these networks and how do the networks facilitate the access, transmission and diffusion of new and often geographically widespread knowledge and innovation? The next section examines network theory in order to understand the nature, dimensions and types of networks that exist, and the relations between networks and knowledge and innovation.

2.4.2   Networking and spatial organisation

Empirical works over the years have shown that the nature of the network to which a business belongs may influence its performance and growth (Lee and Tsang, 2001; Boso et al, 2013; Hilmersson and Papaioannou, 2015). The work by Boso et al (2013) using primary data from entrepreneurs from Ghana observed that the network activity of businesses through entrepreneur and market orientation improves business performance. Similarly, a study of the network activities of 168 Chinese entrepreneurs in Singapore revealed that their network ties and number of customers positively impacted on their growth (Lee and Tsang, 2001). Networking activities in businesses are therefore important to understand the businesses' operations and dynamics. As a result, a study of the supply chain networks of exporting business clusters in Ghana would not be complete without the examination of the networking ties that support their operation.

Studies under the Network Theory in economics and economic sociology have evolved from the works of scholars such as Granovetter (1983, 1985). The formation and evolution of the Network Theory have received attention from scholars including Brass and Halgin, (2011) and Borgatti and Halgin (2012). According to Borgatti and Halgin (2011), a network consists of a set of actors or nodes along with a set of ties of a specified type (such as friendship) that link them. In addition, Brass (2011) conceives networks as a set of nodes and the set of ties representing some relationship or absence of relationship between the nodes. Networks can occur between organisations or within an organisation where power, completion, cooperation, takeovers, turnover information flow, attitude, promotion and social support exist (Salancik, 1995). Networks consist of two or more organisations pursuing common objectives or working towards solving problems through a period of sustained interaction (Huggins, 2000).

Additionally, Salancik (1995) argues that the issue of how many individuals or organisations are reached on average (network size), whether all individuals or organisations in the network can reach each other (connectivity) and who reaches the most individuals or organisation, are essential issues for consideration in understanding networking. From the social network perspective, Granovetter (1985) argues that purposive actions of actors are embedded in a concrete evolving system of social interaction. Therefore, networking relationships are not cast in stone but are continuously evolving through the interaction of actors. He argues that "*actors do not behave as actors outside a social contest, nor do they adhere slavishly to a script written for them by the particular transaction of social category that they happen to occupy*" (Granovetter, 1985, p. 492). Networks epitomise social relationship, which is a necessary condition but not sufficient to generate trust. Trust evolves over time as actors build on their social relationship in the network. Granovetter (1985) argues that, with respect to businesses, their satisfactory past dealings determine the level of trust or confidence held in a relationship. Brass and Halgin (2012) argue that, since information circulates in a closed network, it serves as a check on member's unethical behaviour and provides a generalised frame of trust in the network. In addition, the social relationship in networks has been observed by several scholars as being the driving force of inter- and intra-firm interaction (McCann and Folta, 2010).

It is worth noting that networks provide several benefits to their members, which Brass (2011) refers to as social capital. For instance, Eisingerich et al (2009) observed from their study of eight clusters in Canada and Australia that the presence of a strong relationship in the

firm's network positively influences the cluster's performance. Parrilli (2009) argues that networks serve as a mechanism through which information flows and innovation diffuses; this mechanism may be absent if the business is not in a network. Through interactions characterised by trust and mutual obligations, individuals or organisations in the network obtain advice and assistance in the adoption of new production techniques and a system of distribution. According to Borgatti and Halgin (2011), the relevance of networks in the distribution of resources and provision of essential information within the networks is based on the firm's social position in a network. They argue that an institution's or an individual's position in the network serves as an anchor which determines the extent of information and resources the firm or individual is able to obtain. The firm's networks may also include a variety of non-firm actors such as research institutions, universities and training bodies, as well as government institutions (Asheim et al, 2011). In Storper's (1997) view, localised production, proximity, and networking (formal and informal) are essential elements for collective efficiency. He argues that, when firms produce in small network groups, it ensures flexibility, which enhances the individual's and organisation's adaptability to changing consumer needs and external shocks. This means that a firm's networks can be dispersed over a wider territory – external and internal networks (Storper and Harrison, 1991; De Propris et al, 2008). Network sophistication and boundaries have widened in an era of globalisation and a firm's competitiveness is evident in the external and internal network ties it builds (Klumbies, 2011). Therefore, to immense into the global production structure, these networks can serve as 'global pipelines' (Morrison et al, 2012) to transfer new knowledge and innovation into the local production structure. The situation has brought changes to IDs in Italian regions (Schilirò, 2012). As a result of globalisation, most Italian districts, according to Schilirò (2012), through their respective networks have undergone significant changes in the quality of their products and the infusion of innovation in order to meet global competition. The examined literature leads to the expectation that a firm's belonging to a network provides some benefits; however, the nature of the network ties is significant in determining the gains.

The strength of the network is captured by the attempt of actors at purposive action which is embedded in a concrete on-going system of social interaction (Granovetter, 1985; Klumbies, 2011). Organisations' or individual actor's interaction and relationships can generate weak or strong ties (Borgatti and Halgin, 2011). Weak ties typically occur between individuals/organisations who may communicate but who do not consider themselves

members of a close personal network (Granovetter, 1983). Weak ties are considered to be heterogeneous as the actors involved do not belong to the same social system, but their involvement ensures that information flows and connections are created to other social structure such as associations, clusters and other social groups (Granovetter, 1985; Jack, 2005). On the other hand, strong ties represent individuals or organisation in close social personal networks which are constantly in communication and share similar situations and are found in similar social grouping (Granovetter, 1983; Wright and Miller, 2010). Strong ties are homogeneous given that individuals or organisation are drawn towards close relationships with those they have similarities with such as demography, attitudes, and backgrounds (Wright and Miller, 2010; Brass, 2011). It suffices to state therefore that these variations in network ties may influence the operations of the organisation and its varying benefits.

For instance, in the work of Brass and Halgin (2012) they argue that weak ties have the capacity to serve as bridges to disconnected social circles and may lead to the provision of useful non-redundant information. This is because weak ties often provide access to diverse points of view and information typically available within more intimate relationships (Wright and Miller, 2010; Borgatti and Halgin, 2011). It is in light of this argument that Granovetter (1973) indicates that homogeneity in the strong ties can limit the diversity of information and viewpoints one obtains about topics, especially regarding certain essential information. On the other hand, strong ties facilitate more transfer of information and are able to solve problems due to the trust reposed in each other, which is brought about by their homogeneity (Granovetter, 1973; Uzzi, 1997). The work of the Italian regions and other regions in Europe have been used by scholars such as Brusco (1984), Becattini (2002) and Piore and Sabel (1984) to provide detailed accounts of how the embedded social relations of the IDs in these regions promoted trust and spurred on their performance. Brass (2012) contends that the downside of strong ties is that they come with stronger obligations to reciprocate and require more time and energy to maintain. Despite several decades of interest in the nature of networks and network ties and the choices firms make regarding the benefits and limitations of these networks, researchers have touched less on the critical factors that sustain networks of formal and informal clustering in their operations – especially in developing economies.

As noted from the discussions on firm network, knowledge and innovation are essential benefits that emanate through firm networking, and authors such as Asheim et al (2011) and Schilirò (2012) deem it important in understanding how firms in the IDs survive in global

competition. The next section examines the relevance and dimensions of knowledge and innovation in the firm's operation.

2.4.3   Knowledge, learning and innovation in spatial organisation

The concentration of production within rich socioeconomic networks of firms, adequate supporting institutions and effective local governance generates the platform for knowledge creation, learning and innovation in location (Asheim et al, 2011). Through inter-firm and intra-firm interactions, the firms are able to generate knowledge; thus, they learn in a globalised competitive world's production system. The role of proximity and local ties in the dissemination of knowledge and innovation has received considerable attention. Asheim (2001) contends that the challenge for bringing location back into economics rests on the learning which is prompted by the location of the firm. Learning, as an innovation process, according to Asheim (2001), is embedded in the history of location. This waters down the linear model of innovation and projects the supremacy of firm clustering as an efficient material context of innovation.

Works on IDs have revealed the relevance of location in the distribution of information and knowledge acquisition and sharing. As a result, two forms of knowledge have been observed in the production process: formal or 'codified' and informal or 'tacit' knowledge (Oinas, 2000; Helmsing, 2001; Becattini, 2002; Asheim, 2011). Informal or 'tacit' knowledge constitutes the knowledge acquired through practise and interaction of economic actors and institutions. It is unstructured, unintentional, not bound by time, and does not lead to certification. Formal or 'codified' knowledge, on the other hand, is deliberately acquired through an education programme or in a training institution or accompanying a product or service. It is structured, and it leads to certification (CEDEFOP, 2008). Malmberg and Maskell (1999) and Munari et al (2011) believe that face-to-face interactions exemplify the use of tacit knowledge and information which is transmitted based on mutual trust in the local proximity. The concept of tacit knowledge is associated with Polanyi's work in the 1950s; Nonaka and Krogh (2009) referred to the concept as a non-coded knowledge which is location specific and thus provides location differences. Scholars have agreed that tacit knowledge is entrenched in proximity relationships and it is transferred between organisations as people move jobs. Moreover, it provides a higher premium (Nonaka and Krogh, 2009; Asheim and Hansen, 2009; Pina and Tether, 2016). Therefore, tacit knowledge together with

codified knowledge gives a location inimitability in the production system but, since production systems do not exist in isolation, there is the need to innovate if firms are to compete in the global system of production (Todtling et al, 2012; Pina and Tether, 2016).

It can be inferred from the discussions above that no two locations can have the same combination of tacit and codified knowledge; therefore, there is diversity in knowledge and innovation with respect to location. Asheim et al (2012) recognise that these elements of regional diversity account for failures in adaptations of the 'one-size-fits-all' policy. However, Asheim et al (2012) do not see diversity alone as a sufficient regional development inducement factor; rather, they propose specialisation in technologically-related sectors to induce development in a region as the sectors are able to absorb technological spillover provided they have a similar technological base. The new technologies are transmitted through personal interactions and relationship ties among members in close proximity. Through their network ties, firms are able to access new knowledge and technologies in the production process. By cooperating with each other, actors in these sectors are able to absorb the new knowledge and technologies transmitted (Gallié, 2009; Munari et al, 2011; Asheim et al, 2012; Ahammad et al, 2016). It appears that close contact and face-to-face interaction among economic agents leads to the transfer of valuable 'tacit' knowledge which facilitates localised technological spillovers. However, measuring the rate of such spillover remains problematic (Munari et al 2011; Chen and Tan, 2016). The critical question here is: what is the source of this new knowledge and technologies and which economic agents that pursue knowledge mediation function for the local system? Moreover, what are the main bottlenecks in transmitting this knowledge and technology in developing economies?

Oinas (2000) argues that, in a globalised world, knowledge and learning may come through imitation and the creation of entirely new knowledge. Imitation thrives both in proximity and in distance within the right network and place. However, Asheim (2001) argues that imitation based on exogenous knowledge is problematic in itself and it does not represent an innovative region; moreover, there are intangible differences in the adoption and application of technology. He holds that the firm's competitiveness comes with the creation of new knowledge through searching, exploring and experimentation in the development of new products and processes in consonance with socio-cultural attributes which may create variety in technology and make it difficult to imitate embedded knowledge (Asheim, 2012). Todtling et al (2012) acknowledge the complexity of knowledge creation, learning and innovation by

arguing that tacit and codified knowledge cannot be assumed as a simple phenomenon since they coexist in different combinations. These combinations are distinguished by 'analytical', 'synthetic' and 'symbolic' knowledge bases (Todtling et al, 2012; Asheim et al 2012):

Analytical Knowledge Base is a codified form of knowledge that requires special training to generate and, as a result, brings about radical innovation. Due to its mode of acquisition, this form of knowledge requires patenting and licensing.

Synthetic Knowledge Base on the other hand constitutes a blend of codified and tacit knowledge targeted at solving specific problems arising in the production process as customer and supplier interaction. Unlike analytical knowledge, synthetic knowledge, though adopt research and development (R&D), generates incremental innovation in existing firms

Symbolic Knowledge Base is distinctive tacit and context-specific knowledge generated as a result of the dynamic development of cultural specific production which incorporates and transmits aesthetic symbols, images (de)signs, artefacts, sounds and narratives with a strong cultural content.

Asheim (2012, p997) argue that *"complexity and diversity of contemporary knowledge creation and innovation processes require firms to acquire new knowledge to supplement their existing knowledge by attracting human capital possessing competences based on a different knowledge base"*. As a result, knowledge flows can take place between industries with very different degrees of research and development intensity and different knowledge-based characteristics (Asheim, 2012). Though knowledge flow can take place between different industries, the issues of differentiated variety and institutional frame may serve as bottlenecks to the smooth diffusion of the knowledge (Munari et al, 2011). The fact remains that knowledge, be it symbolic, synthetic or analytical, contains institution- or organisation-specific characteristics that may impede the smooth transmission and absorption of knowledge. In effect then, knowledge is either tacit or codified irrespective of the classification.

Helmsing (2001) and other scholars have argued that innovation is the key to competition in global production systems today. Innovation may be incremental, which involves gradual upgrading and learning through interaction of economic agents, or radical, which results in

immediate adoption of technology (Asheim 2001); moreover, a firm gains from integrating into local, national and international networks and innovation systems. As Asheim et al (2011b) put it: *"innovation is about the creation of new products and processes, but to be effective it must draw on the capabilities of regions"*. These scholars argue that the factors mediating geographical transfer of knowledge include: the knowledge transfer system; the institutional setting; the financial system; education and training; the availability and mobility of skilled labour (human capital); and public policy. An innovative milieu conducive to innovation and continuous improvement evolves as a result of collaboration with suppliers, subcontractors, customers and supporting institutions in a region (Asheim et al, 2011b). Asheim et al further argue for radical innovation; they state that, despite the cost of and the uncertainty in the adoption of radical innovation, a learning economy is better placed in the long term. However, if a learning economy relies on incremental innovation it will be increasingly difficult for the firm to reproduce and grow in the long term (Asheim et al, 2011b; Coad et al, 2016).

In addition, recent debates on innovation make a strong case for the need to incorporate external knowledge in order to meet global competition (Munari et al, 2011). External knowledge networks serve as the means through which new knowledge permeates a location. Firms build 'pipelines' to access knowledge that is not already part of their repertoire. These pipelines are the channels used to access distant relationships which are out of the information and communication ecology created by face-to-face contacts, co-presence and co-location of people and firms within the same place. Bethel et al (2004) argue that, with the build-up of trans-local pipelines, the more information and news about markets and technologies are 'pumped' into internal networks the more dynamic the buzz from which local actors benefit. The issue, however, in recent works of Munari et al (2011) and Morrison et al (2012) is the ease of technological diffusion within firm clusters considering that there is unique tacit knowledge associated with these new innovations that may come through the pipelines external to the firm clusters. There is therefore the recognition of knowledge recipient, translators and diffusers of this knowledge ('gatekeepers') in absorbing and defusing this acquired knowledge in the buzz (Munari et al, 2011; Morrison et al, 2012). The effective functioning and sustainability of a cluster requires constant flows of knowledge and innovation through the global pipelines in order to augment the local knowledge created (Moodysson, 2008). In theory, this will make clustering of firms in a location competitive in

the international global market. The issue then is how different locations can harness the external knowledge, especially the informal and formal sectors in developing economies.

In summary, the discussions so far lead to the expectation that knowledge may be distributed through interaction of economic agents in a place. These interactions spur technological spillover in a location. However, to sustain the operations in these locations requires the infusion of new knowledge external to these locations. The external knowledge may be tapped through external ties and transmitted into the place. But there are issues of socio-cultural differences that may impede the smooth transmission in a location.

In the next section, the Porter's cluster construct is presented to provide a firm-level competitive strategy that can be projected to the regional and national level. This will serve to throw more light on the advantages of firm location. Therefore, the term 'cluster' is used to represent the collection of firms in a location. The industrial cluster construct, by its nature, is easily adaptable and is used to represent different spatial agglomerations, which means the development pattern is taken to be universal and the same strategy is applied to different industries in different regions and nations (Martin and Sunley, 2003; Motoyama, 2008). Unlike IDs that are defined by the place (place-dependent path-dependency), the cluster model provides the means of operation in order to be competitive. Martin and Sunley (2003) contend however that there are some general characteristics that are common to all clusters. The friendly writing style of Porter and the cluster's strategy orientation towards competition defines its attractiveness among policy makers and scholars, (Martin and Sunley, 2003; Motoyama, 2008). The cluster approach provides a more transparent, inclusive and potentially less trade-distorting framework for efforts to strengthen strategic sectors than the prior policies of supporting large and often state-owned firms (OECD, 2007).

2.5   Industrial Cluster as a Policy Tool

Porter's industrial cluster strategy also takes its roots from the Marshallian tradition of industrial location. The cluster strategy recognises the importance of proximity and the interaction of economic agents which are not limited to only firms. According to the OECD (2007), *"a number of other terms are used by academics and policy makers to describe related phenomena, such as industrial districts, networking, and systems of production or, for the broader environment, a regional innovation system"*. This makes the acceptance of a unique definition of clusters very difficult. However, the definitions of clusters project two

dimensions in its conceptualisation – spatial and network dimensions. These classifications, which have been equally observed by Motoyama (2008) and Prejmerean (2012), have influenced the identification of the cluster phenomenon in space. The cluster strategy revolves around Porter's 'competitive diamond', which relates industrial clusters to competition and comparative advantage. Porter argues that clusters are dynamic and their prosperity is driven by the firm's productivity, which emanates from competition and complementary behaviour. Among other definitions of cluster offered by Porter (1998, P. 226), clusters represent *"a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities"*. Alternatively, Porter explains that a cluster is a network that occurs within a geographic location in which the proximity of firms and institutions ensures certain forms of commonality and increases the frequency and impact of interaction (Porter, 1998, P. 226). These definitions, according to other scholars, remain largely static (Cooke, 2001; Motoyama, 2010). As a result, Cooke (2001) proposes, among others, that dynamism may emerge with the addition of other features such as:

- Clusters sharing an identity and future vision

- Clusters exhibiting turbulence as firms spin-out, spin off and start from other firms

- Clusters revealing, over time, the features of emergence, dominance and decline

The cluster construct emanates from Porter's competitive diamond. This competitive diamond, according to Martin and Sunley (2003), is the driving force in cluster development; at the same time, the cluster is the spatial representation of the competitive diamond. Porter's competitive diamond, in Figure 2.1, puts forward four determining factors of competition at the firm level. The first determinant focuses on local demand conditions, which postulates that increasingly demanding home customers cause firms to upgrade and differentiate their products and services to serve local as well as foreign markets. The factor input conditions in the form of the quantity and quality of natural, human, capital, administrative, scientific, technological, and infrastructural resources constitute the second determinant. The third determinant is made up of quality, and capability of locally based suppliers and the presence of competitive-related industries. The final determinant is the strategy and rivalry context of the firm and the rules, incentives and norms governing the type and intensity of local rivalry (Porter, 1998).

Porter believes these four elements of the diamond are essential to the understanding of the role of the cluster in competition. This is because competitive firms are not scattered helter-skelter throughout an economy but are clustered either '*vertically*', where firms or industries are linked through buyer-seller relationships, or '*horizontally*', in which industries might share a common market for the products, use a common technology, labour-force skills and similar resources (Porter, 1990). Therefore, factor inputs – tangible and intangible assets – especially those concerned with innovation and upgrading must improve inefficiency to cause an increase in productivity. This affects the firm's local-level strategy and rivalry. In effect, the competitive nature of a country is seen as a bottom-up policy orientation (Porter, 1998).
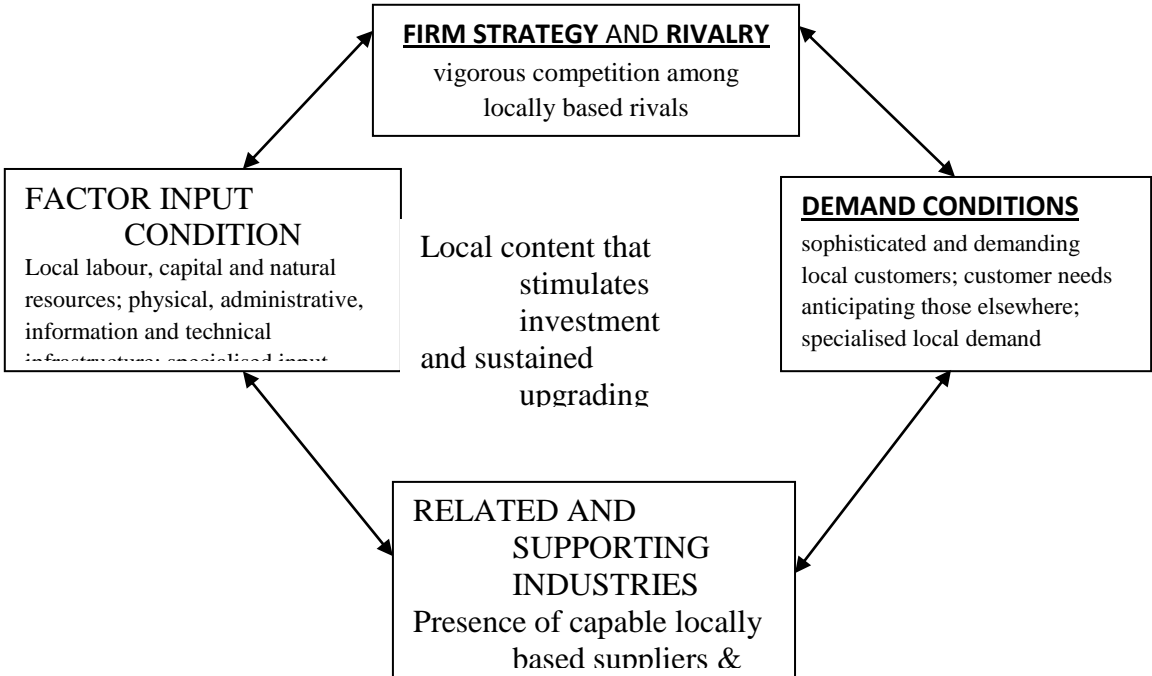
Figure 2.1 Porter's competitive diamond

Source: Porter (1998)

From the definition cluster, there exists interplay of several economic agents not restricted to the interaction of firms only. Clusters may include regional resources and infrastructure, governmental and private institutions (universities, vocational training providers, standards-setting agencies, and trade associations) that provide specialised training, education, information, research, and technical support (Porter, 1998; Rocha, 2004; Isaksen and Trippl, 2016). The interaction of these socioeconomic agents may produce collective results for the cluster, or what Schmitz and Nadvi (1999) term 'collective efficiency'. As a result, a social network of trust in the location emerges that facilitates increased productivity, drives the

direction and pace of innovation, and stimulates and strengthens the formation of new businesses (Tan et al, 2013). In effect, a cluster generates externalities or benefits from the social capital created to reinforce the competitive structure and provide rejuvenation to the entire location. Maine et al (2011) identify three types of cluster benefits: market benefits, spill over benefits and diversity benefits:

- The market benefits are obtained through market transaction and, among others, include reduced transaction costs and information search cost
- The spillover benefit constitutes knowledge spillovers from competing co-located firms, public infrastructure, and suppliers and customers
- Diversity benefit rests within the urbanisation economies

However, it is important to note that firm-specific cluster benefits will depend not only on the resources, knowledge and capabilities available in the cluster, but on the ability of a firm to absorb these resources, and in particular on their ability to absorb knowledge (Maine et al, 2010). Therefore, the advantages of being in a cluster may not be evenly distributed as a firm's location, size and distance from the centre may affect its benefits (Maine et al, 2010; Klumbies and Bausch 2011).

In addition, the extent of a firm's competitive involvement in the continuous networking of economic actors in a cluster generates spillovers that constantly reinforce the clustering process (Popescu, 2010). The strength of these spillovers and their importance to productivity and innovation are perceived by Porter (1998) as often the ultimate boundary-determining factors. These boundaries nurture innovation as a result of competition. To Porter (1998), networking of buyers, suppliers, and other institutions in a cluster is important, not only to efficiency but also to the rate of improvement and innovation. This is because there is a concentration of information on buyers' tastes and sophistication in production from which firms in a cluster are able to perceive buyers' needs and access new technology (Parrilli, 2009).

In terms of industrial policy implications, Porter's work (1998) outlines the role that the public sector can play in moulding and strengthening clusters. The role of government may serve as a help or hindrance to investment and innovation activities in an economy. Parrilli (2009) points out that government support for cluster development and growth over the years has produced mixed results. In line with this, Porter (1998) calls for private public partnership, arguing that deregulation and privatisation on their own will not succeed without

vigorous domestic rivalry (Porter, 2003). Variation in the role of government in inward- and outward-looking economies misses the notion of competiveness because there is the need for a competitive policy. Porter argues that a government's role may include ensuring political and macroeconomic stability, improving the economy's microeconomic capacity (policy at cluster level), and developing and implementing a long-term economic action programme. These may have implications for cluster competiveness and productivity in local and international markets (Porter, 1998).

The cluster strategy and the supposed advantages of co-location have made the cluster concept more attractive to policy makers (Martin and Sunley, 2003; OECD, 2007). This is evident in recent industrial policy thinking in developed and developing economies, and international and regional development agencies (OECD, 2007). In addition to the easy adaptability of the theory, Sepulveda (2008) argues that the cluster concept is ideologically compatible and malleable to dominant market structures. However, the move from theorising to the identification of clusters comes with its own difficulty. Therefore, Motoyama (2008) argues that, "at the theoretical level, the theory is descriptive and static in nature despite Porter's insistence that a cluster is dynamic", because he presents only the developed and successful clusters and provides no historical analysis of cluster development. He further stipulates that the theory is limited in identifying and promoting the interconnected aspect of the cluster and more dialogue with network theory will strengthen its application.

Martin and Sunley (2003) question the broad definition of a cluster offered by Porter since it lacks clear industrial and geographical boundaries. The extents of technology and information spillover make geographical limitation seem vague, making it difficult to exactly measure the size of a cluster. This vagueness is compounded by the varying definitions of clusters, which make generalisation to local and regional agglomeration problematic. In effect, Porter's description of the organisation of cluster activities in a location becomes more questionable when he attempts to draw a link between clusters showing schematic cluster interactions and overlaps since cluster boundaries are not precise (Martin and Sunley, 2003; Kim, 2015).

In addition, the general perception and information in support of superior firm performance in clusters is based on success stories and case studies (Malmberg, 1996). As noted by Porter (1998), such a cluster may evolve accidentally and the development of a well-functioning cluster is one of the essential steps in moving to an advanced economy as firms become more competitive. This view ignores the dynamisms of place that bring about successes, and how

unique spatial attributes influence success. For instance, developing clusters from scratch without a binding condition or commonality poses problems for the success of any cluster policy (Motoyama, 2010). These binding factors are locked in socio-cultural behaviour of the place and do not accidentally evolve; the absence of these binding factors renders the cluster strategy as an intellectual frame rather than an applicable benchmark for cluster development (Motoyama, 2008; Kim, 2015)

It is worth noting that, despite its wide adoption, there seems to be no agreed method for identifying and mapping clusters, either in terms of the key variables that should be measured or the procedures by which the geographical boundaries of clusters should be determined (Martin and Sunley, 2003; Motoyama, 2008; Tsakalerou, 2015). Several authors have identified clusters in different ways by using different data and methods. For instance, while some adopt input-output data in the industrial sector, others use quantitative and qualitative surveys (Spencer et al, 2010; Stejskal and Hajek, 2012). An alternative measure has been adopted by Nesata et al (2004) based on two dimensions of cluster, as a geographic component (proximity, locality, etc.) and as an interaction component (vertical and horizontal). On the other hand, Porter's adoption of average wages, employment growth and patent right to show the classification and distribution of industrial clusters across US regions is limited since it is based on the unique industrial structure of the US (Martin and Sunley 2003; Spenser et al, 2010). This lack of a generally accepted way of identifying a cluster has led to heuristic approaches which water down the significance of cluster strategy. However, the theoretical and empirical significance of co-location makes the study of clusters worthwhile.

In summary, despite these problems, the cluster construct presents a more friendly way of analysing the advantages of firm spatialisation. As a result, it has been widely adopted by countries and international institutions as a policy construct. However, the cluster strategy has several limitations, ranging from acceptable definition and geographical dimension to the absence of place-bound socio-cultural determining factors. Despite the wide adoption and challenges of the cluster construct, Spencer et al (2010) argue that evidence of a cluster's impact in a region remains remarkably scarce. In addition, clusters in developing economies have received minimal attention (Han, 2009).

The next section examines the nature and performance of clusters in developing economies where clusters are actively internationalising.

2.6 Clustering in Developing Economies

The clustering of firms seems to be a common feature in most developing economies today. The studies by Schmitz Hubert, Nadvi Khalid, Tilman Altenburg, Jorg Meyer-Stamer and others on clustering as a policy consideration in developing economies in the 1990s, pioneered discussions on spatial policies in such economies. Since then, several spatial clustering of firms have been studied as a 'common feature' in developing economies with work from Sonobe et al (2011), Ibeh et al (2012), Clarke and Ramirez (2014), Sonobe and Otsuka (2016), and Knorringa and Nadvi (2016) propagating the cluster concept as a driver for economic growth in developing economies. Despite several studies in developing economies, research on clusters is relatively limited with respect to their internationalisation activities. Krugman (2011) himself in his recent work argues that clustered firms in developing economies produce for the world market, and called for the modification of theoretical analysis of spatial organisation in developing economies as current theories appears not to be exhaustive. Clustered firms, in these economies, are confronted with relatively inefficient market structures (Stiglitz, 2011; Primi, 2013) and institutional constraints that can be created in legal, political, social and economic issues (Rodrik, 2008; Stiglitz, 2011; Xu and Mayer, 2012; Primi, 2013). As a result, theories on cluster performance and internationalisation based on developed economies may not be able to elucidate the current situation in developing economies. These developing economies have experienced sustained steady economic growth, especially countries such as Brazil, Russia, India and China (BRIC) since the 1990s and up until recently have been leading the world's economic growth since the global economic crises in 2008 (OECD, 2013). The issue then is to what extent have clustered firms contributed to the performance of these economies, considering the many bottlenecks associated with developing economies.

There are several forms of clustering in developing economies. State-run clusters and clusters of transnational/multinational corporation (Rasiah and Vainanchiarachi, 2013), formal and informal clusters (Sonobe et al, 2011), and vertically related and horizontally related clusters (Guo and Guo, 2011). Clusters in these economies are confronted with the use of rudimentary technology, uncertainty and rising costs of production, as observed in the study of Kariobangi metal clusters in Nairobi, and vehicle and metalwork clusters in Ghana (McCormick, 1999; Sonobe et al, 2011). In the study of the Chilean wine clusters and the Peruvian mango

clusters, some firms in the cluster produce on a subsistence basis and the production processes embedded in the social environment. These clusters are often dominated by micro and small-scale enterprises with poor entrepreneurial competence, low management skills, low trust and poor contract enforcement mechanisms which affect the benefits to the cluster (Altenburg and Meyer-Stamer, 1999; Clarke and Ramirez, 2014). These characteristics of clusters fit the 'survival clusters' notion put forward a number of years ago by Altenburg and Meyer-Stamer (1999).

In recent work on clusters in Peru, Clarke and Ramirez (2014) have attempted to differentiate between survival and emerging clusters. They argue that emerging clusters have been able to penetrate export markets and are adopting new capabilities through 'learning-by-exporting'. The problem with such classification is that some firm classed within the survival-clustering category have acquired new knowledge and improved technology in their operations and are linked to the supply chain of the Chinese economy with no intentions of exporting yet (Guo and Guo, 2011). By Clarke and Ramirez's (2014) assessment, such 'emerging' clusters are not classed as emerging. The critical point is that, to internationalise, the economies must address the survival nature of these clusters in a non-functioning market system. The role of government institutions in coordinating and serving as enablers through macro, meso and micro government agencies and policies is crucial, as has been observed in clusters in Argentina, Peru and China (McDermott and Rocha, 2010; Guo and Guo, 2011; Clarke and Ramirez, 2014; Knorringa and Nadvi, 2016).

There is also evidence that some clusters in developing economies operate at medium and large scales with good managerial and technological capabilities. These clusters, however, are dominated by transnational corporations that produce standardised products for both domestic and international markets (Altenburg, 2011). For example the presence of multinational enterprises (MNEs) such as Dell and IBM in the software cluster in Romania generates the external link needed for the growth of the cluster (Popescu, 2010). In addition, the automobile clusters in South Africa (Alfaro et al, 2012), Argentina, and the Penang electronic cluster in Malaysia (Rasiah and Vainanchiarachi, 2013) show the presence of transnational cooperation operating with a more supportive institutional frame. In the study of the Sialkot surgical instrument cluster in Pakistan, Nadvi (1999) observes a vertical integration of firms that produce standardised products for Western Europe and the United States of America. The spillover from the presence of multinational cooperation ensures that clusters are able to

produce on a large scale and conduct innovation and development activities to meet the needs of suppliers.

The examined literature on clusters shows that there are variations in their nature and understanding them in the context of developing economies requires an appreciation of the environment in which they operate. Though it seems survival clusters are common in developing economies, the reality is that there are some 'survival clusters' that are exporting and or have established networks with multinational enterprises to facilitate their internationalisation activities. The question then is should policy lean towards attracting external linkages or must the clusters prove themselves through their entrepreneurs capabilities? The following section examines the nature of developing economies' clusters by reviewing their network and supply chain structure, knowledge and upgrading potential, and their performance in the international market. This will provide a better appreciation of policy on spatial organisation in developing economies.

Defining the nature of businesses in developing economy's clusters

SME activities are an essential constituent of the production structure in both developed and developing economies and have the capacity to drive economic development by sustaining growth and helping to reduce poverty (OECD, 2004, 2009). The emergence of smaller firms and their ability to operate internationally is the advantage they have in being able to lower their transportation and communications costs, and shorten their products' life cycles (Hashai and Almor, 2004). Today, SMEs and informal enterprises account for over 60% of GDP and over 70% of total employment in low-income countries, while they contribute over 95% of total employment and about 70% of GDP in middle-income countries such as Ghana (OECD, 2009, 2013; Baah-Boateng, 2008; OIC, 2013).

Despite the importance of SMEs there appears to be no universally accepted definition of SME (Burns, 2011). Firms differ in their levels of capitalisation, sales and employment in different economies. Hence, definitions that employ measures of size (number of employees, turnover, profitability, net worth, etc.) when applied to one sector could lead to all firms being classified as small, while the same size definition when applied to a different sector could lead to a different result. For instance, the OECD (2005) classifies firms based on the number of employees and the financial assets that they possess. Based on the number of employees, the upper limit for an SME is 250 in the European Union and 500 in the United States. In the

OECD's categorisation for Europe, small-scale enterprises are businesses with fewer than 50 workers while those with fewer than 10 or five (in some cases) are considered to be 'micro enterprises'. Based on financial assets, the turnover of medium-sized enterprises should not exceed EUR 50 million; small enterprises' turnover should not exceed EUR 10 million and this is EUR 2 million for micro enterprises.

The number of employees a business has is the most common measure of its scale of operation. In Ghana, the Ministry of Local Government and Rural Development, and the National Board for Small Scale Industry (NBSSI), based on the number of employees, have classified businesses with one to five employees as micro enterprises, with six to 29 as small-scale enterprises, with 30-100 employees as medium-scale enterprises, and firms with more than 100 employees are seen as large-scale enterprises. The research adopts the Ghanaian case in describing the scale of business operation in the two study areas. This is to ensure that the results from the study remain relevant to government and policy making institutions in Ghana, particularly when the research is situated within place-based models that require an understanding of the location-specific factors in order to appreciate the organisation of economic actors. The classification of a business's scale of operation based on the Ghanaian context is adopted for the study since the data set accessed for the research adopted this official definition. Therefore, using Ghana's classification would help the researcher draw linkages with official data on businesses in Ghana.

2.6.1   Supply chain and networking structure of clusters in developing economies

Clusters in developing economies are generally small and medium-sized and operate in a socially proximate and vertically disintegrated production structure at a certain level of the production chain (Hans, 2009; Geldes et al, 2015; Sonobe and Otsuka, 2016). These relationships in these clusters often drive the activities along the supply chain from the raw material stage to the consumption stage. This is because clusters may have close relationships with each other through which they share ideas and information (Sonobe and Otsuka, 2016; Knorringa and Nadvi, 2016). The aluminium and steel clusters in South Africa, Lake Victoria fishing cluster in Kenya, and clustered fish farmers and mango growers in Chile and Peru, respectively, have all provided compelling evidence to this effect (Visser, 1999; Alfaro et al, 2012).

In the tomato processing cluster and mango cluster in Chile and Peru respectively, the relationship among small and medium-sized producers and exporters ensures trust building through constant interaction with one another. This has facilitated the flow of information on the production structure and specification required by the market into the cluster, thereby making them competitive (Clarke and Ramirez, 2014). The Argentinean wine clusters demonstrate how network ties built relationships between grape producers, wine makers, intermediary institutions and policy agencies operate to produce the current successes enjoyed by the cluster (McDermott and Rocha, 2010). Additionally, these network firms are further linked to other subsidiary institutions and government agencies to produce a web of interconnected structures that ensures the functioning of the cluster. For example the presence of universities (engineering workshops) and other research institutions has been observed in most of the clusters in developing economies and has provided an essential link to the flow of new knowledge into the cluster (Perez-Aleman, 2005; Alfaro et al, 2012; Rasiah and Vinanchiarachi, 2013; Knorringa and Nadvi, 2016).

From the observed literature in Table 2.1 clustering may be based broadly on the nature of product, and network relationship. Based on the nature of product, we may have agro-based and non-agro-based clusters. However, given that clusters are networks of firms competing and cooperating, clusters may be categorised as vertical or horizontal based on their network structure (Porter, 1990; Guo and Guo, 2011). For instance, in the case of the Peru mango clusters and the salmon clusters in Chile, the vertical relationship between small, medium and large producers of agricultural aqua-cultural product processing and exporting firms has provided the springboard to promote and improve the product for the international market. As a result, product knowledge and innovation, standards and designs are transmitted into the cluster through their supply network (Nadvi, 1999; Giuliani, 2007; Gereffi and Lee, 2016). In the case of the Shangyi cooling tower clusters in China, similar relationships have been observed. In such situations, the leading firms serve as the gatekeeper of knowledge and innovation within the cluster and request information needed to sustain the cluster's operations (Bathelt et al, 2004; Morrison, 2008; Guo and Guo, 2011). Where the relationship is horizontal, such as the metal works clusters in Kenya and Ghana, and warp-knitting cluster in Zhejiang, China, firms adopt similar technology, labour force skills and common resources to produce for a common market. In such a relationship, knowledge and innovation may be

minimal and may occur as a result of spinoffs by past employees who imitate these production processes to set up rival firms (Guo and Guo, 2011; Sonobe et al, 2011).

Clusters in developing economies may also be linked to multinational enterprises, as categorised in Table 2.1. Multi-nationally-driven clusters may be made up of small, medium and/or large-scale production units which have an orientation towards external markets. The multinational clusters operate with relatively high levels of technology and innovation either directly in an economy or rely on domestic micro, small/medium enterprises to complete the production process. The situation may be observed in the automobile cluster in South Africa, a multi-nationally-based cluster, which is linked to steel, aluminium, leather, rubber, plastic and glass subsidiary firms that provide the inputs for the automobile industry (Alfaro et al, 2012). A vertical relationship exists between the automobile firms and their subsidiary firms in the cluster, and a horizontal relationship exists among subsidiary firms on one hand and between the various automobile-producing firms on the other hand (Alfaro et al, 2012). A similar situation has been observed in the automotive (Argentina), electronics (Malaysia), buttons (China) and salmon (Chile) clusters, as summarised in Table 2.1.

These networks of firms in a cluster, aside from offering a pool of skilled and unskilled labour, provide an avenue for knowledge and technological transfer, through their interactions with government agencies, producers associations and other intermediate institutions (Nadvi, 1999; Giuliani, 2007; Gereffi and Lee, 2016). The salmon cluster in Chile provides a pool of labour for fish farms, feed producers and processing enterprises. Aside from this, joint action assisted by government export and standardising agencies has led to the transfer of knowledge on the processing and preparation of salmon to serve the international market (Rasiah and Vinanchiarachi, 2013). In the Peru mango cluster, the presence of clustered mango producers has attracted buyers within the domestic economy and beyond (Clarke and Ramirez, 2014). The presence of automobile clusters in South Africa has promoted the establishment of various distribution units which supply auto parts to customers and financial institutions which support customers in the acquisition of automobiles in the market (Alfaro et al, 2012). These observations conform with Krugman's (1991) discussion of external economies. It is worth noting that, while these external economies may be present in developing economies' clusters, not all clusters have the three types of externalities espoused by Krugman. Weak intermediate input effect and technological spillover have been observed in the metal works cluster in Kenya and the Leon's footwear cluster in Mexico (Sonobe et al,

2011; Martınez et al, 2012). The nature of clusters may produce gains. However, the successes of these clusters in achieving these gains depend not only on the network relationships within the cluster; the institutional environment that supports a cluster's operation facilitates collective learning, cooperation and innovative capabilities, as observed in the Peru mango clusters (Clarke and Ramirez, 2014).

2.6.2   Collective learning, cooperation and upgrading

The cluster literature argues that the driving force of a cluster is the developing of collective efficiency and cooperation in the production process (Porter, 1998; Schmitz and Nadvi, 1999; Motoyama, 2008; Clarke and Ramirez, 2014). The observed literature on developing economies' clusters shows that coordinating institutions direct the development of this collective efficiency and cooperation, which has been the driver of cluster successes (Nadvi 1995; Perez-Aleman, 2005; Clarke and Ramirez, 2014). In the case of the salmon and tomatoes clusters in Chile, collective action and cooperation among firms led to the establishment of an institutional framework to coordinate production and flow of research ideas and new knowledge among firms (Perez-Aleman, 2005). This collective force, supported by the government's policy frame, led to the establishment of the product brand and reputation in the international market. In addition, the study of the Peruvian mango cluster, like the Argentinean wine cluster, has undergone upgrading by using local-based knowledge, multinational national research knowledge and institutional support. Through the collective efficiency of firms and their intermediary institutions, such as their respective associations, government institutions and other non-private institutions, new knowledge and innovation have been accessed and diffused into these clusters (McDermott and Rocha, 2010; Clarke and Ramirez, 2014). New knowledge and innovation have been obtained from universities and external sources through cooperative efforts by both transnational corporations and government. This new knowledge and innovation has brought about cluster upgrading in automotive firms in Buenos Aires (Argentina), salmon producers in Los Lagos (Chile), electronics firms in Penang (Malaysia) and button firms in Qiaotou (China) (Rasiah and Vinanchiarachi, 2013). Goldstein and McGuire (2004) and Altenburg (2011) have all observed cases of cluster cooperation and collective action in upgrading clusters in Brazil, Mexico and India. The ensuing discussion on cluster upgrading points to the fact that local cluster relationships are not static and therefore continuous interactions generate the learning and knowledge required for upgrading.

However, not all relationships produce the needed upgrading (Nadvi 1995; Clarke and Ramirez, 2014). In the study of metal clusters in Nairobi by Sonobe et al (2012), and other studies by Schmitz and Nadvi (1999) and Altenburg (2011), challenges such as small-sized product markets, oversupply of unskilled labour, and lack of capital, training and innovation impeded upgrading process. Other factors such as limited variety of information and institutional weakness were also seen as constraints to cluster upgrades. Such clustering expansions rest on spinoffs and imitation of embedded knowledge with little to no cooperation and research. In the case of the metal working clusters in Ghana, apprenticeships serve as a means by which embedded knowledge acquired over a period is transferred through spinoffs (McCormick 1999).

In the case of the Leon's footwear cluster in Mexico, only a few companies in the cluster were adopting the latest technology in sewing and finishing equipment and therefore innovation and upgraded were being hampered (Martínez et al, 2012). Admittedly no two clusters are the same and for that matter variations in the socio-cultural and economic structures of clusters may influence their ability to innovate and upgrade the production process. The issue then is how developing economies' institutional and socioeconomic relationship operates in order to produce positive responses in their respective clusters.

Table 2.1 Cluster literature on developing economies

Author(s)	Location of cluster	Region	Clustered product	Nature of firms	Export status	Topic	Nature of network relationship
Weijland H. (1999)	Indonesia	Asia	Multiple products (agro base)	Largely small size	Non-exporting	Microenterprise clusters in rural Indonesia	Horizontal clustering
Nadvi, K. (1999)	Pakistan	Asia	Surgical instruments	Small and medium-sized	Largely exporting	Collective efficiency and collective failure	Vertical and horizontal relationship with MNE
Guo and Guo, (2011)	China, Zhejiang	Asia	Warp-knitting Cooling tower	Small medium and large	Non-exporting	Patterns of technological learning within the knowledge systems of clusters in emerging economies	Horizontal clustering Vertical clustering
Rasiah and Vinanchiarachi (2013)	Argentina, Malaysia, China, and Chile	Asia and Latin America	Automotive, electronics, buttons and salmon	Medium and large size	Largely exporting	Institutional support and technological upgrading	Multinational and state-anchored clustering
Sonobe et al (2011)	Kenya	Africa	Metal works	Micro and small	Non-exporting	The growth process of informal enterprises in Sub-Saharan Africa	Horizontal clustering
McCormick, D. (1999)	Kenya, Ghana and South Africa	Africa	Metal works Fishing Clothing	Small and medium-sized	Largely non-export with few exports	African enterprise cluster and industrialisation	Horizontal clustering Vertical clustering

Alfaro et al (2012)	South Africa	Africa	Automobile	Medium and Large size	Largely exporting	Micro economics of competitiveness	Multinational clustering
Visser (1999)	Peru	Latin America	Clothing	Small and medium-sized	Largely non-exporting	A comparison of clustered and dispersed firms	Horizontal clustering
Clarke and Ramirez (2014)	Peru	Latin America	Mangoes	Micro, small, and large	Largely exporting	Intermediaries and capability building in emerging clusters	Both vertical and horizontal relationship with MNE
Schmitz (1999)	Brazil	Latin America	Leather footwear	Small-medium and large size	Largely exporting	Global competition and local cooperation	Both vertical and horizontal relationship with MNE
Perez-Aleman (2005)	Chile	Latin America	Salmon and Tomatoes	Small, medium and large	Largely exporting	Cluster formation, institutions and learning	Both vertical and horizontal relationship with MNE
Popescu (2010)	Romania	Eastern Europe	Software Textiles and Furniture	Small, medium and Large	Largely exporting	Industrial clusters and regional development in Romania	Both vertical and horizontal relationship with MNE
McDermott and Rocha (2010)	Argentina	Latin America	Automotive and Wine	Small, medium and large	Largely exporting	Clusters and upgrading: a purposeful approach	Both vertical and horizontal relationship with MNE
Martínez et al (2012)	Mexico	Latin America	Footwear	Small, medium and large	Largely exporting	Comparing inter-organisational structures within context of change	Both vertical and horizontal relationship with MNE

2.6.3   Cluster performance in developing economies

The performance of clusters in most developing economies has shown mixed results. The automotive cluster in South Africa contributes 20% of total sales in the manufacturing sector, which represents 6.2% of the economy's GDP (Alfaro et al, 2012). Though the cluster is recovering from the global economic recession of 2008, these clusters have been a major source of employment (Alfaro et al, (2012). Rasiah and Vinanchiarachi (2013), in their work on four clusters, two in Latin America and two in Asia, respectively observe that clusters can perform remarkably well whether they are multinational led or government led. In their four examples, the salmon cluster of Los Lagos and automotive cluster of Buenos Aires are run by transnational corporations but the electronics and button clusters in Penang and Qiaotou respectively are driven by the government (Rasiah and Vinanchiarachi, 2013). Other studies show cases where, despite technology upgrades and innovation, clusters do not perform well. The performance of the metal works clusters in Nairobi, like the Leon's footwear cluster in Mexico, has seen none to minimal improvement in performance. The majority of the firms in these clusters are still using obsolete technology despite the presence of technology innovation centres and entrepreneurial advisory units for training and imbuing new knowledge into the clusters (Martınez et al, 2012; Sonobe et al, 2012).

These varying results in cluster growth and performance in developing economies have been attributed to challenges confronting cluster growth (Alfaro et al, 2012; Rasiah and Vinanchiarachi, 2013. Common challenges to all clusters include bottlenecks in government institutional set-up, volatility in macroeconomic variables, and competition from other developing and developed economies (Rasiah and Vinanchiarachi, 2013). Other challenges are the absence of an effective intermediary and resources to innovate and generate new knowledge for the performance of clusters (Martínez et al, 2012; Clarke and Ramirez, 2014). These issues seem to require policy intervention if firms in developing economies' clusters are to compete in international trade.

Most successful clusters are internationalising and are extensively engaging in research and upgrading. This upgrading comes from research and collaboration, strong network ties, both internal and external to the cluster, and the macro, meso and micro institutional environment in which the clusters operate. While cluster networking, innovation, and a strong institutional environment seem to be key to the achievements of some clusters in developing economies,

there appears to be limited linkage between these key factors of cluster success and the process of a firm's internationalisation. Though most successful clusters in developing economies are internationalising, the performance or success of clusters in developing economies may not necessary be linked to internationalisation activities. The examined literature provides evidence that successful and non-successful clusters may not be a prerequisite for internationalisation. For instance, despite their poor performance, in 2008, the shoe cluster in Mexico contributed $451.03 million to Mexico's total export volume, representing 6.3% of the economy's GDP (Martinez et al, 2012). Alternatively, the cooling tower cluster in Zhejiang, China, has proven to be a success yet its orientation is solely for the domestic economy (Guo and Guo, 2011). The question then is, what factors account for the exporting activities of clusters in developing economies?

2.6.4 Structures of clusters in developing economies

Figure 2.2 provides a summary of the observed structure of successful clusters in developing economies from the literature. Though the network relationship and institutional environment may vary, the diagram serves as a hypothetical consideration for this research. Networking relationships are both external and internal to the cluster and ensure collaboration and cooperation among firms in the cluster. Depending on the nature of the relationship, tacit and codified new knowledge flow in to the cluster. Where the relationship is vertical, the most common form of knowledge transmitted appears to be codified. Tacit knowledge seems to characterise horizontally related clusters with imitation and spinoffs thriving. The cluster is further linked to government agencies which draft and implement policies and through public research institutions make available research findings to support cluster performance. These clusterings produce externalities which lead to the establishment of supporting enterprises to provide essential products such as distribution, logistics and financial services.
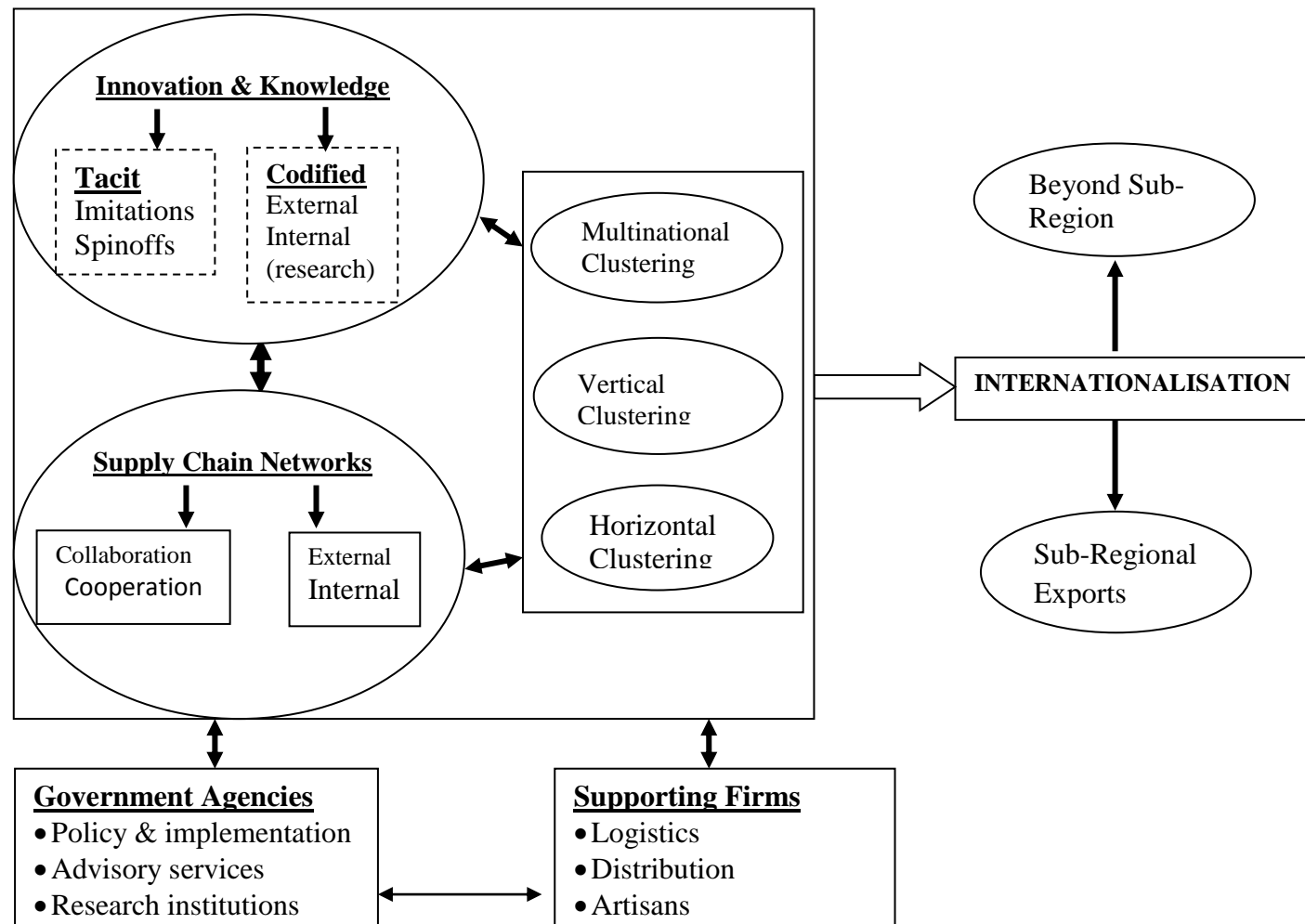
Figure 2.2 Nature of clusters in developing economies

Source: Author's construct (2014)

It is the successful interplay of these various components of the cluster that bring the required performance that may lead to internationalisation. The question, which is central to this research, is: what drives these clusters to internationalisation?

In our discussion so far, it has been observed that clusters in developing economies can largely be characterised as survival and transitional. Furthermore, upgrading of clusters seems to be limited to a few clusters; as a result the performance of clusters in developing economies has shown mixed results. In addition, a recent study of firms in clusters has revealed that the firms are confronted with internal and external barriers that threaten their ability to internationalise (OECD, 2013; Kahiya and Dean, 2016). The issue then is, should firms be provided with financial inducement? Or should there be a strengthening of intermediary institutions? If clusters in developing economies are to be adopted as a policy instrument that has been promoted in developed economies and by international institutions, then there is a need for policy interventions to harness the benefits of clustering.

2.7   Summary

An important issue arising from the review of concepts in this chapter is that an industrialisation strategy has evolved since the Second World War from one-size-fits-all approaches to recent discussions on country- and place-specific dynamic attributes. These dynamic attributes have called for the need to identify an economy's unique characteristics in its quest to industrialise. As a result, the relevance of place in industrialisation has been extensively studied by scholars, national and international organisations. Works by scholars have provided explanations for the occurrence and the associated benefits of collocation in developed economies. The issue therefore is whether the insight into spatialisation based on these Western countries can be successfully exported, wholesale, to non-Western countries such as Ghana. The importance of this issue cannot be overstated, as it goes to the validity of attempts to aid and adopt spatial policies internationally with any model, irrespective of the country of origin.

However, if socio-cultural factors are embedded in a location, there must be differences and those differences are likely to vary from nation to nation. This study therefore has a considerable interest in finding out how cluster formation and functioning in Ghana differ from experiences in Western countries, and whether or not the network structure and knowledge flow in clusters, as observed in literature, are similar to clusters in Ghana.

Another important gap identified in the literature is that existing work on drivers of new knowledge and innovation in developing economies seems to suggest a complementary role of government and the private sector. In this respect, it is worth asking, what is the extent of the case in Ghana, considering the fact that the private sector is to drive industrial growth as part of the country's medium-term policy? Given that external new knowledge and innovations may be embedded with tacit knowledge, how do clusters in Ghana intercept and successfully diffuse this new knowledge and innovations?

The implication for the research on clusters is the need to recognise spatial differentiation in order to appreciate and conceptualising cluster policy. In addition, the socio-cultural and economic context of the cluster needs to be included in the equation for the study. Given the objective of examining cluster functioning and formation in Ghana, this thesis provides insight into the cluster construct in developing economies. This is against the background of the important observation in the literature on cluster performance in developing economies pointing to the fact that networking, new knowledge and innovation influence cluster performance and ability to compete in the international market. Finally, most successful clusters seem to be internationalising and have greater knowledge of the international market (Alfaro et al, 2012; Rasiah and Vinanchiarachi, 2013; Clarke and Ramirez, 2014). It is in light of this revelation that the next chapter examines internationalisation in order to appreciate the drivers and barriers influencing a firm's ability to internationalise, particularly in developing economies.

CHAPTER THREE: INTERNATIONALISATION OF BUSINESS CLUSTERS

3.1 Introduction

This chapter aims to understand the factors responsible for the internationalisation of business clusterings in Ghana. The chapter examines business cluster internationalisation by evaluating the role knowledge and innovation play in businesses exporting activities. The networking structure of businesses and how these networks support internationalisation is also evaluated. These evaluations are conducted within two broad theories on internationalisation – the stage/traditional model of internationalisation and the international entrepreneurial model. The significance of the institutional environment and its relationship with the activities of firms in developing economies will also be discussed.

3.2 Theories on Business Internationalisation

The models on internationalisation in fields such as business economics and international entrepreneurship that attempt to provide a rationale for firm internationalisation are based on developed economies and may not be applicable to the research. For instance, as part of the imperfect market model, Knickerbocker (1973) proposed an oligopolistic reaction model which argues that, in order to compete in overseas market against indigenous firms, the competing firm must possess some compensation advantage (these advantages include, among others, economies of scale, product differentiation, management skills, entrepreneurial capacity, superior marketing and access to capital markets, and monopoly ownership of raw materials). In addition, Dunning's (1976, 1997) eclectic paradigm harmonises ownership-specific advantages, location-specific advantages, and internalisation advantages (OLI) of firm internationalisation into a unified model, the OLI model. These three advantages, according to Dunning (1976), must be available for a firm to internationalise. These models on internationalisation, among others, focus on multinational enterprises through the use of Foreign Direct Investment (FDI) and therefore make them less relevant to discussions of business internationalisation in developing economies. In conceptualising business internationalisation, the research adopts two broad models of internationalisation: the stage/traditional theory of internationalisation (Gradualist) and the international entrepreneurial theory (Born Global Ventures) (Johanson and Vahlne, 1977, 2009, 2013;

Oviatt and McDougall, 1994; Wright et al, 2007; Senik et al, 2011; Wach, 2015; Buckley, 2016). Though these models' development is based on internationalisation experiences in developed economies, their concepts and analytical themes appear relevant to the discussions of the internationalisation activities of businesses in developing economies. As a result, they have been adopted for the purpose of this research.

3.2.1   The Gradualist and the International Entrepreneurial (IE) theories

The term internationalisation is defined by the gradualist scholars as the process of learning where a business increases its commitments in overseas markets as it acquires knowledge on new markets and on the nature of the processes for successive decision-making (Johanson and Vahlne 1977; Prange, 2012; Cuervo-Cazurra, 2011). Earlier works by the gradualist's scholar argued that small businesses were not capable of internationalising without first receiving incremental learning to become large-scale institutions (Johanson and Vahlne 1977; Bell et al, 2003; Coviello and Jones, 2004; Schweizer, 2012). However, since the 1980s, this view has been contested. Research on small business internationalisation from Oviatt and McDougall, (1994), Bell et al (2003), and Cavusgil and Knight (2009) has broadened the discussion on international business by arguing that internationalisation can take place in a number of settings: newly-created or old businesses, high- or low-level technologically-oriented businesses, and in product or service markets (Bell et al, 2003; Martinovic et al, 2013). It is not necessary that incremental learning takes place.

These two broad theories are underpinned by the following features and axioms. The gradualist model postulates that firms sequentially acquire, integrate and use knowledge about foreign markets and operations to pursue successively increasing commitments to foreign markets (Johanson and Vahlne, 1977). In effect, they argue "that internationalization is the product of a series of incremental decisions" (p. 23). This is necessary due the 'psychic distances' between countries. This psychic distance is perceived as the sum of factors which prevent the flow of information from and to the market. "The larger the psychic distance, the more difficult it is to build new relationships. This is the effect of the liability of 'foreignness'" (Johanson and Vahlne, 2009, p. 1414). The model assumes that internationalisation is a function of the level of knowledge in the market. The lack of such knowledge is perceived as an important obstacle to the development of international operations which can be acquired through operations abroad. It is worthy of note that the

recent work of Vahlne and Johanson (2013) highlights the effect of globalisation and the embedded network relationship on the internationalisation processes. The international entrepreneurs' role in the internationalisation processes is acknowledged by the gradualist theorists as essential for a firm's global expansion (Schweizer et al, 2010).

The IE theory argues that not every business goes through all the established chains or leapfrogs their internationalisation process since some businesses adopt a more accelerated path in their internationalisation activities and may globalise from the onset (Oviatt and McDougall, 1994). Andersson (2000) points to the entrepreneur's strategic approach to the internationalisation processes by underscoring the entrepreneur's or management's or staff's capabilities and opportunities. Globalisation and the presence of key actors in the global economy have been noted as influencing the internationalisation activities of businesses. Growing globalisation means that critical issues such as indirect exports, business strategic alliances, business franchises, and foreign distributors and agents continuously influence the earlier gradualist thinking of internationalisation (Wach, 2015; Buckley, 2016).

When it comes to entrepreneurs' networking activities and acquisition of knowledge in the internationalisation process, the two theories share common ground (Autio, 2005; Senik, et al 2011; Johanson and Vahlne, 2013; Wu, 2015). The next sections assess the networking relationships and knowledge through the theoretical lenses of both the gradualist and IE literature.

3.2.2   A perspective on networking relationships in internationalisation

The relationship between networking and internationalisation has been observed by several scholars (Coviello 2006; Dibs et al, 2010; Senik, et al, 2011; Vahlne and Johanson, 2013). Johanson and Vahlne (2009) argue that network ties promote the accumulation of knowledge and trust, which reduces the psychic distance of firms and aids the internationalisation process. They argue that a firm's success depends on its position as an 'insider' and the connectivity of its supply chains. A firm without a position in the network is invariably termed as an 'outsider', and suffers from the liability of 'outsidership' and foreignness. It is this foreignness which accordingly makes the internationalisation process impossible. They note therefore that to become an insider requires the learning process to foster commitment and trust in the internationalisation process.

In their recent work, Johanson and Vahlne (2009) argue that successful internationalisation requires a reciprocal commitment between the firm and its counterparts. They contend that knowledge creation is not solely from the firm's own activity but it is deeply seated in the established networks of producers and product users. *"Now the environment of the firm is assumed to be of a network character with companies embedded in dyadic relationships with other actors, who, in turn, are embedded in other such relationships"* (Vahlne and Johanson, 2013, p. 195). It is in the network that knowledge about the firm's relationships, partners, their resources, needs, capabilities and strategies are obtained by other firms in the process of internationalisation (Johanson and Vahlne, 2009).

Using the network theory on the early internationalisation stage of Internationally New Ventures (INVs), Coviello (2006) answers the question whether INV follows a linear path of evolution. Based on her analysis of three INVs, Corviello notes that network ties may be a constraining factor on the emergence of INV as two of the firms were having challenges. In a related study, Tang (2011) examines the networking behaviour of SMEs in sustaining innovation and providing resources for internationalisation. Based on a regression analysis of primary data from 210 SMEs in Beijing and Hong Kong, he concludes that, although the development and maintenance of networks may be costly, SME networks provide the resources needed to accelerate the internationalisation process. Senik et al (2011) to investigate the efficacy of the networking system in the rapidly developing economy of Malaysia by using a network approach. They develop an 'expert perspective network model' based on the network firms have and conclude that the findings tally with the assertion that network relationships can be an effective means to assist firms going into the international market.

Despite different schools of thought on how firms internationalise, there appears to be consensus on the role networking plays in fostering relationships among firms in the production chain. These network structures are particularly evident in the internationalisation activities of clusters in developing economies. Examples include the automobile clusters in South Africa, which operate as a franchise of a multinational automobile company based in Europe (Alfaro et al, 2012). Similarly, the salmon cluster in Chile adopted a collaborative approach through public sector policy to network with external institutions in their operation (Perez-Aleman, 2005). In addition, the electronics cluster in Malaysia used their network and relationships with other multinational companies to internationalise (Rasiah and

Vinanchiarachi, 2013). These networks influence the standards, specifications and structure of the production process at various levels of the chain (Martinovic et al, 2013). There is a need for continuous cohesion in the interaction of actors in these networks to meet market requirements, and such cohesion rests on the established trust between internal firms on the one hand and external companies on the other (Clarke and Ramirez, 2014; Johanson and Vahlne, 2009).

In effect, the network structures serve as a means by which the clusters transfer production and technological information and innovation for the production process of firms in developing economies to be achieved. As a result, the firm's network structure and knowledge are not mutually exclusive. The network in which a business finds itself serves to facilitate the transmission of knowledge on internationalisation (Vahlne and Johanson, 2013). Studies by Coviello (2006) on INVs demonstrate that networks generate the essential information and innovation that stimulate a business's early internationalisation activities. Krishna et al (2012) identify a collaborative network of R&D and innovation between Transnational Corporations (TNC) and Indian firms and institutions, particularly in biopharmaceuticals and ICT, to demonstrate the spread of globalisation of innovation in internationalisation.

3.2.3   Promoting internationalisation – the role of knowledge and innovation

The literature on internationalisation focuses on two broad forms of knowledge: experimental and objective knowledge (Eriksson et al, 1997, 2015; Johanson and Vahlne, 1977, 2009; Mejri and Umemoto, 2010). These are, arguably, similar to the tacit and coded knowledge discussed in relation to theories on spatial organisation. Objective knowledge consists of all forms of knowledge acquired through documentary sources such as written documents, reports and explicit materials, while experiential knowledge is acquired only through experience. These forms of knowledge drive innovation for firms within the internationalisation process. Their absence, therefore, creates barriers to internationalisation as businesses are unable to appreciate the conditions in the external markets. The barriers, among others, include: understanding foreign business practices, different product standards and consumer standards in foreign countries, and difficulty in obtaining adequate representation in foreign markets (Reid, 1981; Bilkey and Tesar, 1977; Hashai and Almor, 2004).

Mejri and Umemoto (2010, p. 168) explain that market knowledge is a form of objective and experiential knowledge which includes, *"network knowledge (social and business network; knowledge as the network itself), cultural knowledge (knowledge of language, habits, norms, laws, behaviour...), and the entrepreneurial knowledge (knowledge of the existence of opportunities and exploiting them)".* This knowledge is perceived by the Traditional Internationalisation School (TIS) as an important obstacle to the development of international operations (Johanson and Vahlne, 1977, 2009; Kalinic and Forza, 2012). On market knowledge, Johanson and Vahlne (2009) distinguish between institutional market knowledge and business market knowledge. They explain that knowledge that consists of factors related to psychic distance and to the liability of foreignness, such as language, laws, and rules, is institutional market knowledge. Business market knowledge, on the other hand, is related to a firm's business environment and consists of the firms with which it is doing or trying to do business.

The International Entrepreneurial School (IES) views knowledge as a means to drive competitive advantage to permeate multiple countries (Oviatt and McDougall, 1994; Coviello, 2006; Bell et al, 2003; Freeman, et al, 2013). IES argues that, due to globalisation, the growth of information and communications technology and reduced transportation cost, firms are able to innovate, and acquire knowledge and capabilities to achieve considerable foreign market success early in their evolution (Cavusgil and Knight, 2009; Dib et al, 2010; Efrat and Shoham, 2012; Krishna et al, 2012; Knight and Cavusgil, 2004; Freeman, et al, 2013). According to proponents of the 'born global' firms phenomenon, firms pursue global niches from the onset with more committed and proactive management. These firms seek to gain first-mover advantage and rapid market penetration by exploiting and protecting proprietary knowledge. Based on the characteristics of the 'born global' firms, Bell et al (2003) argue that production and processing involve higher added value of scientific knowledge, and as a result classify them as knowledge-intensive or knowledge-based firms. These scholars explain that knowledge-based firms exist due to the emergence of new technology, which may be as a result of proprietary or acquired knowledge such as that of software and internet developers. On the other hand, knowledge-intensive firms may require knowledge to improve productivity and modify production methods. These may include computer-aided designs and manufacturing (Bell et al 2003).

It is worth noting that the nature of knowledge influences the internationalisation process (Freeman et al, 2013; Eriksson et al, 2015). Knowledge-based firms internationalise rapidly but the pace of knowledge-intensive firms depends on whether they are innovators or adopters of the knowledge acquired (Bell el at, 2003). There seems to be a strong case for acquired knowledge in the internationalisation process. Cuervo-Cazurra (2011) explains that managers with internationalisation knowledge have acquired it by working for firms involved in foreign activities and have a perceived interest in internationalisation from the onset of the business. Coviello (2006) argues that a firm's acquired knowledge and its competiveness in internationalisation depends on the network relations established. It appears that some born global firms acquire some forms of knowledge through learning. It is not surprising that there are inconsistencies in the foundation period before firms proceed to internationalise. For instance, in relation to the duration before business inception in internationalisation, Knight et al (2004) estimate the period of business formation and eventual internationalisation at four years, but McDougall et al (1994) estimate the period to be eight years. Against this backdrop, there is variation in a firm's learning ability in the internationalisation process (Bilkey and Tesar, 1977; Johanson and Vahlne, 2009). Could it be that this period, however short, forms the learning period required for the born global firms to internationalisation? If this is the case, then there may be some similarities in the traditional stages model and the born global model, as observed by Autio (2005). He argues that, whereas the TIS emphasises knowledge as the constraint to a firm's internationalisation, the IES views it as the enabler, and therefore the IES's views are complementary to the internationalisation process (Autio, 2005).

While there seems to be consensus on the relevance of learning and knowledge in the internationalisation process, there are differences in the pace of acquisition of this knowledge and its usage. For instance, while the stages theory assumes the acquisition of knowledge on an incremental basis, international entrepreneurs seem to adopt knowledge for strategic positioning in the international market (Bell et al 2003; Johanson and Vahlne, 2009). Resource constraints and the competitive nature of the knowledge economy influence acquisition of knowledge by businesses. In this case, knowledge is seen as a commodity and positively relates to firms' resource availability (Mejri and Umemoto, 2010). This goes to support OECD data (2013) on the dominance of large firms and their performance in the internationalisation process. However, if large TNCs have more resources to acquire

knowledge and increase performance in internationalisation, how do we explain the evidence of small firms' rapid internationalisation?

It suffices to note that internationalisation literature seems to agree that exposing firms to the international market may enhance knowledge and innovation, competence and performance (Eriksson et al, 1997; Bell et al, 2003; Freeman et al, 2013). Casillas et al (2010) examine knowledge and learning from the pre-export phase of firms and conclude that knowledge, (supra-organisational, organisational, and individual sources) is positively related to the favourable attitude to initiate a process of internationalisation through exports. In accordance with Bell et al (2003), Casillas et al (2010) further observe that new knowledge positively influences firms in the internationalisation process and leads firms to unlearn the old knowledge while adopting new knowledge. This is confirmed by the salmon and mango clusters in Chile and Peru. These clusters have, through the acquisition and adoption of new knowledge, reorganised their production structure to sustain internationalisation. The internationalisation literature appears to agree that sustained internationalisation requires maintaining and modifying knowledge flow. However, Cesinger and Kraus (2012) note that internationalisation exposure could also induce rigidity and biases which sustain ethnocentric views and stereotypes. They propose that entrepreneurs must be willing and curious in understanding and learning about the geographic mosaic of business opportunities worldwide. The question that arises from the literature is: can the objective and experiential knowledge be easily adopted by business entrepreneurs in developing economies like Ghana?

The literature on internationalisation appears to agree that networking and innovation may co-exist. The importance of knowledge diffusion through the interactions of firms and the networks in which they reside provides analytical support to the role of clusters in the internationalisation process. The interplay of weak and strong network ties, and experiential and objective knowledge, appears to rest within economy specific policies and institutions. However, these policies and the institutional environment for the internationalisation of business clustering have been examined to a minimal degree only (Richardson et al, 2012) and, in the case of Ghana, are completely absent. A holistic study of a firm's internationalisation requires an understanding of the macro, meso and micro institutional environment and policies that drive them. The next section examines the institutional and policy environment in the internationalisation process.

3.3 Clustering Internationalisation in Developing Economies

Exporting activities of businesses, particularly SMEs in most developing economies, have been argued to have been promoted through government-led programmes and policies and through the collaborative effort of firms with transnational corporations (Rasiah and Vinanchiarachi, 2013; Martinovic et al, 2013). In Ibeh et al's (2012) study of 54 SMEs' internationalisation literary work across Africa, they observed that proximity to other exporting firms has a positive effect on the expansion and adoption of export programmes. SMEs, through their relationship with other firms, are able to acquire knowledge about internationalisation opportunities available in the locality. For instance, in a study in Bangladesh, Shamsuddoha et al (2012) found that assistance – such as export market information through trade missions, trade fairs, export workshops and seminars, and overseas training programmes on product development – ensured the provision of extensive international market knowledge which facilitated the internationalisation process. Finance and guarantee-related programmes, such as the duty drawback scheme and income tax rebates, have generated export profitability for internationalising SMEs in Bangladesh. These programmes have been facilitated by organisations such as the Export Promotion Bureau (EPB), the Board of Investment (BOI), the Bangladesh Export Processing Zone Authority (BEPZA), and the Bangladesh Foreign Trade Institute (BFTI), a trade policy think-tank in the public-private partnership sector (OIC, 2013).

The promotion of business cluster internationalisation appears to emanate from the collaborative networks and technological transmission of international firms in developing economies. Examples include the automobile and salmon clusters in South Africa and Chile, respectively. Contact networks and resource-augmenting external collaborative partners were identified as important facilitating factors in literature reviewed by Ibeh et al (2012) on SME internationalisation across Africa. In the automotive cluster in Buenos Aires, Argentina, and the electronics cluster in Penang, Malaysia, interaction and co-operation with the international production chain has led to the introduction of best practices in production, including design (Rasiah, 2009; Rasiah and Vinanchiarachi, 2013). Through public-private collaboration, knowledge on salmon farming export standards and technologies was transferred from Norway, Ireland and Scotland to boost Chilean salmon cultivation. This collaborative expertise went beyond the knowledge advice on market equipment for salmon farming to the establishment of fish-feed production centres (UNIDO, 2009; Rasiah and Vinanchiarachi, 2013).

The presence of private transnational corporations in promoting internationalisation in developing countries through collaborations has been observed by Ibeh et al (2012) across Africa, and Rasiah and Vinanchiarachi (2013) in some parts of Asia and Latin America. In the automobile cluster in South Africa, multinational owners for the German-based car manufacture design its models externally in Europe for production in their units in South Africa (Alfaro et al, 2012). The products are linked into a market pool which is connected to other economies and is driven by the contact networks of these multinational companies. The knowledge and innovation in these clusters are standardised to meet desired international market specifications. These specifications cut across all levels of the supply chain. For instance, the aluminium, glass, and tyre sub-sections of the clustering must all produce to a specified quality in order for the vehicles to meet the suppliers' standards in South Africa (McDermott and Rocha, 2010; Alfaro et al, 2012; Rasiah and Vinanchiarachi, 2013).

It is worth noting that the internationalisation-determining factors are not cast in stone and they depend on the opportunities available backed by a country's specific institutional structures. Therefore, by observing their constraints, firms and governments are able to provide systems suitable for successful internationalisation.

3.4   Constraints to Business Internationalisation

A firm's ability to internationalise rests on a myriad of factors. There are country-specific conditions that stimulate or affect the internationalisation of SMEs (Arndt et al, 2012). Taking a holistic approach to understanding how these factors stimulate and suppress SME internationalisation may help in strengthening policies aimed at promoting a SME's entry into foreign markets. Factors include a firm's access to information, businesses' function and operation, finance, and ability to market goods – central to this is the issue of price, distribution and logistics. The main constraints are procedural structures required for the exporting of a product and institutional (government) frame that supports the activities of businesses towards internationalising. Others include the environmental factors and external market condition of prices, distribution and restrictions (McDermott and Rocha, 2010; Alfaro et al, 2012; Primi, 2013; OIC, 2013). However, these constraints vary amongst firms in different countries. For instance, competition from East Asia and institutional bottlenecks are critical challenges confronting the footwear and clothing clusters in Mexico and Peru respectively (Visser, 1999; Martínez et al, 2012). Ibeh et al (2012) identify international

contacts and information on internationalisation opportunities to be limited in clusterings of firms in Nigeria, Kenya, and Ghana, among others.

There seem to be different factors that impede internationalisation processes across countries. This has been recognised by the OECD (2009) in its work directed at identifying the barriers and drivers of internationalisation. These barriers and drivers of internationalisation cover both OECD countries and non-OEDC countries. Below is a table outlining the OECD-APEC survey on the top 10 barriers to internationalisation, which have been ranked by SMEs.

Table 3.1: OECD-APEC survey on the top 10 barriers to internationalisation

Rank weighted factor	Description of barrier
1	Shortage of working capital to finance exports
2	Identifying foreign business opportunities
3	Limited information to locate/analyse markets
4	Inability to contact potential overseas customers
5	Obtaining reliable foreign representation
6	Lack of managerial time to deal with internationalisation
7	Inadequate quantity of and/or untrained personnel for internationalisation
8	Difficulty in matching competitors' prices
9	Lack of home government assistance/incentives
10	Excessive transportation costs

Source: OECD (2009)

According to the OECD, these barriers are largely internal and reflect the capabilities of firms on the key issues that are necessary for internationalisation. However, in recent surveys, administrative and technical difficulties, exchange rate, documentation and payment problems and foreign market competition are external forces that impede SME internationalisation (OECD, 2013). The issue then is whether variation in the barriers firms face is the reason why SMEs are internationalising at different rates.

The observed literature on internationalisation activities in developing economies has so far revealed critical factors that have theoretical significance to the discussions on internationalisation. These critical factors include the networking relationships in which the cluster resides; the role played by knowledge flow and innovation; and the institutional environment that provides incentives for firms' activities in these SME clusterings. The next sections will provide theoretical as well as practical observations from literature on these factors.

3.5 Institutional and Policy Environment for Internationalisation

Businesses in developing economies are confronted with relatively inefficient market structures (Hoskisson et al, 2000; Stiglitz, 2011; Primi, 2013) and institutional constraints – legal, political, social and economic (Rodrik, 2008; Stiglitz, 2011; Xu and Mayer, 2012; Primi, 2013). In order to overcome these constraints, as developing economies move towards more market-oriented economies, businesses require a critical look at the institutional (formal and informal) environment of these economies. The structure of government rules and regulations, which constitute the formal institutions and the informal institutions of normative and mimetic systems, must coordinate to create an enabling environment within which businesses' internationalisation thrives (Smallbone and Welter, 2001, 2012; Hoskisson et al, 2013). For instance, any government institutional or policy change must gel with a culture-specific, collective and individual interpretation in its application. Smallbone and Welter (2012) believe that information flow based on social communication and networks may minimise a common problem in developing economies where structural gaps exist between organisations within different institutions. The ensuing discussion points to the fact that the institutional environment influences the entrepreneur and, for that matter, the firms' internationalisation activities. The network structure and the flow of information may both require an institutional frame for internationalisation. The responses from entrepreneurs to new ways of production, information sharing and best practices may require an institutional intermediary. In the work of Amoako and Lyon (2013) in Ghana, the cultural environment of weak and strong ties formed the basis for building trust in the internationalisation process.

Due to the imperfect market structure of developing economies, public institutions have been the key promoters of exports through agencies, policies and programmes in conjunction with given location-specific, local non-public institutions. In Malaysia, the creation of export processing zones (EPZs), a form of Special Economic Zones[8] (UNIDO, 2009), an area demarcated to promote, attract and facilitate investment, led to a flourishing electronics manufacturing cluster in Penang (Rasiah, 2009). Supplier, distributor and customer

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[8] The Zones seek to provide a 'free trade environment' for exporters and to attract outward-oriented foreign investors (UNIDO, 2009).

relationships in the Penang electronics cluster provide evidence of substantial cohesion and information exchange among firms within an institutional structure (UNIDO, 2009).

The Piura mango cluster in northern Peru is another success story and shows how the government acted as an enabler to drive the internationalisation process, harmonising macro, meso and micro institutions. According to Clarke and Ramirez (2014), the Peru Commission for the Promotion of Peru Export and Tourism – a government-led export-promotion body – developed a comprehensive knowledge base for producers to contact buyers through organising trips by potential exporters to destination markets. A phyto-sanitary institution, SENASA, disseminated advice and regulations on internationalisation standards in order to maintain the Peruvian mango export standards in the international market (Clarke and Ramirez, 2014). There are varying ways by which the state, through its institutions, stimulates internationalisation in developing economies. The work by Belloc and Di Maio (2011) sums up the common approaches, as shown in the table below.

Table 3.2: Institutional stimuli for internationalisation in developing economies

Export promotion programme	Dimensions
Export subsidies	Direct and indirect subsidy including duty drawbacks[9]
Export Processing Zones (EPZs)	A geographical area of differentiated policy consideration in a country associated with infrastructure for both domestic and foreign producers with the aim of promoting export
Trade finance	Subsidising credit, spurring competition credit markets, providing credit insurance, export credit and export guarantees
Trade Promotion Organisations (TPOs)	Supplying local exporters and potential exporters with the necessary information to identify the foreign markets in which to sell their products and improving the knowledge by potential foreign customers about domestic products and firms
Other factors for successful export promotion	Cost competitiveness, ICT diffusion, FDI and international fragmentation of production, world demand and product mix, geographical, cultural and institutional factors and political institutional environment

[9] a system to refund duties paid on the imported inputs incorporated in the finished exported good

However, export promotion programmes are not always a success. In the Bosnia and Herzegovina wood sector, cluster development agencies and trade chambers offer technical and advisory help, and international organisations provide financial assistance. Regional development agencies continuously organise seminars and workshops to train business owners in management skills, EU legislature and business practice on foreign markets. However, Martinovic et al (2013) note that these interventions were not strong enough and did little to change the situation in the wood sector cluster in Bosnia and Herzegovina. Di Maio (2012) notes some failures in Sierra Leone's National Export Strategy to be as a result of multiple factors ranging from governance, that is, institutional structures, to external shocks such as falls in world market prices. The presence of non-tariff barriers (such as different standardisation requirements, quantitative restrictions, subsidies, anti-dumping, customs valuations and technical regulations) remains one of the obstacles preventing success in the promotion of agricultural and agro-processing exports in developing economies (Stiglitz, 2007; Mohan et al, 2013).

From the ensuing discussion, it is clear that the results from export promotion differ from country to country among clustering firms (Belloc and Di Maio, 2011; Di Maio, 2012), and the literature discussed on clusters has demonstrated that clustering may emerge without formal institutional involvement. In Ghana, export promotion institutions are often not considered as effective; therefore the key question is in which ways can government effectively facilitate export promotion among clustered firms in Ghana?

3.6   Relationship between Key Concepts of Internationalisation

Critical to the examined literature is the observed interactions among the key factors of the internationalisation process. The established network ties, knowledge on exporting opportunities and the institutional environment together form a web of interrelated factors that may determine the firms' internationalisation. As noted, the TIS and IES both point to the fact that internationalisation-related knowledge is closely linked to the network relationship in which the firm resides. Networked relationships over time foster trust among members in the network and lead to the circulation of essential information such as product standards and market opportunities necessary for the firms' internationalisation process. Where a firm acquires knowledge on internationalisation opportunities, it may remain an outsider until it secures a position within the network chain, whether weak or strong. The

internationalisation knowledge and networking relate closely to each other in the firms' internationalisation process, as shown in the Figure below.

Alternatively, the institutional environment may influence the internationalisation of knowledge and network, especially where the market systems are ineffective. The cases of the Peruvian mango and Chilean salmon clusters saw the formal institutions deliberately creating an enabling environment through government policies and programmes, in conjunction with the other non-governmental institutions such as business associations, in order to promote export. Smallbone and Welter (2012) argue that such cooperation between formal (export-promoting government agencies and departments, logistics and distribution companies, and Associations) and informal (family ties, religious groupings and friends) institutions influence the entrepreneurs' activities, especially in developing economies. As such, the knowledge flow on internationalisation opportunities and the relationships to external partners may be influenced by the institutional environment of the entrepreneur. Such connectivity in the relationship has been demonstrated in Figure 3.1 below. Therefore, to understand the rationale behind clustered firms' internationalisation, these concepts ought not to be treated independently.
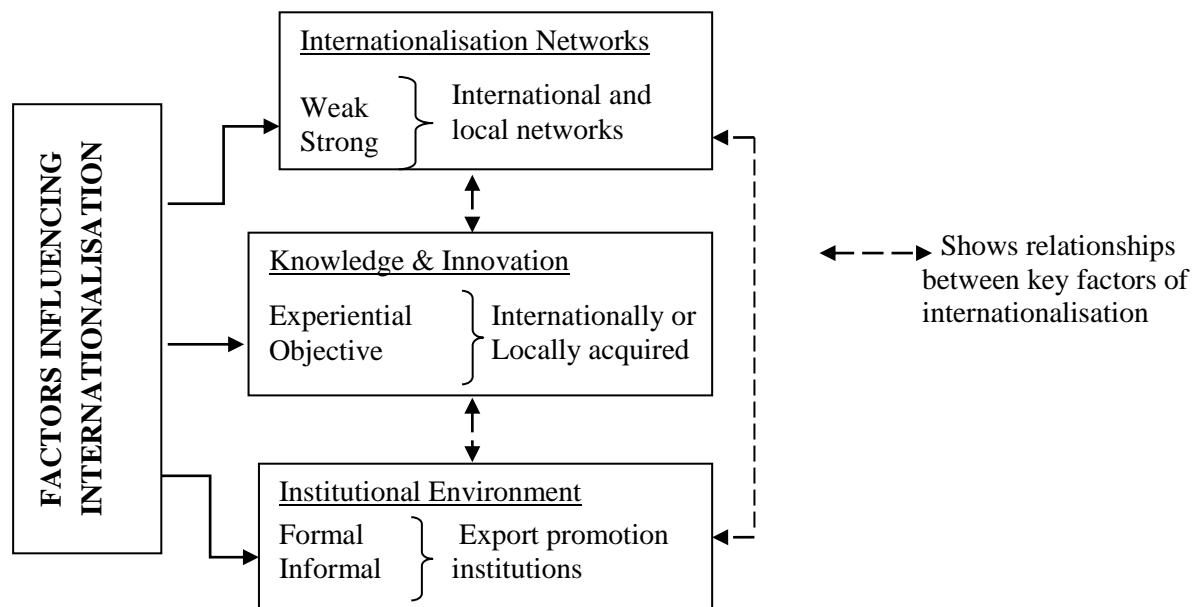
Figure 3.1: Relationships between internationalisation concepts

Source: Author's construct (2014)

3.7   Merging the Cluster and Internationalisation Concepts

The literature on clusters and internationalisation in this chapter (three) and the previous chapter (two) has independently generated several theoretical and conceptual arguments. This study merges these two theoretical discussions on clusters and internationalisation to generate the concept required for the empirical examination of the internationalisation business clusters. As a result, this section sets out the framework that guides the empirical study.

Clusters have been defined as network(s) that occurs within a geographic location in which the proximity of businesses and institutions ensures the presence of certain forms of commonality and increases the frequency and impact of interaction (Porter, 1998). Embedded in the definition is the concept of networking, which makes the boundary of the cluster very difficult to determine (Martin and Sunley, 2003). As a result, cluster networks can be within a city, region or beyond regions (Porter, 2000). These network structures between businesses and institutions may comprise both weak and strong relationships (Granovetter, 1985; Borgatti and Halgin, 2012). The relationships within the clusters provide the means through which knowledge and innovation are transmitted within them (Asheim et al, 2011; Schilirò, 2012; Pina and Tether, 2016). The network structure of the cluster, the flow of knowledge and innovation, and the institutional environment are critical in understanding the dynamism of the cluster.

Alternatively, internationalisation is a business activity that is achieved by an organisation developing or discovering international market opportunities (Kirzner, 1997). By capturing internationalisation through developing and discovering of markets requires the establishment of a link in these markets. These links to the international market are also seen by Johanson and Vahlne (1977) to require the process of learning where a business increases its commitments in overseas markets as it acquires knowledge on new markets, and on the nature of the processes for successive decision-making. The definitions and theoretical discussions of internationalisation appear to give greater weight to networking, knowledge and innovation as being critical to the internationalisation process (Cavusgil and Knight, 2009; Vahlne and Johanson, 2013; Freeman, et al, 2013). The institutional and operational environment of the business influences the operation of the internationalising businesses (Hoskisson et al, 2013).

In conceptualising the internationalisation of clustered businesses, the networking activities of businesses within the cluster and internationalisation are merged to understand how they influence each other. Similarly, knowledge and innovation feature in both cluster theory and internationalisation theory and are juxtaposed against each in the empirical study of two clusters in Ghana. These overlapping concepts of networking knowledge and innovation are illustrated in Figure 3.2 with its key embedded concepts.

In explaining the emergence and operations of clusters, the agglomeration theory perceives local economies as a collection of atomistic businesses which adopt price, cost and other tangible market indicators (Krugman, 1991, 2011; Porter 1998; Newlands, 2003; Artz et al, 2016). The internationalisation literature has equally demonstrated the effect of market signal on exporting businesses (McDermott and Rocha, 2010; OIC, 2013; Buckley, 2016). These market factors in the cluster and internationalisation theories operate alongside non-market signals such as the networking environment, knowledge and innovation. Market signals are therefore essential in understanding the operation of internationalising business clusters in Ghana and are captured as part of the key concepts in the figure below.

Furthermore, both the cluster and internationalisation theories acknowledge the institutional environment as essential for their operation (OECD, 2009; Becatini et al, 2010; Belloc and Di Maio, 2011). The presence of university research centres, export promotion institutions, and other subsidiary businesses supports the operations and internationalisation activities of businesses. The conceptual framework in Figure 3.2 below illustrates the relationship these institutions play within the business networks and the knowledge and innovation they adopt. The key emerging concepts form the basis for the empirical examination of internationalising businesses in Ghana, thereby addressing the research questions outlined in this study.

Government
Policy & implementation
Advisory services
Research institutions

Non-government
Logistics
Distribution
Artisans
Export promotion

Codified
External
Internal
(research)

External &
Internal tie

Institutional
Environment

Tacit
Imitations
Spinoffs

Collaboration
Cooperation

Knowledge & Innovation
in Clusters

Supply Chain
Networks in Clusters

Business
Environment

Knowledge & Innovation in
Internationalisation

Internationalisation
Networks

Experiential
Objective

International
&local
networks

Internationally
and locally

Market factors
(Price, Cost, Finance, etc.)

Weak ties
Strong ties

**Figure 3.2 Conceptualising business cluster
internationalisation**

Embedded concepts

Relationship between concepts

Businesses & institutional Relationship with concepts

Overlapping concepts in clusters and internationalisation

3.8   Chapter Summary

The examined literature has shown that SMEs' internationalisation is essential to the industrialisation process in a globalised economy. However, while internationalisation may take several forms and have several underpinning theories, the most common form of internationalisation in developing economies is export of traditional goods and services. Coupled with the fact that clusters are often heterogeneous and vary in characteristics, internationalisation capabilities may vary across countries. This makes this research essential as it adds to the studies on SME internationalisation, especially in Africa's developing economies.

In addition, the observed literature points to the network structure of the cluster, the role of knowledge, and the formal and informal institutional environment to be critical factors in driving internationalisation activities in developing economies. These factors are put into theoretical discussions by focusing on the traditional/stage and the international entrepreneurial models. Despite their differences in relation to the mode of internationalisation, they both underscore knowledge and innovation, and networking relationships as essential impetus in the internationalisation process. The very nature of clusters, with their networks and flow of knowledge, has been argued to support the internationalisation process. However, SME clusterings appear to face several challenges in the internationalisation process. These challenges, according to the OECD, vary across countries and regions, and may be external or internal to the firm. An important gap emerging in the literature is how SME clusterings harness the network ties and new knowledge in the internationalisation process. How informal and formal institutions create an enabling environment for internationalisation to thrive, for example in Ghana, despite several challenges is also significant.

From the discussion, it is apparent that the country-specific conditions are essential to understand the factors that stimulate or suppress the capacity of SMEs located within the cluster to internationalise. Critical to the observed factors of SME cluster internationalisation are the weak and strong network ties, experiential and objective knowledge, and export support programmes and policies. However, these factors may not be mutually exclusive, as the network ties may influence the nature of knowledge acquired and vice versa, and these knowledge and network relationships rest within an established institutional environment. It

is essential to understand the economy of Ghana and the local conditions within which these SME clusterings operate in order to gather valuable observations relating to SME cluster internationalisation.

CHAPTER FOUR: METHODOLOGY

4.1 Introduction

The research seeks to investigate internationalisation activities of business clusterings in Ghana and provide the rationale for their exporting capabilities observed recently in two clusterings in the eastern region of the country. Specifically, the study aims to provide an understanding of how the operations of the two business clusterings in Ghana promote internationalisation by examining the structure of these clusterings, the socioeconomic environment in which they operate, and their key drivers of internationalisation.

To meet the objectives of the study, six critical areas have been identified from the literature review. These are: the nature and structure of these business clusterings; their networking relationships; the flow of knowledge and innovation within the clusters; the mode of their internationalisation activities; the factors that influence their internationalisation process; and the institutional and policy environments in which the clusters operate. The study addresses the following broad research questions: What role does competition and cooperation in the supply chain play in cluster dynamics and resource accessibility in Ghana? How do Ghanaian businesses in clusters learn and adopt innovations for their operations? What factors influence the internationalisation activities of processing businesses clusters in Ghana?

The section begins with an examination of the scope and situation of the methodological approach within a given philosophical paradigm. This is followed by an overview of the study area, specifically the clusters. The survey techniques and sampling procedures adopted in the study are then explained. Finally, the chapter ends with a description of the data analysis, the pilot study carried out and the ethical considerations in the study.

4.2   Research Methods

The research questions for this research require mixed methodology in the collection, analysis and comparative discussion of an empirical study of two processing business clusterings in Ghana. The adoption of a mixed methods approach contributes to complementing and validation of findings in order to holistically understand the phenomenon being studied (Greene, 2008; Leech et al, 2010; Onwuegbuzie, 2012; Creswell, 2014). In

particular, knowing that social phenomena are not static, adopting a single approach in examining one may not be holistic enough to understand its elusive behaviour (Greene, 2008; Maxwell, 2016). The use of a mixed methods approach has been confirmed by Yin (2009) as appropriate for understanding complexities of a phenomenon in case studies and therefore it has been adopted in providing meaning to the internationalisation of business clusters in Ghana.

The research sought to produce an in-depth understanding of the situation observed with business and institutions in the two study clusters. As a result, the units of analysis are the businesses and institutions whose activities relate to the production, processing and distribution of palm and pineapples. In particular, farmers, processors, buyers, and local public and private institutions were critical for this study in order to understand the reasons that explain the internationalisation of food processing businesses in the two clusters.
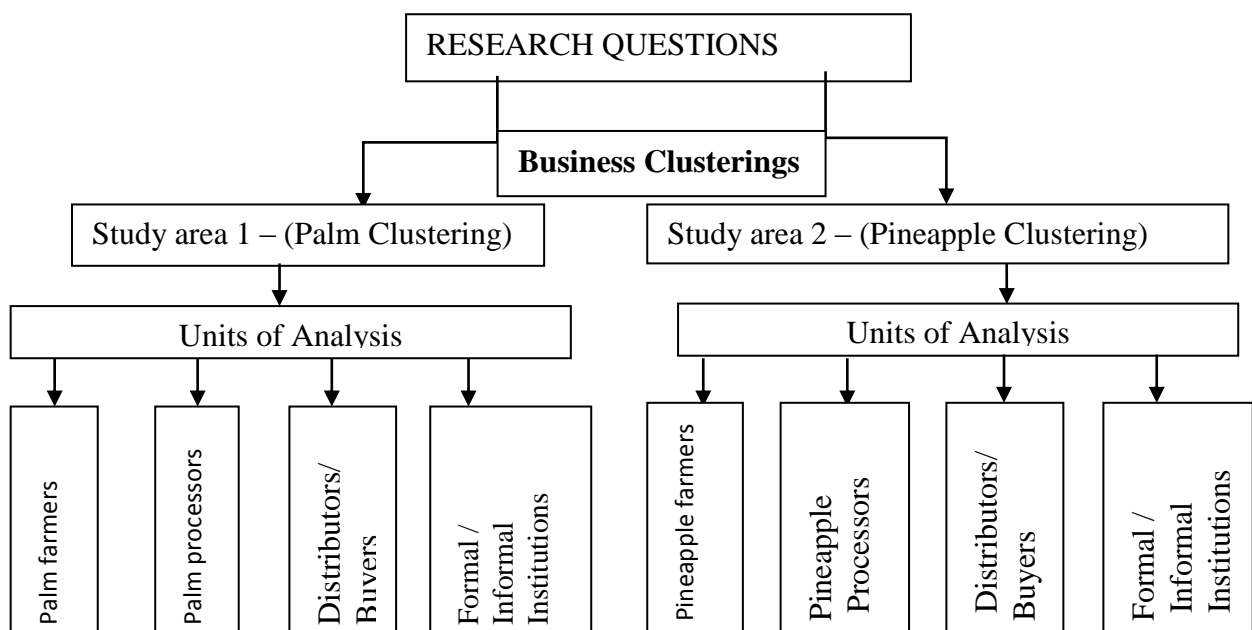
Figure 4.1 Embedded multiple units of analysis

Author's construct (2013)

In this research, therefore, the two areas of clustered firms in Ghana (Figure 4.1) will form the subject for this study and the objective will be to provide the rationale for their internationalisation activities. Businesses within Nsawam and Kwaebibirem was formed the units of analysis of this study and provided the basis by which to understand how businesses

are internationalising their activities, what factors are responsible for their internationalisation, and the role of institutional environment.

4.3   Philosophical Research Paradigms of the Study

The research adopts Mixed Methods Research (MMR) shows methodological pluralism and the research orientation requires appropriate philosophical paradigm. Descriptive and exploratory studies belong to different philosophical paradigms. Arguably, descriptive statistics lean towards positivism paradigm, while exploratory studies are classified within the phenomenological paradigm. These philosophical paradigms influence the choice of research methodology or strategy. Therefore, there is a need to situate the research on internationalising business clusterings in Ghana within an appropriate philosophical paradigm. This section draws on the distinctions between research paradigms and their respective applicable research methods.

The positivist paradigm takes its root from the natural sciences and takes a value-free approach to observing events occurring within a system. It is founded on the belief that the world is external and objective and human behaviour should be studied in the same way as in natural sciences. Therefore, social reality is independent of the researcher and exists regardless of whether we are aware of it. The paradigm is linked with quantitative methodology, which adopts numerical measures to establish the cause and effect relationship within social phenomena by reducing them to their simplest elements. As a result, the positivistic paradigm adopts quantitative techniques such as surveys, experiments and statistics to achieve a rigorous, exact measures and objective research (Sandelowsk, 2000; Yin, 2009).

Alternatively, the phenomenology paradigm takes a different view in evaluating social phenomena. Social reality, according to the phenomenology paradigm, is socially constructed but not externally determined or within the theoretical construct. It takes a subjective view of human behaviour by focusing on meaning rather than the numerical measurement of concepts. Therefore, the understanding of social reality is obtained from participants and the researcher's own frame, which has an effect on that reality. The use of hunches, experience and intuition forms the foundation of investigations. The paradigm adopts an in-depth, small-sample inductive investigation using multiple methods to establish different view on the phenomenon. Ethnography, action research and case studies are examples of methods under

this paradigm used to make sense of social reality (Bryman and Bell, 2010; Creswell, 2014; Greene, 2008).

However, the research on business clustering internationalisation appears to exhibit pluralism in the paradigms (Leech et al, 2010; Leech and Onwuegbuzie, 2012; Tashakkori and Teddlie, 2012). This may be because the decision to use a data collection method in any research is deeply rooted in an epistemological position (Bryman and Bell, 2010). On one hand, the nature and structure of the clusters and the structure of the internationalisation process in the two clusters require an objective description of the relationships through the use of statistical data. On the other hand, the rationale for the internationalisation ability of the cluster had to be constructed through the eyes of the interviewed participants. This pluralism, the synthesis of ideas from qualitative and quantitative research, according to Tashakkori and Teddlie (2012), is evident in MMR design. In studying business clustering internationalisation in Ghana, the research adopted methodological eclecticism, which has pragmatism as its philosophical paradigm (Johnson et al, 2007; Onwuegbuzie, 2012; Tashakkori and Teddlie, 2012; Creswell, 2014).

The pragmatism paradigm takes its root from the works of Johnson et al (2007). The paradigm validates the use of multiple methods and does not restrict itself to the dogma of answering research questions with a single paradigm. The adoption of this paradigm was to reveal the potential contribution of comparing data from the quantitative with qualitative techniques in order to generate an in-depth understanding of social phenomena in the study area. Therefore, the philosophical paradigm driving this study adopts both deductive and inductive logic in the same study (Tashakkori and Teddlie, 2012; Mertens, 2012; Creswell, 2014). By adopting a pragmatist's view, the research does not view the world as an absolute unity and it supports the use of several approaches in the study of phenomena so as to strengthen the validity of their findings, as is the case in MMR. Within the pragmatic philosophical paradigm, the research adopted a mixed methods approach by combining quantitative and qualitative methods and different forms of data and procedures to collect data and analyse the research problem.

4.4   Mixed Methods Research

The research adopts a mixed methods approach. Mixed Methods Research (MMR) involves the combination of quantitative and qualitative research strategies in a single study to address

a research problem. The mixing of research methods has become the third major research paradigm and its primary philosophy is that of pragmatism (Tashakkori and Teddlie, 2012; Mertens, 2012). Over two decades now, mixed methods have been studied under different terminologies such as multi-methods, multi-strategy, triangulation, mixed methodology, qualitative and quantitative methods and synthesis (Greene, 2008; Bryman and Bell, 2010; Tashakkori and Teddlie, 2010; Creswell, 2014).

This study uses MMR with the assumption that there are multiple legitimate approaches to social inquiry and that any given approach to social inquiry is inevitably partial (Greene, 2008). In considering business clustering internationalisation, the researcher believes that the best way to understand social phenomena is choosing several strategies rather than restricting the research to a single philosophical paradigm (Greene, 2008; Creswell, 2014).

Despite the argument that the adoption of multiple paradigms makes the determination of defined characteristics of mixed methods seem Herculean (Bowleg et al, 2016), in recent years, interest in MMR has grown thanks to contributions from several scholars (see the Journal of Mixed Methods Research, issue 1-4, 2007-2010). Johnson et al (2007) provide a comprehensive definition of MMR from the examination of 19 alternative meanings; it is "the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches [...] for the broad purposes of breadth and depth of understanding and corroboration" (Johnson et al, 2007, p. 123). They conclude that the meaning of MMR is based on five themes: what is mixed, why mixing, stage of mixing, breadth of mixing, and orientation of mixing.

Tashakkori and Teddlie (2010, 2012) have called for convergence within MMR and have proposed nine descriptive characteristics, including: methodological eclecticism; paradigm pluralism; iterative, cyclical approach to research, and set of basic "signature" research designs, and analytical processes. This critical examination of MMR and further works by mixed methods researchers has made the MMR an attractive alternative to provide meaning to social occurrence, and this research has adopted its procedures. Tashakkori and Teddlie (2010, 2012) have called for the identification and unification of key features of MMR. Unification of old and new MMR ideas is rooted in methodological eclecticism, which brings together nomenclature, methodology, and utilisation potential and drives the commonality in identity for the third methodological movement (Tashakkori and Teddlie, 2010; Mertens,

2010; 2012). The rationale for mixing methods in this research was to ensure convergence, corroboration and correspondence of results within different methodologies, which Tashakkori and Teddlie (1998, 2010) term triangulation. In a sense, the results from one methodology may serve as a pivot on which the other method can develop. Therefore, by mixing methods, the researcher sought to triangulate data from one method to another by elaborating and clarifying one method with the other (Johnson et al, 2007).

4.4.1 Triangulation

The mixed methods strategy is sometimes referred to as triangulation, which describes the use of a combination of multiple empirical research methods to investigate a phenomenon (Bryman and Bell, 2010). The proponents of triangulation argue that the use of quantitative methods can be enhanced by adopting multiple ways of measuring concepts. Triangulation therefore comprises different kinds of data (quantitative and qualitative) and different method (e.g. interviews and surveys) to see whether they corroborate one another (Creswell 2014). This means that triangulation is the operationalisation of the MMR ideas.

The research adopted the convergent triangulation approach to collect and analyse data. As a result, both quantitative and qualitative data was collected simultaneously from the two clusterings in a single phase of the study. The researcher's decision to adopt convergent triangulation was due to the limited time available to the student and the strategy's ability to corroborate and confirm findings of the study, especially within multiple study areas (Bryman and Bell, 2010; Creswell, 2014). In addition, a convergent/concurrent strategy, where qualitative and quantitative data collection take place at the same time, was adopted since it is relatively cost-effective and has a relatively shorter data collection time period, which benefits the student researcher (Bryman and Bell 2010; Tashakkori and Teddlie 2010; Creswell, 2014). As a result, limitations such as representativeness in the qualitative studies were strengthened by the quantitative data from the two study areas. The researcher adopted both theoretical frames by triangulating primary data coming from surveys with interviews and observations.

The researcher believes that a well-executed triangulation of data and analysis complement each other and confirm or validate the research in providing an explanation as to why business clusterings in Ghana are internationalising (Greene, 2008; Leech et al, 2010). In effect, triangulation adopted in the research sought to broaden the understanding of social

phenomena by reconciling the quantitative and qualitative data available to the researcher. Quantitative data from questionnaires was reconciled with qualitative data from semi-structured interviews and observations. The application of different methods in the two business clusterings compensated for the weaknesses in both qualitative and quantitative methods. Results from triangulated methods and analysis converge with or are opposed to each other and provided the researcher with a deeper appreciation of the phenomenon under study. As a result, each of the methods produced results in which the researcher is very confident.

The use of survey questionnaires to explain how processing businesses operate and organise their exports falls within the quantitative methodology. The survey explains the characteristics and relationships in the cluster in accordance to the conceptual frame developed for the study. This offered this study rich descriptive data on the spatial organisations and supply chain structure in the cluster, the frequency, volumes and export flows, and number of export programmes and participants of these programmes in the study area. The relationship between clustered firms and other supporting institutions in the internationalisation process was extrapolated in the descriptive study[10]. The techniques adopted helped to capture the relationships within the supply chain, the flow of information, export growth, and the views on institutional support and government policies and programmes in the two study areas.

Business clustering internationalisation in Ghana contributes to the discussion on cluster and internationalisation. The proposed mixed methods convergent approach to be used for the multiple case studies of clustered firms in Ghana is shown in Figure 4.2 below.

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[10] Appendix 1

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                          ┌─────────────────────────────┐
                          │      RESEARCH PROBLEM        │
                          └──────────────┬──────────────┘
                                         │
                          ┌──────────────▼──────────────┐
                          │     THEORETICAL FRAME        │
                          └──────────────┬──────────────┘
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                 │  for business cluster internationalisation│
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Figure 4.2 Summary of methodological approach adopted by the research

4.5   The Study Area

The decision to select these two areas for the examination of clustered businesses'
internationalisation is based on the fact that they are dominant in the cultivation and the
processing of fruits – palm in Kwaebibirem and pineapple in Nsawam. The intricate nature of
the value chain in the palm study area, observed by Osei-Amponsah et al (2012), shows the
wider effect of these activities on the people within the district. The pineapple study area,

according to GEPA (2013), is equally a unique product value chain, whose description is similar to the palm study areas.

Their presence within the same region brings with it some level of commonality with respect to ethnicity, language and culture. The fact that the Nsawam and Kwaebibirem areas in the eastern region of Ghana are dominated by Akan-speaking ethnic groups and have similar cultural and belief systems (GSS, 2010) offers the research some level of homogeneity in terms of the socio-cultural environment of the study areas.

The two areas for this study appear to have similar economic activities. The GSS (2010) data shows that almost half of the economically active population in the two areas are engaged in some form of agricultural activity. Processing industries are the most common industrial activities in the two study areas (Ghana Districts, 2014). Palm and pineapple cultivating, processing and exporting appear to be the dominant economic activities in the two areas, providing employment, infrastructures and livelihood to these communities (Budget Statement, 2010; MASDAR Report, 2010; GEPA, 2013).

The emerging commonalities and issues in the Nsawam and Kwaebibirem study areas makes them suitable for a comparative study in unearthing the rationale behind clustered businesses' internationalisation in Ghana.

Case 1: Palm Cluster
The first study area is located in the south-western corner of the Eastern Region of Ghana and covers a surface area of 1,230 square kilometres. With a population of 213,259, the district contains 149 towns and villages with Kade as the district capital. Kade is less than two hours' drive from Ghana's capital, Accra. This location is made up of registered palm processing businesses operating from fixed premises in the Kwaebibirem district and has been denoted as the palm cluster (Huddleston and Tonts, 2007; Osei-Amponsah et al, 2012).

The district has two rainy seasons which support a variety of agricultural produce including cash crops such as cocoa, oil palm and pineapple fruits, and food crops such as maize, plantain, cassava and cocoyam. Seventy-seven per cent of the economically active labour force engages in agriculture through farming their own or their family's land, or through farming leased land owned by government or chiefs, or by sharecropping. The remaining 23% is distributed between industry, commerce and service sectors (GSS, 2010). The main

industrial activity of the local people is the operation of large-, medium- and small-scale oil-palm processing plants and mills (Ford and Whitfield, 2012; Osei-Amponsah et al, 2012).

The farming of palm fruits is annexed by palm processing businesses, distributors and other supporting institutions in the Kwaebibirem district. According to NBSSI and the palm association in the district, there are about 225 registered palm-fruit processing businesses. This information has been supported by business advisory services' estimates of registered palm-fruit processing businesses registered with the Kwaebibirem District Assembly (NBSSI, 2013).

The main economic activity is the operation of oil-palm processing plants and mills. They vary in size, ranging from large to medium and small scale (Osei-Amponsah et al, 2012). The Kwaebibirem district is home to the only research centre for oil palm in Ghana. It is known as the Oil Palm Research Institute (OPRI) and is a branch of Ghana's Council for Scientific and Industrial Research (CSIR). The district also has 15 financial institutions including savings and loan companies, and rural and commercial banks. There exists a network of palm businesses including fruit farmers, distributors, palm processing enterprises and exporters, and agricultural business units. Palm fruit farms are a significant feature of the vicinity; these farms are either on a subsistence or a commercial basis. Whereas most micro palm processing units may not be registered, the small-, medium- and large-scale firms are and their activities are well coordinated.

Case 2: Pineapple Cluster

The second study area is made up of pineapple production and processing businesses. The area is located in the south-eastern corner of the Eastern Region of Ghana and covers a surface area of 403 square kilometres. The population of Nsawam municipality is estimated at 126,809 and the area contains 20 towns with Nsawam as the district capital. Approximately only 23 minutes away from Accra, Ghana's capital, the proximity of the municipality to Ghana's international airport and the shipping harbour is an advantage.

Thirty-seven percent of the Nsawam municipality's population is employed in agriculture, 28% are in the commercial sector, 20% are in the industrial sector and 15% are in the service sector. There is a concentration of agro-processing businesses that are capitalising on the output from the agricultural activities in the municipality. The data from the Nsawam municipality and Ministry of Trade and Industry puts the estimated number of processing

businesses at 18. The agricultural activities in the district centre mainly on non-traditional crops, such as pineapples, papaw, garden eggs and sunflowers, which are cultivated mainly for export.

There exists a pool of supporting institutions and businesses that are constantly interacting with these agro-processing businesses in the district (Ayakwah, 2011). There are eight financial institutions, one business advisory centre and other government policy institutions such as the National Board for Small Scale Industry (NBSSI) and Ghana Regional Appropriate Technology Industrial Service (GRATIS), which interact with SMEs in the municipality. The value chain of SMEs in the area constitutes pineapple farmers, distributors, pineapple processing enterprises and exporters. There exist small, medium and large-scale fruit processing businesses in the municipality. Some processors have farms while others purchase from farmers. These pineapple farms may export directly through export institutions or sell their output to processing firms (NBSSI, 2012).

4.6   The Sampling Processes

Based on the available information provided in the supply chain, the processing palm and pineapple businesses, farmers, distributors and supporting institutions were the main source of the data for the study.

Processing businesses in the palm and pineapple study areas were the main sample frame from which survey data was extracted for the study. The reason for choosing the processing firms is that they are registered and details of their address and telephone numbers are therefore available. The pilot study shows that processing businesses apparently play a central role in the clustering and internationalisation process and may offer a better source of information in explaining the linkages within the supply chain of these business clusterings. The sample frame for the quantitative survey was 243, which comprises 225 and 18 exporting and non-exporting palm and pineapple processing enterprises, respectively.

In all, 99 processing businesses were surveyed. Eighty-two of these respondents were from the palm processing study area and the remaining 17 respondents were from the pineapple processing study area. Sample participants from the various groups of actors were interviewed to complement the information from the sampled surveys. In sum, 24 participants

were interviewed from their respective sample frames. The determination of the sample sizes is justified for the surveys and interviews in the next sub-sections.

4.6.1 Sample size determination in the palm cluster

The research adapted Yamane's 1967 formula to determine the representative sample size for processing businesses within the palm clusters. The researcher assumed a normal distribution in the responses of firms in relation to their operational activities in the cluster. Based on the formula, there are 225 processing firms in the palm cluster (N = 225). At an acceptable 95% level of confidence, we have a statistical z value of 2 (z = 2) and an error limit of 10%. Based on Yamane's formula, the required sample for the palm cluster is determined as:

$$n = \frac{N}{1+Ne^2} = \frac{225}{1+225(0.01)^2} = 69$$

Where,

n = required response

e^2 = limit of error

N = sample size

This means that the lowest acceptable response must be 69 at a 95% level of confidence with level of error at 10%.

The researcher, as part of the administered survey, had 82 responses from firms in the palm cluster, which is above Yamane's required response. Therefore, to determine the confidence level and limit of error at the actual received response, Yamane's formula had to be adopted.

$$e^2 = \frac{z^2\ p\ (1-p)}{n1} - \frac{z^2\ p\ (1-p)}{N} = \frac{2^2\ 0.36\ (0.64)}{82} - \frac{2^2\ 0.36\ (0.64)}{225}$$

$$e^2 = \frac{0.9216}{82} - \frac{0.9216}{225} = 0.011239 - 0.004096 = 0.007144$$

$$e = \sqrt{0.007144} = 0.084$$

n1 = actual response received   N = population surveyed

p = actual response as a percentage of population   e = error limit

The results indicate that a 34% response rate at a 95% confidence level has approximately an 8% error limit. Gaur and Gaur (2009) noted that in social science research a 95% confidence level with an error limit of 10% is acceptable.

The researcher ensured that the sample was fairly distributed among the various business categories in the palm cluster. This was achieved by the adoption of a stratified sampling technique which ensured that each group in the cluster was represented. Figure 4.3 below shows the sample distribution of firms in the palm cluster.
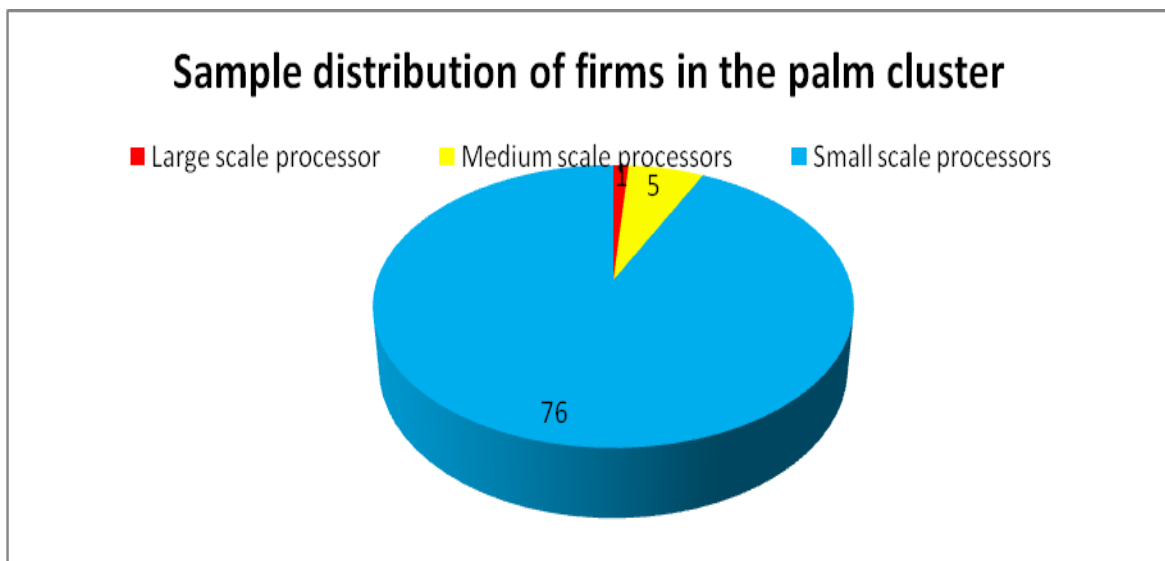
Figure 4.3: Sample distribution in the palm cluster

4.6.2 Sample size determination in the pineapple cluster

In the case of the processing firms in the pineapple cluster, since it has a relatively small population size, the researcher sampled all 18 firms. By choosing the entire population, the survey does not conform to the definition of probability sampling and there is no room for estimating sampling error and confidence interval, which resonates with scholarly work by Yen (2009). Similarly, the adoption of the entire population of 18 firms, made up of large, medium and small enterprises, ensured that the various categories of firms were equally represented in the survey. The distribution of the firms in the pineapple cluster is illustrated in Figure 4.4 below.
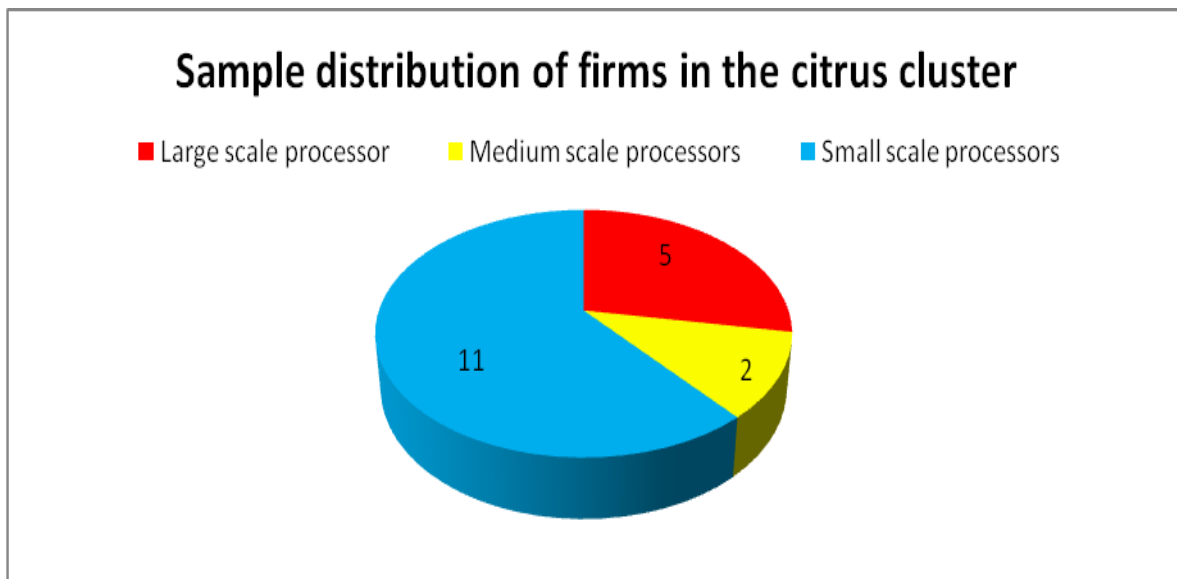
Figure 4.4: Sample distribution in the pineapple cluster

4.6.3 Determining qualitative sample size

Unlike quantitative research that has an accepted sample size required for conducting research, qualitative research appears not to have a defined sample size designated for this purpose (Morse, 1995, 2000; Curtis et al, 2000; Hill et al, 2005; Guest et al, 2006; Koerber and McMichael, 2008; Trotter, 2012; Creswell, 2014). Several scholars have used different sample sizes in arriving at their findings based on certain factors. Sample size determination could be influenced by several factors. These include the nature of the research; that is, whether it is exploratory or explanatory research (Morse, 1995; Guest et al, 2006); the structure of the population, whether they are homogeneous or heterogeneous (Guest et al, 2006; Trotter, 2012); and the qualitative research technique adopted, whether it is semi-structured or unstructured interviews – all influence the qualitative researcher's choice of sample size for any given study (Curtis et al, 2000; Hill et al, 2005; Creswell, 2014). According Morse (2000, p. 3), "*The number of participants required in a study is one area in which it is clear that too many factors are involved and conditions of each study vary too greatly to produce tight recommendations'"*

However, researchers agree that qualitative research does not require an infinite number of participants and that saturation in the data acquired is the signpost to determine the sample size needed. The point at which all data has been thoroughly optimised such that no new information emerges from participants may also depend on several factors. These factors

have been summed up by Morse (2000) to include the nature of the topic, quality of data, study design and the use of shadowed data. As a result, several scholars have proposed different sample sizes for saturation (Morse, 2000; Hill et al, 2005; Guest et al, 2006).

Therefore, the researcher's choice of 24 interviews (Table 4.1) and observations are based on the fact that there are some similarities in the study areas. There is commonality in language and data, which shows that there are similarities in the economic activities undertaken in the study areas. The pilot study revealed that there exist similar actors along the supply chain – farmers, processors, exporters and supporting institutions – in the study area. As a result, the researcher has purposefully selected participants, as shown in Table 4.1 below, along the value chain whose activities are similar. This is to strengthen the quality of information and reach data saturation for the relatively narrow objective of this study (Curtis, 2000; Yin, 2009; Trotter, 2012).

Table 4.1. List of interviewed participants in the two clusters

Number of interviews	Palm cluster	Pineapple cluster	Total
By Firm Size			
Small-scale processing firms	2	1	3
Medium-scale processing firms	3	2	5
Large-scale processing firms	1	4	5
By Sub-sector			
Farmers	1	1	2
Artisans	1	-	1
Distributors	2	-	2
By Institution			
Public institutions/Agencies	3	2	4
Research institutions	1	-	2
Total	14	10	24

4.7   Research Instruments for Data Collection

The study on business cluster internationalisation adopted both quantitative and qualitative research instruments. The research also adopted secondary and primary data sources in providing information on key actors within the study areas. Telephone surveys, semi-structured interviews and observations on the activities of processing businesses, farmers, distributors and supporting institutions provided the primary data source for the research. This source of data offered the research first-hand knowledge on cluster operations and

interaction along the supply chain while providing the rationale for clustered processing businesses' internationalisation.

The secondary data, on the other hand, came from government institutions and agencies such as the Ministry of Trade and Industry, Ministry of Food and Agriculture, Food and Drugs Authority, Export Promotions Council, Ghana Standard Authority, National Board for Small Scale Industry, Oil Palm Research Institute, Crop Research Institute, Business Advisory Centres, Business Associations and other relevant sources such as journals, textbooks and other online sources.

These varying sources of data collection are in conformity to Yin's (2009) work that argued that multiple data sources could be adopted in case study research. Having a variety of data sources is equally critical in MMR as triangulating responses in the data is seen as critical in strengthening the results from the data. As a result, a telephone survey, interviews and observations were used concurrently in the data collection process.

Telephone survey

A telephone survey was used to collect data on the backgrounds of firms in the clustering with specific interest in the business ownership, duration of operation, frequency and number of firms and institutions they buy from and sell to; the frequency and the volume of their export distribution; and the variation in the export channels. Through a rapport established with the association secretary, the researcher was able to acquire the data based on respective members in the palm study area Through the use of survey questionnaires, data on the general background on clustering operations[11], their source, volume and frequency of exports,[12] and the variation and effects of export programmes,[13] has been collected from the entrepreneurs within the two study areas. The survey provided the quantitative data on the nature of clustering and internationalisation activities in the study area. Quantitative data was collected on the backgrounds of firms in the clustering with specific interest in the business ownership, duration of operation, frequency and number of firms and institutions they buy from and sell

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[11] Appendix 1 (Question heading A&E)
[12] Appendix 1 (Question heading B&C)
[13] Appendix 1 (Question heading D)

to; the frequency and the volume of their export distribution; and the variation in the export channels. The data collected was accompanied by semi-structured interviews with participants along the supply chain of the processing activities in the two clusters.

The choice of telephone survey was based on the fact that they are relatively cost-effective, fast and efficient to collect and have a relatively high response rate compared to mailing and web surveys. They provide representative samples and reduce the bias associated with face-to-face administered surveys (De Vaus, 2002; Bryman and Bell, 2010; Creswell, 2014). One critical observation in the literature however is the issue of locating respondents and getting them to agree to take part, and the issue of call-backs and convenient times for the participants. In the case of the two clusterings, the researcher, through the association secretary, secured the mobile phone numbers of the respondents. For best practice, the researcher, through the association, notified the respondents a week before the telephone survey to establish their consent. This offered adequate time for the researcher to concentrate on the other data collection methods and led to the relatively high response rate for this research (Creswell, 2010; Bryman and Bell, 2011).

Semi-structured interviews and observations

Alternatively, the research adopted semi-structured interviews and observations to collect data from palm and pineapple growers and producers, processing sub-sectors and public institutions. These qualitative instruments offered the researcher a rich pool of information which may not be captured by the survey questionnaires and strengthened the internal validity of this research (Johnson et al, 2007; Yin, 2012; Onwuegbuzie, 2012).

The semi-structured interviews were based on standard guides emanating from the location of businesses in the cluster, the relationship of actors, exporting operations and institutional support systems. All these themes had their roots in the research questions set out in the conceptual framework for this study. The questions in the semi-structured interviews were modified after the pilot interviews and were categorised into three broad semi-structured questions for processing businesses, farmers and supporting institutions operating in the two study areas.

The choice of semi-structured interview ensured that the researcher used an interview guide which framed the wording used in the data collection process (Pezalla et al, 2012; Cassell and Symon, 2004, Bryman and Bell, 2011). The choice of semi-structured interview was essential

because the research is situated within a multiple case study and some level of standardisation is required in the questioning to ensure cross-case comparability (Yin, 2009). In the case of these clusterings, both the English language and Akan were used and standardising the questions became imperative. As a result, the investigation commenced with a relatively clear focus (Bryman and Bell, 2011; Creswell, 2014). The researcher was reflexive, allowing questions not in the interview guide to be incorporated during the interview (Cassell and Symon, 2004; Pezalla et al, 2012).

Semi-structured interviews and observations were used to ensure reliability in the data from the participants. Semi-structured interviews facilitate the attainment of saturation in exploratory study (Guest et al, 2006) and triangulating semi-structured interviews with observation ensures that information on the activities in the two clusters was acquired from multiple sources and multiple methods. The qualitative instruments offered the researcher a rich pool of information which supports the survey questionnaires and strengthens the internal validity of this research (Johnson et al, 2007; Yin, 2012; Onwuegbuzie, 2012). By adopting interviews and observation, a deeper understanding of the operational linkages in the clusterings; the relationship between actors and their flow of information; their exporting activities and the relevance of the institutional environment; and the general policy environment for their operations was obtained.

4.8   Data Analysis

The adoption of different instruments for data collection requires different ways of analysing the data collected.

Quantitative analysis

The quantitative data was analysed using the Statistical Package for Social Scientists (SPSS) software Version 19[14]. The SPSS was used because of its ability to perform several statistical measurements. The survey questionnaires were coded into 38 variables for the analysis of the final sample of 99 businesses in the two study areas – 82 palm fruit and 17 pineapple businesses. The software was used to generate descriptive statistics, Chi-Square tests of

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[14] Appendix 7

differences/independence and cluster analysis. The main reason for choosing statistical analysis was to evaluate business cluster internationalisation activities for the two study areas. As a result, the analysis was skewed towards addressing the key research questions by drawing on possible correlations and relationships in the statistical data presented in each individual case and between the cases.

The use of factor analysis could have been adopted to provide an alternative way of examining the data from the two clusters. This is because of its ability to simplify data and draw relationships between complex and non-directly visible variables within the social and economic environment (Cormrey and Lee, 1992; Child, 2006; Tabachinick and Fiddell, 2007; Yong and Pearce, 2013). However, this research has a relatively small sample size (less than 100) which influences the confidence in the quality of the factor analytic solution. Studies by scholars such as Cormrey and Lee (1992), Tabachinick and Fiddell (2007), and Yong and Pearce (2013) have shown that the sample size necessary for factor analysis should not be less than 100. In fact, Yong and Pearce (2013) argue that a sample size of 300 is considered as fair and 500 is considered as good in using factor analysis. Due to these limitations of factor analysis, this research adopted chi-squares, a five-point scale mean ranking, descriptive statistics and cluster analysis which allowed for detailed examination of data from clusters and between clusters.

Qualitative analysis

The research adopted thematic analysis in examining the qualitative data. Thematic analysis was chosen for the study because it facilitates the identification, analysis and report of patterns in data and has the ability to generate unanticipated insights for a study due to its flexibility (Braun and Clark, 2006; Silverman, 2013). NVivo 10 software was used to generate the various themes for the qualitative data analysis within and between the two clusters. The package has inbuilt programmes that allow the researcher to gather, organise, analyse and visualise data. In all, 24 interviews were transcribed from three categories of actors: processors, sub-sectors (farmers, artisans and distributors) and institutions. The interviews that were conducted in the local dialect was transcribed by an Akan language professional from Ghana and corroborated by the researcher.

The transcribed interviews were uploaded into an organised project folder for palm and pineapple in the NVivo software after the researcher had familiarised himself with the

transcribed data. The software was then used to generate four broad themes based on theoretical frame and research question. These broad themes included operational information, relationship in the clustering, organising exports and public sector support for exports. The coding queries were then used to extract the responses from the various interviews on specifically created coded nodes. The coding queries unearthed six new themes and nodes from the data that were used as the empirical section. These new themes were: business setup; innovative activities; marketing of produce; relationships clusters; resources for production and support to business operation. These responses were further coded and coding queries were used to extract detailed responses from the interviews and the themes were examined within and between each study area for the two pools of data.

The observation notes from the study areas were then reconciled with the thematic analysis to provided deeper appreciation of observed patterns from the analysed interviews within and between the two cases. This helped the researcher understand real-life activities and situation which hitherto the interview data would not have been able to capture. The field notes provided information on the operational structure and relationships among actors and export organisation for the interviewed processing businesses. This information served to further corroborate and complement the qualitative interview results, and enhanced the reporting in the empirical sections of this work (Creswell, 2013).

Analytical triangulation

The results from the qualitative and the quantitative analysis were further harmonised with each other to facilitate corroborations and possible contradictions in the findings (Eisenhardt, 1989). The combined findings were analytically explained, leading to the derivation of seven critical areas which are captured in the empirical chapter. These analytical areas are: location of businesses in the clusters, supply chain networks, performance of processing businesses, information and knowledge transfer, innovative activities, internationalisation activities and public institutional support.

4.9   Quality of the Research

Critical to every piece of research are the issues of validity and reliability. Researchers have suggested construct validity, internal validity, external validity and reliability as essential criteria in the conduct of research (Yin, 2009; Creswell, 2014). This research adopted an appropriate methodological frame in studying the phenomena and as a result renders itself for

replication. The adoption of different analytical approaches was critical in strengthening the internal and external validity of the research. Different data sources used for this research – interviews, observations and surveys – support the construct validity of the research. Other measures also adopted to strengthen the validity of this research so as to make the study more reliable include a pilot study and the role played by the researcher.

4.9.1 Pilot study

The survey questionnaire and interview schedule were piloted in the two study areas to test their reliability. Piloting the data collection instrument ensured that the survey questions and the interviews were operational (Silverman, 2013). The questionnaires were piloted, through telephone survey, with five entrepreneurs (three palm and two pineapple entrepreneurs) from the study areas to ensure clarity in variables and avoid double-barrelled questions. The semi-structured interviews were piloted with heads of supporting institutions operating within the two business clusterings. The entrepreneurs who formed part of the pilot were part of the cluster and therefore conversant with the operational structure of the clusterings. The pilot tests ensured that the questionnaires and interviews met academic standards and provided the needed data to answer the research questions.

4.9.2 Role of the Researcher

In order to conduct the proposed research, the researcher had to interact directly with actors and institutions in the research areas where he had lived and worked for the past 10 years. There were elements of pre-existing bias, as the researcher has a perception about how the palm and pineapple activities are undertaken in the region. However, the theoretical review of similar activities in other locations made the researcher question these perceptions. As a result, the researcher examined the activities of processing businesses, farmers, distributors and supporting institutions devoid of value judgements and presented findings based on the responses of these actors. The researcher's use of telephone surveys, interviews and observations guided his objective examination of the phenomenon within the two study areas in order to reveal the true nature and uniqueness of these activities.

The fact that the researcher is from the study area was also a strength to the research since he has the cultural appreciation, local knowledge of the study areas and has theoretical understanding. This means that the researcher has been able to relate social realities to theory

by communicating in the Akan language, understand gestures, mix well and was seen less as an outsider, which helped in the data collection, analysis and reporting stages of this work. The researcher was able to build trust and obtain information through less bureaucratic means. This made the adoption of interviewing and observation appropriate for the study, as the interviewees provided the researcher with a better appreciation of the interactions within the clusters and explained the reasons for their exporting activities. This was made possible since I understood local language and had a good appreciation of local idioms, expressions and gestures which could be taken for granted even though it is integral to the understanding of the Ghanaian language. As an observer, knowledge on clustering and internationalisation was acquired and contributed to the existing discussions on cluster internationalisation from a developing economies perspective.

The researcher was also aware of the possible negative effect the research may have on him. Johnson (2009) sees fatigue and emotional drain in the conduction of observations and interviews. This stress is not limited to data collection but can also be evident in the analysis stage.

4.10 Ethical Considerations

The study meets all ethical considerations required for the successful conduction of the research. The research involves interviewing mature adults from various enterprises and institutions. It was important to explain the purpose and nature of the research before seeking their verbal and written consent. This was in conformity with the guidelines of the School Research Ethics Panel (SRCEP) set by Middlesex University Business School. The researcher sought verbal consent from farmers and processors of palm and pineapple and distributors directly and through their associations and directorates. Written consent forms were sent to exporting enterprises and supporting institutions.

Interviews were undertaken in a conducive environment and participants were assured that information they provided would be treated anonymously. The researcher provided participants with his contact details and the details from his institution to inform them of the complaint channels available for the research. The researcher believes that, by adopting such measures, the study on business cluster internationalisation meets the required ethical standards set out for the conduction of research in Middlesex University Business School.

CHAPTER FIVE: CLUSTER DYNAMICS, RESOURCE ACCESSIBILITY AND THE ROLE OF COOPERATION AND COMPETITION IN THE SUPPLY CHAIN

5.1 Introduction

The aim of this chapter is to examine how different types of interaction of key actors influence the level and forms of cooperation and competition critical to the operations and productivity of processing businesses in developing economies. The understanding of these interactions is essential because it assists in explaining the critical features of the cluster and agglomeration theories, which are the notions of cooperation and competition (Newlands, 2003). The interactions of actors generate tangible and intangible externalities which mould the dynamism of the clusters (Krugman, 1999; Helmsing, 2002; Motoyama, 2008). Therefore, this chapter seeks to comparatively examine the various interactions in the two fruit processing clusters in order to appreciate the levels of competition and cooperation that define and sustain the processing businesses' operations in the clusters. For the purposes of this research I adopt the definition by Ministry of Local Government and Rural Development, and the National Board for Small Scale Industry. Thus, based on the number of employees, 1 to 5 is micro enterprise, 6 to 29 is small-scale enterprise, 30–100 employees is medium-scale enterprises and firms with more than 100 employees are seen as large-scale enterprise. The chapter addresses the following research sub-questions: *What factors are responsible for stimulating the emergence of the clustering activities? What types of networking and interactions exist along the supply chain in the business clustering? How do processing businesses perceive their level of performance in the clusters?*

The chapter is divided into four sections. Section 5.2 provides a historical overview of the emergence of the clustering activity within the two study areas; Section 5.3 examines different forms of interactions along the supply chain and their effect on processing businesses in the clusters; Section 5.4 looks at the output performances of the processing businesses in the clusters; and Section 5.5 provides a reflection on the key issues arising from the findings

5.2   Historical Antecedents and Processing Businesses' Location in the Two Clusters

The findings show two unique ways through which these processing clusters emerged. The first presents the findings on the reasons given by businesses for establishing processing businesses in the two clusters. The second approach used interviews with key informants, especially those representing the government's views, in the two clusters to explain how the clustering activities in the location evolved. This is aimed at providing a holistic understanding of activities, so as to make sense of the interactions within the two clusters.

5.2.1   Reasons for processing businesses locating in the cluster

This section examines the reasons why processing businesses located themselves in the two clusters. This is against the backdrop found in the literature on the emergence of clustering activities that appears to suggest that clusters exist due to the natural resources and government support provided to agriculture in the areas. In capturing the reasons for the location of businesses in the clusters, the following variables were put to processors to determine the most influential factors: (1) access to market or buyers, (2) labour, (3) raw materials, (4) machinery, (5) technical advice and (6) credit. The choice of answers was based on a Likert scale of 1 -5, where 1 is not important and 5 is very important.

Access to markets/buyers

Responses relating to the relevance of access to markets in the establishment of the processing businesses in the two clusters varied. In the case of the palm cluster, all of the 82 processing businesses said that access to market was 'Very important' (60%) and 'Important' (40%) to their location in the cluster. In contrast, only 18% of the 17 processing businesses surveyed in the pineapple cluster concurred that access to market was 'Very Important' and 58% said it was 'Important' to the location of their business in the cluster.

This finding reflects the geographical situation of the two fruit processing clusters, which are strategically located relatively close to the nation's capital, Accra, and are linked with accessible road networks. This means that the processing businesses are able to take advantage of the air and sea ports in Accra, especially the processing pineapple businesses, whose products are more perishable. And yet only 18% of the pineapple businesses agreed that access to market was Very Important. The results are not surprising because, compared

to the pineapple processing businesses, the palm processing businesses see access to market as more crucial in their decision to locate in the cluster since their processing is normally carried out in rural communities with limited accessibility.

The findings mean that the relevance of accesses to buyers/market could be a pull factor to attract processing businesses to locate in a cluster (Porter, 1998). Despite the differences in the responses regarding accesses to buyers/market, most fruit processing businesses perceive it as relevant compared to the other factors. The issue of markets and buyers is examined later in Chapter seven.

Access to labour

The survey revealed that labour is equally essential to the operation of businesses in the two clusters. All the palm entrepreneurs agreed that access to labour was 'Very Important' (71%) or 'Important' (29%) to the establishment of their businesses in the cluster. In the case of the pineapple cluster, relatively lower values of 35% ('Very Important') and 47% ('Important') were obtained from entrepreneurs in relation to access to labour in establishing businesses in the cluster. The differences in value accorded to the importance of labour in the establishment of businesses in the pineapple cluster may be as a result of urbanisation and the merger of the municipality with Accra, the nation's capital. As noted in section 1.9, the Nsawam municipality is 30 minutes from Accra and has a more urbanised environment, which makes labour abundant but relatively expensive. The expansion of Ghana's city capital has been explained as influencing the supply of cheap labour by an entrepreneur interviewed in the study:

> *Labour... is becoming a problem now. You know Accra is catching up fast and people around here want to do something else so it's becoming difficult and expensive now to get the people to work but we are trying* (Pineapple case 3; Nsawam, 2014).

In comparison, the palm cluster is more linked to rural communities, whose main form of economic activity is agriculture, producing the raw material needs of these processing businesses. The presence of farming, processing and distributional activities has led to the pooling of labour (Krugman, 1991) from neighbouring communities to the various palm

processing centres. As a result, labour is relatively cheaper in the palm cluster than in the pineapple equivalent because, in some cases, palm processing businesses are able to take advantage, for example, of students needing part-time employment during school holidays. The relatively inexpensive labour force in the palm cluster is explained by a business entrepreneur below:

> *When it comes to labour there is a lot available for firms. Even during holidays we are able to access these students on a part-time basis to help these firms* (Palm case 5; Kwaebibirem, 2014).

These local conditions account for the relative variation in the level of importance the two clusters place on access to labour. The findings show that the presence of accessible labour had an influence on the businesses' decision to locate in the cluster. There are variations in relevance of labour, based on the presence of different specific local factors.

Access to raw material

The raw materials needed to run the plants or machines in the various businesses have been argued as influencing the location of businesses in developing economies' clusters (Weijland 1999; Galvez-Nogales, 2010; Rasiah and Vinanchiarachi, 2013). Findings from the survey seem to support these assertions. The study shows that the majority (94%) of palm processing entrepreneurs see access to raw materials as 'Very Important' for their location in the cluster. The situation is different in the pineapple cluster, where relatively fewer, 59% and 29%, respondents agree that availability of raw materials is 'Very Important' or 'Important' to their operations, respectively.

The relatively lower significance accorded to access to raw materials by the processors in the pineapple cluster can be explained by the fact that the fruits in the pineapple cluster are cash crops and produced directly (large-scale plantations) and indirectly (out-growers) by processing businesses in the cluster to meet their market needs. Furthermore, the findings show that three of the large- to medium-scale pineapple plantations were situated near a water body to ensure a regular supply of water. Most of the other plantations were equipped with irrigation mechanisms to facilitate regular supply of fruits. They explained that, due to the nature of their clients and the quality expected in the market for their products, most

processing businesses prefer producing fruits rather than buying them. As a result, most (five out of seven) of the processing businesses interviewed valued the suitability of the environment to cultivate their fruits themselves rather than rely on farmers for their availability. The situation indicates that raw material as a pulling factor of clusters (FAOSTATS, 2009; Galvez-Nogales, 2010) in developing economies must be reconsidered since the market decision of processing businesses may have less regard for fruit availability. The comment by one of the respondents sums up the view of raw material accessibility:

> *I think it will be prudent for us to be here in this district; to be closer to the raw materials we produce is best because of the environment...* [which] *helps us to produce the pineapple to meet what our customers [*want*]* (Pineapple case 6; Nsawam, 2014).

In the case of the palm cluster, most processing businesses buy fresh fruits from the numerous farmers in the district to be able to meet their production needs without any clear requirements apart from the need to process fruit immediately after harvesting. The findings show that there is insatiable demand for palm fruits in the cluster such that even those processors with plantations rely on farmers to keep their plants running. As a result, a higher premium is placed on access to raw material in the cluster. The comments from a medium-sized palm processing business sum up the source and importance of raw materials within the cluster:

> *With regards to the fruits, yeah, our major input is the fruits, the raw materials, as for that it is all available all around here, and because we have been in the industry for quite some time we have enough data concerning the raw materials ... Particularly this district is a good place for the industry, thus why most of the major industries are here ... Once [*the* farmers*] have an alternative, we cannot dictate to them; they can take their fruits wherever they want* (Palm case 2; Kwaebibirem, 2014)

These findings indicate that, for the operation of businesses in the cluster, raw materials are important and have an influence on the entrepreneurs' decision to establish their business in this cluster. However, excess demand for raw materials may lead to serious competition among palm processors, while the excess supply of raw materials in the case of the pineapple cluster presents a less competitive situation among processors (this is discussed in the next section).

Access to machinery

According to the survey data, processing businesses' decisions to locate in the cluster have hardly been influenced by access to machinery. From the palm processing businesses' surveyed, we can see that 77% find access to machinery to be 'Slightly Important' to the location of their businesses. Only 41% of processing businesses in the pineapple cluster said that access to machinery was 'Slightly Important' in the location of their businesses in the cluster.

This is explained by the interview data that shows that processing businesses have alternative means through which they acquire machinery needed for their operations in the cluster. Throughout my dealings in the palm and pineapple clusters, the machines needed for all large-scale and some medium-scale producers were observed to have been imported, and it is understandable for the cluster to rely on machinery. The managers of two processing businesses in the cluster explained the source of machinery:

> *Most of our machines come from food tech, JB food tech – it's in Italy. But our extractors come from Brazil, Sentinario. These machines are acquired through the efforts from the owner* (Pineapple case 6; Nsawam, 2014)

> *We import them [the machinery] so the importer comes with the machine and we import them from Malaysia and of late too we have imported some machines from Britain. Some by sea some by air, so we get the information* (Palm case 2; Kwaebibirem, 2014).

It is worth noting that the so-called 'artisans'15 have been observed to provide machinery to small-scale and some medium-scale processors in their operation. However, the levels of importance that these businesses place on access to machinery is relatively low. This perhaps could be because it is of inferior quality, as explained by the owner of a medium-scale palm processing business:

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[15] Artisans in Ghana are way-side machinery and technology adopters

The local machine has not got the capacity to be used at the factory level. Anyone that manufactures local machinery... [if they]*... will be sincere, will note that it is mostly businesses that operate Kramer16 machines that need such machines made locally* (Palm case 4; Kwaebibirem, 2014).

The observations from the field reveal that artisans are more valuable to the small-scale palm processors. This suggests that small-scale palm processing activities, which are observed to be widespread, should have responded positively to access to machinery but this was not the case from the findings.

Access to technical advice

The survey data on access to technical advice seems to be less significant to the location of processing businesses. From the survey data, 50% of respondents in the palm cluster said access to technical advice was 'Slightly Important', and 22% said access to technical advice was 'Not Very Important' to the location of their businesses in the cluster. The case of the pineapple cluster was not different: 41% of the processing businesses in the pineapple cluster said availability of technical advice was 'Slightly Important' and 24% said access to technical advice was 'Not Very Important' to their location in the cluster.

Observation in the cluster shows that there were research and export institutions that were able to offer relevant technical advice to businesses. It is an important finding that the fruit processing businesses did not value access to technical advice as very important to their decision to establish businesses in the cluster. The situation could be because most of the large- and medium-scale businesses had their own research and technical support units. In addition to this, these businesses depend on online sources and research from their mother company. Therefore, public research institutions and technical advice service units within the clusters are perceived as nonessential for the establishment of businesses. The situation is explained by Pineapple case 1, who suggested that public research institutions sometimes depend on their laboratory to run their tests. This means that the call for government to

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[16] Micro to small-scale palm oil processing establishment

strengthen the link between research institutions and processing businesses cannot be over-emphasised (Budget Statement, 2014).

> *Prior to us acquiring the FFA [Free Fatty Acids] testing machine, we had to take a sample to GOPDC after producing the palm oil. They have a laboratory where I go to test the various samples to obtain the various FFA levels ... The FDA* [Food and Drugs Authority] *even prefer using their facility to for testing for the FFA levels and they sometimes depend on their laboratory* (Palm case 4, Kwaebibirem, 2014)

The fact that these processing businesses may seek external research information and technical advice supports Porter's (2000) argument that intangible resources such as technical advice can be effectively sourced in the global market. The external sourcing of technical advice is discussed in detail in Chapter six.

Access to Credit

The findings show that 48% of the processing businesses in the palm cluster said access to credit was 'Not Very Important' to the location of their businesses in the cluster, whilst 15% of them felt that it was 'Not Important' at all in their decision to locate in the cluster. In the same way, the findings from the pineapple cluster show that 76% of the processing businesses in the pineapple cluster said credit availability was 'Slightly Important' in deciding to locate in the cluster, while 18% said credit availability was 'Not Very Important'. The findings show that access to credit holds little value to the fruit processing businesses in their decision to locate in the cluster.

The interview data from the two clusters points to the presence of external support to processing businesses in the cluster to explain why access to credit within the cluster is seen as less significant to the location of businesses. For instance, the majority of the businesses in the pineapple cluster (five out of seven) and half of the businesses in the palm cluster (three out of six) relied on international funds. This means that the processing businesses may have been supported by external financiers whose capital was externally sourced and not by financiers within the cluster. The external sources of funding were explained by two managers, one from each of the two clusters:

Owners are Dutch and British, we have only one Ghanaian... the shareholders are oil tycoons so they have the money... they are the people who finance us (Pineapple case 6; Nsawam, 2014)

The business is a free zone company established with the help of some Italians. The mother company is in Italy so they came and established the business (Palm case 3; Kwaebibirem, 2014)

Those that did not have external start-up credit began as small-scale farmers or processors who depended on their personal finances to begin their operation and therefore did not consider credit as important in locating their businesses in the clusters. Below are explanations from two fruit processing businesses:

... the business didn't actually start as a palm oil-producing factory. It was basically farm products. With time, the family started the small-scale palm oil production like the ones you saw along the road, and then little by little we started acquiring equipment and machinery (Palm case 2; Kwaebibirem, 2014).

Initially run by me and my family. I started initially with pineapple. I used my money to buy it from farmers all over the place and processed it in the house for some customers in town (Pineapple case 7; Nsawam, 2014)

The findings suggest that locating businesses in a cluster may not always depend on credit availability from financial institutions in the location as some assume (Naude et al, 2008). In particular from the findings, the palm cluster has flexible credit relationships among processors, farmers and distributors that encourage the establishment of business (see section 5.3). External funding from multinationals and entrepreneurs' personal income and credit from businesses may form the basis for the location of a business, rather than access to credit. In effect, start-up finance may not be location bound but may emanate from several sources including global markets.

5.2.2   View of key government informant on emergence of clusters

Emergence of the palm processing cluster

The interview findings show that OPRI began breeding Tenera (known locally as Agric Abɛ), which is a hybrid of Pisifera (non-fruit bearing palm) and Dura (fruit-bearing palm). Both are found locally in Ghana. OPRI's agronomy, pest and disease control divisions provided

farmers with a breed that ensures improved yield. This is because in the early 1960s the Ghanaian government established the Oil Palm Research Institute (OPRI) to tap into the production of new palm fruit breeds offering higher yields. The introduction of a new breed was aimed at bringing commercial gains from palm, which had been cultivated in Ghana since the latter part of the 19th century. In the following extract, the head of the research institution explains the formation of the institute:

> *The Oil Palm Research Institute, formally* [part of the] *West African Institute for Oil Palm Research, which was based in Ibadan, Nigeria was established in 1961... And as an institute from the very start the basic thing was… the basic objective of that time was to provide improved oil palm material for farmers. And it was noted that because oil palm is indigenous a lot of people were doing anything... So anywhere they see it they take it as a plant, so this was to get improved materials so that when they plant it is no longer a hobby ... You are not tending some wild growth behind your house. But you are doing a business* (Palm case 14; Kwaebibirem, 2014).

According to Palm Case 14, establishing the OPRI research centre to produce high-yielding palm fruit led to the proliferation of palm cultivation by indigenes of Kwaebibirem and its environs. The head of OPRI explains below that, although the value chain was not initially considered under the research, the palm fruits attracted large-scale processing businesses such as the Ghana Oil Palm Development Company (GOPDC) and others to begin operation in the 1970s to take advantage of this high-yielding Tenera breed. Since then, several businesses have been set up that buy fruits from farmers to run their operations.

> *Processing was not thought of as part of the agriculture. It is because they were left out completely. So it is just recently that this value chain system started cropping up at the Ministry of Agriculture. Formerly, they were not looking at things from the value chain point of view. They will take a crop and look at how to produce a lot more of it. Once they have finished, that is their objective. Oil palm, "Oh we've been able to increase production from this ton to that ton" and then it's finished. But they were not looking at what happens to the fruits that you help produce. But the cultivation led to several businesses including GOPDC setting up their processing units in Kwaebibirem* (Palm case 14; Kwaebibirem, 2014).

Farmers who cultivated the palm soon realised the immense benefit of the end product and began to look for means to process these fruits in large quantities, the Palm Processing Association secretary explains. These farmers sought machinery to process the abundant palm fruits which led to a proliferation or spin off of locally manufactured extractor machines:

Initially, it was for research into palm oil; later they realised the benefits in the cultivation thereof, so many people in Kwaebibirem, realising the benefit of these palm fruits, cultivated them extensively. They cultivated not only for consumption, but because of the end products such as palm oil. Therefore, a lot of people began to develop machines to extract these essential palm oils (Palm case 7; Kwaebibirem, 2014).

Over 300 processing businesses are currently registered or unregistered and located in the cluster (BAC, 2014). The data shows that oil palm cultivation is dominated by small-scale farmers (80%) whose output is distributed between large- to small-scale processing units within the cluster. These farmers are either independent or contracted in an out-growers system. Findings also show that small-scale palm processing businesses account for over 80% of the total number of processors in the cluster (MoFA, 2014).

Oil palm production in Ghana has considerable local demand and an equally significant sub-regional market demand. The work by Angelucci (2013) 'Monitoring African Food and Agricultural Policies' and the Government of Ghana's (2011) 'Master plan on the palm oil industry in Ghana' have shown that the total domestic demand far outweighs Ghana's production capacity. As a result, the palm oil trade balance has always been negative. The total volume of palm oil produced in Ghana has, however, increased over the last decade (MoFA, 2012), the main market for oil palm exports being via neighbouring countries including Togo, Ivory Coast, Mali, Nigeria and Burkina Faso. Other markets include the United Kingdom, Spain and the Netherlands (Angelucci, 2013).

Emergence of the pineapple processing cluster

The emergence of the pineapple cluster is also primarily attributed to government intervention to promote the cultivation of fruit crops in the Nsawam municipality. The head of the agronomy division at the Ministry of Food and Agriculture points out that the municipality is located along the Akuapem-Togo range, which receives the high rainfall required for the cultivation of such fruit as oranges, pineapple, mangoes and pawpaw. The findings from the interview show that the conduciveness of the location for fruit cultivation and its closeness to Accra, the nation's capital, led the government to demarcate the municipality in the 1950s. Among other fruits, smooth cayenne and sugar loaf were the dominant breeds of pineapple cultivated in large quantities, which prompted the government to establish the Nsawam Cannery – a large-scale processing unit that processed fruits, garden

eggs and snail (Fukunishi, 2013). The Nsawam cannery became the first fruit processing company to be established in the municipality, in 1963.

The MoFA regional director of trade explains that it was not until the 1970s that, as part of a policy directive, the Nsawam municipality was classified as a 'free-zone area'. This tax incentive offered interested farmers capital to begin the cultivation of fruit crops, particularly pineapple. It was around this period that the export of pineapples by air freight began. This boosted the large-scale cultivation of pineapple and other fruit crops for both local and external markets. The MoFA regional director of trade explains that, at the turn of the millennium, the dominant crop cultivated became 'MD2 pineapple'. This was largely attributed to the other two breeds (smooth cayenne and sugar loaf) being easily perishable and having lower international appeal.

European markets used to import pineapples from South America but the relative proximity of Ghana to many European countries has helped to boost exports of the MD2 strain from the West African country (the MoFA director of trade explained). The situation has led to the establishment of several large- and medium-scale pineapple plantations, especially within the Nsawam municipality. This has also led to the establishment of over 500 small-to-medium plantations in the municipality that offer raw materials to support the operations of processing businesses. The head of the agronomy division of the Ministry of Food and Agriculture of Ghana explains that the rising number of fruit farmers over the last two decades and the relative proximity to the ports and the nation's capital have led to an increase in the number of processing firms located in the area – in order wards clustering:

> *A lot of fruits is cultivated here but mostly the municipality is noted for pineapple farming ... I think the information we [have] indicate[s] that fruit cultivation has been rising since the 1990s... There has been a complete shift from the indigenous pineapple to MD2, which had a huge effect on farmers, but generally fruit cultivation has risen... [and]... this is helping to support all the processors within the municipality* (Pineapple case 9; Nsawam, 2014).

The export of fruits from Ghana, particularly fresh fruits, began in the 1970s and this has also been attributed to the emergence of infrastructure and transport, such as the establishment of an airline industry in Ghana. For instance, Fukunishi (2013) explains that the emergence of the airline industry supported air freighting of fresh pineapples to Europe. The regional director of trade explains that there is also a rising demand for fresh fruits in the Ghanaian

market. As a result, fruit cultivation in the Nsawam municipality is a commercial activity and farmers aim at selling it to exporting businesses or processing firms.

Summary and discussion

The findings show that businesses' location in the palm and pineapple clusters is primarily influenced by access to labour, raw materials and market. These factors vary in terms of the mean rankings computed for the two clusters (see Table 5.1). Both business clusters were unanimous in their rankings of the top three reasons for locating their business in the district/municipality, with access to raw materials being the most important reason for the fruit processing businesses to locate in the clusters. The quantitative findings on the emergence of businesses in the two clusters have been linked to access to raw materials, labour and markets. The alternative evidence from the secondary data and key informant interviews shows the critical role played by the public sector institutions in the emergence of the two clusters. Interviews and secondary data show that the public sector and its institutions assisted in creating an enabling environment for the cultivation of the crops, the abundance of which attracted processing businesses to locate in the area. These two sets of evidence complement each other in explaining the history behind the location of these two clusters in the region.

This raw material-based clustering activity is influenced by the type of crop and the extent of demand for the product and yet has been ranked as the important reason for businesses locating in the two clusters. The higher ranking for raw material reasons for location has been noted by agro-based clustering literature (Weijland, 1999; Perez-Aleman, 2005; Clarke and Ramirez, 2014), and it sits well with the key informant interviews and secondary information on the historical antecedents of the two clusters. Like most agro-processing businesses in most developing economies, they are purposefully established to rely on the raw materials and the results from this study are therefore to be expected and corroborate the work on resource-based clusters.

Likewise, labour supply is ranked as the next important reason for locating businesses in the cluster despite the relative difference in the cost of labour supply within the two clusters. The arguments of the theory on agglomeration (Krugman, 1991) appear to have ignored an essential part of labour pooling in their assumption, since there may be competing labour pooling by other sectors unrelated to the cluster. The findings show that other factors

unrelated to the clustering activities may influence the pooling effect of labour on the cluster. A case in point in the report was the issue of the expansion of the capital, Accra, which is threatening the supply of cheap agrarian-based labour and influencing the cost of pineapple cluster operations.

Table 5.1: Importance of business location in the district/municipality

Cluster Importance	Palm		Pineapple		Total Mean	Total Rank
	Mean	Rank	Mean	Rank		
Access to raw materials	4.94	1	4.47	1	4.86	1
Access to labour	4.65	2	4.18	2	4.57	2
Access to buyers/markets	4.60	3	3.88	3	4.47	3
Access to machinery and technology	3.00	5	3.29	4	3.05	4
Access to specialist business advice/info	3.01	4	3.12	5	3.03	5
Access to credit	2.23	6	2.88	6	2.34	6

Note: Total N =99 (Pineapple, n = 17; Palm, n =82)

The third ranked reason for fruit processing businesses' locating in the clusters is access to buyers/market. The cluster theory postulation that increasingly demanding home customers will cause businesses to upgrade and differentiate products for both domestic and international market may have to be revised (Porter, 1998). This is because, whereas the principle is related to the palm cluster, whose operations have been extended to the sub-regional markets, the increasingly demanding home customers only attracted and encouraged the establishment of exporting ventures in the pineapple cluster, whose focus is not the domestic markets. As a result, the market conditions in the cluster were not very essential to these businesses who had already established their international marketing networks – 'born global cluster'. It is not surprising that these processing businesses in the pineapple cluster scored access to market relatively lower in terms of the mean value (see Table 5.1).

This section has comparatively identified and examined a variety of factors that motivated the emergence of processing businesses within the clusters. The case studies were found to be mostly influenced by access to market, access to labour and access to raw materials in the location of fruit processing businesses. However, the emergence of the farming activities, which is responsible for the availability of essential raw materials, ranked higher in Table 5.1, has greatly been influenced by public sector support. These factors rest well within the discussions in spatial theory (Krugman, 1999; Porter, 1998) but have unique differences, as has been discussed above.

5.3 Supply Chain Networks within the Two Clusterings

This section examines the key actors in the two clusters discussed in section 5.2. This will be carried out by comparing the various relationships within these clusters in order to address the research question: *What are the networking relationships and interactions that support the operations of the clusters*? The discussion in this section is against the backdrop that networking relationships are not cast in stone but are continuously evolving through the interactions of actors (Granovetter, 1985; Giuliani, 2007; Borgatti and Halgin, 2012). Similarly, no two cluster relationships are the same, but all clusters have relationships that are characterised by competition and cooperation.

5.3.1 Nature of relationships among actors in the clusters

The examined literature shows that vertical and horizontal relationships exist among key actors in clusters (Nadvi, 1999; Giuliani, 2007; Gereffi and Lee, 2016). Vertical relationships involve a more sequential engagement along the supply chain structure. Horizontal relationships, on the other hand, involve relationships among businesses belonging to the same industry or which are producing complementary products or services. In addition to these relationships are weak and strong ties which, the examined literature argues, are evident along the supply chain of clusters. Strong ties comprise formal or informal groupings to which these business owners and managers in the clusters belong, such as associations, community groups and family, while weak ties are associated with formal or informal relationships that occur for a specific purpose, especially along the line of business-to-business relationship. The variation in the relationships presents different levels of competition and cooperation for the operation of the cluster.

Farmer–processor relationships in the cluster

The farmer–processor relationship shows that palm processing businesses are most likely to be over-dependent on farmers to meet their raw material needs. All the 82 palm processing businesses have a relationship with farmers for accessing raw material and 31% of these businesses are processing only. As a result, there is competition in the sale and distribution of palm fruit among processing businesses. This competition has the capacity to improve the price of palm fruit in the cluster and encourage more farmers to diversify into palm fruit cultivation. This would be good for palm farmers but the issues of fragmented land, mono cropping and the seasonal nature of palm fruit cultivation mean that competition may drive

the overhead cost of businesses and increase idle time. For large-scale fruit processing businesses, this may lead to under-utilisation of their operational capacity and a reduction of their per unit profit.

The interview data shows that businesses in the palm cluster are more likely to be over-dependent on farmers for fruits. The findings show that large- and medium-scale processors aside from their plantations have a vertical relationship with out-grower farmers that they have commissioned through formal contract to supply fruits. These out-grower farmers have horizontal relationships and have built more strong ties among themselves in their operation through associations and social relationships. However, the number of fruit processing businesses is growing, particularly small-scale processors, without any increase in fruit cultivated, leading to high demand for the raw material. Thus, business relationships between farmers and processors show a fierce competition in the sale and distribution of fruits in the palm cluster. The manager of a medium-scale palm processing firm explains:

> *... there are so many processors now so if you do not talk to the farmers you deal with, they are easily convinced by other buyers and they go ahead to sell [their products] to them even when you have a contract. So you try to collate the phone numbers of other farmers, bearing in mind that the harvesting period is between three weeks and one month, so after three weeks if you have not heard from them then you call them [...] [those in contract] may say [...] "Someone came to buy it because I was broke" so in that case your order will not be met. Because there are a lot of small-scale processing units springing up in the area so you must constantly engage the farmers so that you know what is going on – that will help you. If you are quiet and not in touch, you may be competed out in procuring the fruits* (Palm case 4; Kwaebibirem, 2014).

It suffices to note from the quote that, in the palm cluster, the farmers–processor relationship is not only vertical but horizontal as well. The interview data shows that farmers and small- and medium-scale processors often belong to the same social groupings in the community. As noted, most farmers are themselves processors and have overlapping associations in their respective horizontal relationships. This has created a web of strong linkages between these groups of small and medium processor and farmers whose operations are creating shortages in raw materials to the large and medium processing businesses. The relationship between famers and small-scale processors in an association offers famers the opportunity to process their own fruits in order provide a livelihood for their families. The situation has been necessitated by the operational cost involved and the relative minimal returns in the fruits

sold to large- and medium-scale processors. The situation is captured in Figure 5.1 and has been explained by a farmer (Palm case 9) in the palm cluster:

In this town farming is the main job we do, so at any point in time we are in various associations ... we have several associations that have emerged in the area where I operate ... The work involves a lot of money and time but the gains are small [...] That is why I have [to] send my palm fruits to the mills to process in order to support my family. Had it not been [for] that, the farming is not an activity that helps us that much (Palm case 9; Kwaebibirem, 2015)
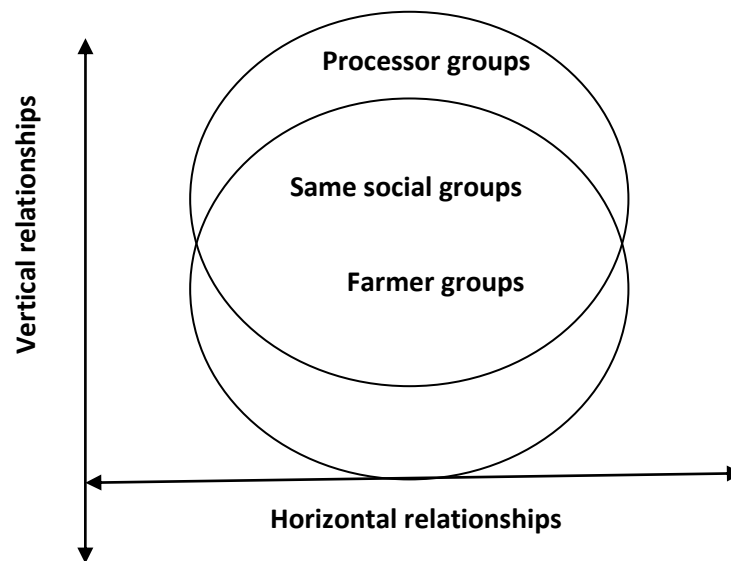
Figure 5.1: A blend of vertical and horizontal relationships in the palm cluster

On the other hand, the pineapple cluster is most likely to be capable of cultivating enough raw materials to meet its processing needs. The situation is evident in the fact that 11.8% of the pineapple processing businesses do not depend on farmers in their operations (Appendix 1c). In addition, 5.9% of businesses operating in the cluster process for export without farming. The findings suggest that the pineapple cluster may have an adequate supply of raw materials directly (by the processor) or indirectly (out-grower schemes) for their operations. The findings show that most processors in the pineapple cluster have plantations and also have vertical relationships with out-growers who purposely produce to meet their requests. Unlike the palm cluster, there are also a few small-scale pineapple processors who themselves have their own farms. These pineapple farmers are not processing their output but are committed to meeting the demands of processing businesses in the pineapple cluster. As a result, the pineapple cluster may have relatively minimal levels of competition in the acquisition of raw materials – minimal vertical competition. The relationship between pineapple processors and farmers has been explained by a farm manager in the cluster:

We supply to Blue Skies Ghana Limited [...] even though they have their own farms, located at Nsawam, Dobro. They have been buying our fruits for fruit processing, juice and fresh cuts which they export to UK, to be precise [...] we are committed to them only and every one of us has a relationship with a given supplier (Pineapple case 8, Nsawam).

The discussions in the previous section (5.2) make a case for the reliance on farming activities in the clusters. These farmers, according to the survey data, are instrumental to the operations of businesses and are constantly offering raw materials to processors. The analysed data shows that 95% of the processing businesses in the palm cluster rely on one to 50[17] farmers yearly for the supply of raw materials. The remaining 5% of processing businesses receive raw materials from more than 50 farmers annually. For instance, Palm case 1, a large-scale processing company, receives raw material from over 600 farmers in a year while Palm case 3, a medium-scale processing company, has 150 farmers that supply raw material annually. In the case of the pineapple cluster, the survey data shows that 64% of the processing businesses said they receive raw materials from at least one to 50 farmers annually, while the remaining 36% of the processing businesses have more than 50 farmers. The findings from the interview with two large-scale pineapple processing business shows that Pineapple case 1 and Pineapple case 2 have 120 and 25 farmers respectively supplying fruits yearly. Compared to the palm cluster, there are fewer farmers supplying fruits in the pineapple cluster. This could be because the pineapple processing businesses themselves have vast plantations that support their outputs or farmers have relatively larger plantations, as has been indicated by the comments from the manager of one large-scale pineapple processing business:

We have our own orchards but it is not sufficient to feed our plant so we normally depend 80% on the external farmers... large farms... [such as]... Adom orchards and Jie river farms... who normally supply us with the oranges and pineapples (Pineapple case 6; Nsawam, 2014)

In terms of frequency of interaction, these farmers are frequently interacting with these processors either on a daily and weekly basis in their operations. The findings show that all

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[17] The majority of the businesses in the palm cluster are small scale

the pineapple processing businesses that depend on farmers said they receive raw materials on a daily basis. Similarly, almost all (98.8%) the processing businesses that depend on farmers in the palm cluster said they receive raw materials from farmers on a daily basis. The existence of these regular vertical relationships between farmers and processors has been further supported by the responses that processing businesses gave when asked about the importance of their relationship with farmers: 98% and 82% of the processing businesses in the palm and pineapple clusters respectively said their relationships with farmers were 'Very Important' to their operations. The relatively higher rate of importance accorded to farmers in the palm cluster is reflected in the comparatively higher mean ranking of 4.99 as opposed to 4.93 in the pineapple cluster (Appendix III). These findings support the argument that businesses in the palm cluster are more likely to be heavily dependent on farmers for their operations and that the pineapple cluster is more likely to be relatively more raw-material sufficient.

	Farmer		Processors		Distributors/Buyers/Exporters	
	Daily	Weekly	Daily	Weekly	Weekly	Monthly
Palm	98.8%	1.2%	93.4%	6.6%	95.2%	4.8%
Citrus	100.0%	0.0%	50.0%	50.0%	0.0%	0.0%
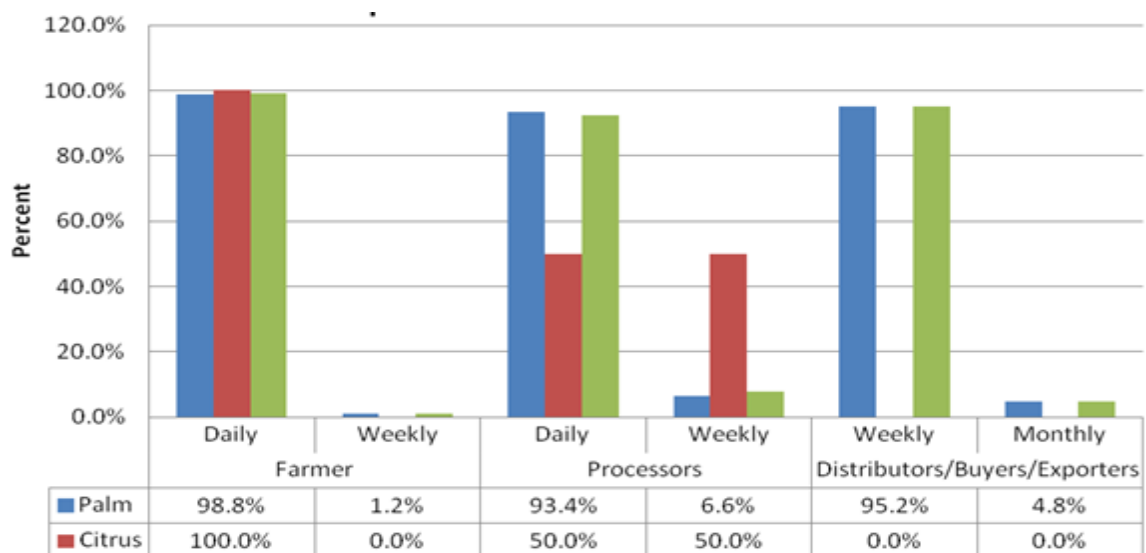
Figure 5.2 Frequency with which fruit processing businesses interact with farmers, processors and distributors

Processor-processor relationships in the clusters

The inter-firm relationship among processors in the two clusters suggests that more processor-to-processor (horizontal) relationships exist in the palm cluster than in the pineapple one. A total of 92.7% of palm processing businesses said they have a relationship with other palm processing businesses. This is manifested in the more cordial relationship observed among palm processors in the cluster. Only 11.8% of the entrepreneurs in the pineapple cluster interacted with other processors (Figure 5.2). The data seems to suggest that

processing businesses in the pineapple cluster have little to no interaction during their operations. The finding contradicts the interview extracts that suggested that the processing businesses were not in competition with each other. This may be because, although they seldomly interact, when they do, they cooperate to solve a problem – formal weak ties. The large-scale and medium-scale processing businesses cooperate with one another in sharing ideas and collaborating in sharing a common service. Pineapple case 1 explains how processing businesses have a cordial relationship such that the managers of processing units may even visit one other, and sometimes large-scale processing businesses supply fruits to one another. This is evident in the interview and observational data collected in the pineapple cluster, which suggests that businesses in the cluster cooperate in the acquisition of raw materials from farmers. The comment by the manager of Pineapple case 1 sums up this finding well:

> *We are all free-zone companies, Bomart, Hans Peter, Blue Skies and the others ... [So] ... we are not competing. You will be surprised [that] we even supply HPW fresh cut to export ... [the owner of HPW] visits our factory as if it's his own ... [Also] ... Bomart is into big-time farming and they even supply us with pineapple [...] [All the processors] have even built the office for the customs on our premises so if anything they will rather come to our factory to be able to certify their documents before export and import. In fact, we cannot compete because we are all into different niche markets [...] everyone has its own requirement so there is no problem about that, so far us we are all getting our raw material. I mean nobody is worried* (Pineapple case 1; Nsawam, 2014).

The higher levels of inter-firm relationship observed in the palm cluster can be attributed to the nature of businesses operating in the cluster. The findings reveal that small-scale processors, accounting for 92.7%[18] of processing businesses in the palm cluster, belong to similar social groupings such as associations, churches and community memberships with farmers. As a result, they had more horizontal relationships with strong ties. Almost every small- and medium-scale farmer is engaged in the processing of fruits and their numbers are growing, due the presence of 'artisans' within the cluster who are imitating and reproducing processing machinery at a relatively affordable price. This form of imitation and knowledge transfer is discussed in Chapter seven. The situation is putting a lot of pressure on the existing

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[18] Appendix I Processing Business Sizes

raw material needs in the cluster, adding to the growing shortages of palm fruit in the cluster. The situation is explained in the comments by the manager of a medium-sized palm processing business in the palm cluster:

> *...the rising number of small processors worries us. At first it wasn't like that but now people can get machines. Now [there are] so many mills so the number of fruits that we use to get has reduced, so we are unable to produce to capacity* (Palm case 3; Kwaebibirem, 2014).

In addition, the survey shows that 88% of the processing businesses in the palm cluster interact with other palm processors on a daily basis in the course of processing. The relationship they have, according to 76%[19] of the processing businesses, is 'Very Important' for their operations. The relationship in the palm cluster ensures that there is cooperation among businesses in the processing activities. The relationship is seen as very cordial and helpful, according to processors in the palm cluster. The nature of the relationship among processing small-scale businesses in the palm cluster has been well captured in the comment by the owner of a small-scale palm processing business:

> *We, the small-scale processors, here we know each other. We are either from the same town or are in close proximity; as a result we are able to interact and relate with one another. We are able to identify other millers and those who come to extract palm oil here. So we are like a family and we love each other such that when one has any difficulty we all support them. For instance, we go and support our members in times of bereavement as a group* (Palm case 5; Kwaebibirem, 2014)

With respect to processor-processor relationships in the pineapple cluster, 53% of the processing businesses (who are medium to large scale) seldomly interact with each other even though they are aware of one another. Findings from the interviews in the pineapple cluster show that there are no informal groupings among processors and therefore there are weak ties among the processor-processor relationship in the cluster. These businesses are well equipped such that they have laboratories and agronomy departments that facilitate their operation. It is therefore understandable that 88% pineapple processing businesses said their relationship with other processor is not 'Very Important' to their operations. Each business

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[19] Appendix II Importance of relationship in the cluster

operates independently to meet the needs of its customers, who are mostly in the international market. These businesses do not belong to any social groupings and are in competition with one another in the sale of their output in the domestic economy. These relationships in the pineapple cluster are explained by a manager of a pineapple processing business:

> ... [For] *the fresh juice, the competition is very keen ...* [locally]. *But I think we are now on our brand to always overtake some of them. But when it comes to relationship, there is no direct relationship; we are all focussed on our business* (Pineapple case 1; Nsawam, 2014).

The findings support the argument that the palm cluster has more processor-to-processor relationships, which breeds cooperation, compared to the pineapple cluster, where they have minimal to no relationships among processing businesses.

Processor-distributor relationships in the clusters

The findings shows that palm processing businesses are most likely to rely on distributors or intermediaries or agents in carting their products to the market than processing businesses in the pineapple cluster are. None of the processing businesses interviewed and surveyed in the pineapple cluster have a relationship with distributors or exporters. In contrast, a relatively significant number of processing businesses both interviewed (52.4%) and surveyed (95.2%) in the palm cluster indicated that they use distributors and exporters in carting their produce to the market[20]. The respondents in the palm cluster interacted with distributors or exporters on a weekly basis. The findings on the relationships between processors and distributors in the palm cluster support the earlier findings discussed under access to market in section 5.2, where the palm cluster values access to market as important to the locating of businesses in the cluster.

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[20]The differences observed between the findings from the interviews and those of the survey may relate to the fact that different sampling techniques were adopted for the two findings. Purposive sampling focused mostly on medium- to large-scale processing businesses that had the capacity to export, compared to the survey, in which over 95% of the sample were small to medium businesses that mostly depended on distributors.

Picture 5.1 Palm Oil Distributor's loading bay in Kade, Kwaebibirem
Source: Photograph taken by the author (2014)

Findings also show that the distributors for the palm processing businesses are part of the community with outlets located at central points where they load their tracks (Picture 5.1). Due to strong competition for the acquisition of fruits, the distributors have a good relationship, based on trust, with processors in order to secure a regular supply. The relationships they have with processors enable them to offer advance financial support to the processors to further their operation and pay with outputs. The distributor-processor relationship is such that distributors remain committed to processors despite their inability to meet their supply needs. This is because distributors belong to similar social groupings as these palm processing businesses and therefore have informal relationships, which generates stronger ties.

The relationship the distributors have with the processors means that they appreciate better the processors' circumstances and they have built trust. This ensures that they cooperate with each other and accommodate each other's limitations. This form of processor-distributor relationship is captured in an interview with a distributor in the palm cluster:

If you work with someone in a business, like he is to supply me [with] three drums, even if he is [only] *able to supply me with two and half drums I will take it like that and take note in the next consignment from that processor. It is not possible that they won't produce at all, so I take what I can have at a point in time ... You see, sometimes it becomes difficult to get the fruits or there is a lot of water in the palm fruits, so if I force it the processor will be in difficulty. So I am patient and I understand the person and give him/her time to meet my demands* (Palm case 8; Kwaebibirem, 2014).

The situation in the palm cluster appears to have created a more cordial social network of actors that work towards the vibrancy of the cluster.

Alternatively, the findings suggest that businesses in the pineapple cluster take charge of their exports and distributions. This finding indicates that businesses deal directly with their customers in both domestic and international markets (this is discussed in detail in Chapter seven). This means that businesses have direct access to their customers and may be able to adopt market orientation strategies in order to satisfy the needs of their customers. Juxtaposing this finding to the earlier discussion on access to market, section 5.2, it becomes clear that pineapple processing businesses have a direct relationship with their customers, who are mostly based in Europe. The depth of this relationship will be critically discussed in Chapter seven.

This section has demonstrated that there exist vertical and horizontal relationships along the supply chain structures of businesses within the two clusters. These relationships among actors in the two clusters are embedded with different levels of weak and strong ties which are contributing to different levels of competition and cooperation. The horizontal relationship among the palm processing businesses has created stronger ties and cooperation among processors and between processors and distributors but there is still greater competition in the fruit supply. The vertical relationships among processors, on the other hand, generates some level of rivalry among pineapple processing businesses but businesses in the pineapple cluster cooperate in the sale and distribution of fruits due to the abundance of fruit produced by large-scale farming activities. These varying levels of competition and cooperation within these two clusters have an influence on the supply chain structure and mode of operations within the clusters. Figure5.3 summarises the various relationships in the clusters and the key actors along the supply chains.

PALM

Palm cluster

Medium scale processors

Large scale farms/plantations

Small and medium scale farms

International market

Small scale processors

Large Scale processors

Sub-regional distributors

- - - - Farm/plantation ownership

———— Strong ties

- - - ▶ Out-grower schemes

·········· Horizontal business relationship

———▶ Vertical business relationship

PINEAPPLE

Pineapple cluster

Medium scale processors

Large scale farms/plantations

Small and medium scale farms

International market

Small scale processors

Large Scale processors

- - - - Farm/plantation ownership

———— Strong ties

- - - ▶ Out-grower schemes

·········· Horizontal business relationship

———▶ Vertical business relationship

Figure 5.3 The supply chain structure and actors in the palm and pineapple clusters

5.4   Fruit Processing Businesses' Perceived Growth Output Performance in the Cluster

This section examines the performance of fruit processing businesses in the cluster by focussing on two variables: the processing businesses' owners' view of their growth and the

analysis of their output performance levels. This section addresses the research question, *How do processing businesses perceive their level of output performance in the clusters?*

5.4.1 Fruit processing businesses' perceived level of growth

The majority of fruit processing business in both palm (84.2%) and pineapple (58.8%) clusters claimed that their businesses were growing. In contrast, more than one third of the respondents (35.3%) from the pineapple processing businesses cluster indicated that their output levels had remained the same as in previous years. This is significantly higher than that of the palm cluster, which stands at 14.6%. Nonetheless, the findings appear to show no significant difference between the performance of businesses in both clusters (p>0.01). This means that processing businesses in the two clusters experienced growth compared to the previous year's performance (see Table 5.2 below).

Table 5.2 Perceived level of growth of fruit processing business relative to previous year

Performance	Palm	Pineapple	Total	x^2	P
Growing	84.2%	58.8%	79.8%		
Staying the same	14.6%	35.3%	18.2%	5.90	0.06
Shrinking	1.2%	5.9%	2.0%		
Total	**100.0%**	**100.0%**	**100.0%**		

These quantitative findings are corroborated by the participant interviews, in which most processors interviewed, indicated that their businesses have been growing. Fruit processing businesses interviewed said they had undergone some form of improvement in their operation in areas such as steam boiling and extraction machinery as a result of growing demand for their products (in-depth discussion on innovation is provided in Chapter six). The interview extracts from the manager of a medium-scale palm processing business and a large-scale pineapple processing enterprise capture their responses on growth:

> *... you see, demand for our products is growing [...] Initially everything was manual but gradually we are trying to add some little bit of automation to it [...] So it has supported our expansion in our outputs over the years, particularly our pineapples, even though we are introducing new products* (Pineapple case 1; Nsawam, 2014)

...our management have invested a lot into our operation so, like the new machines you saw when you were entering, we have been working hard towards continuously increasing our output and trying to meet [demand] (Palm case 4; Kwaebibirem, 2014)

5.4.2 Output performance of fruit processing businesses

Total outputs for processing businesses in 2013

In order to test these 'perceptions', the researcher asked fruit processors to provide an estimate of their total output in the year before and the year of the survey. The findings from the combined data for the two clusters show that the majority (54.5%) of the processing businesses each produced between 500 and 1000 tons of output in 2013. Most of this individual output was less than 2000 tonnes. Ninety-five percent of the palm processors and 76% of the pineapple processors produced less than 2000 tonnes each. Even though a relatively significant number (23.5%) of processing business in the pineapple cluster produced above 2000 tons compared to those of the palm cluster, the difference is not statistically significant (p=n.s.) (see Table 5.3).

Table 5.3: Total output of processing businesses in 2013

Output volumes	Palm processors	Pineapple processors	Total	x^2	P
<500 tns	8.5%	11.8%	9.1%		
500-999 tns	57.3%	41.2%	54.5%	7.44	0.12
1000-1499 tns	25.6%	17.6%	24.2%		
1500-1999 tns	3.7%	5.9%	4%		
>= 2000 tns	4.9%	23.5%	8.2%		
Total	**100.0%**	**100.0%**	**100.0%**		

The findings are not surprising as the scale of operation in the combined data on the two clusters is significantly influenced by the operational scale of businesses in the palm cluster. Over 80% of palm processing businesses are classified as small scale (65.8% of the businesses produce below 1000 tons). The observations from the field show that these businesses apply basic oil palm extraction technology which sometimes may involve manually operating the extractors and so they are unable to produce on a large scale.

Total outputs for fruit processing businesses in 2014

There were differences in the outputs from these processing businesses in 2014 (Table 5.4). The findings show that the combined total output produced in two clusters shrank (50.5%) in 2014 for processing businesses in the output range between 500 and 1000 tons even though it accounted for half of the total outputs for that year. The reduction in the total combined output was reflected in a significantly higher percentage of processing businesses in the pineapple cluster (35.3%) producing above 2000 tons as compared to a constant rate (4.9%) of output by processing businesses in the palm cluster in 2014.

Table 5.4: Total output of fruit processing businesses in 2014

Output volumes	Palm Processors	Pineapple processors	Total	x^2	P
<500 tns	1.2%	11.8%	3.0%		
500-999 tns	53.7%	35.3%	50.5%	21.50	0.00**
1000-1499 tns	30.4%	17.6%	28.3%		
1500-1999 tns	9.8%	0.0%	8.1%		
>= 2000 tns	4.9%	35.3%	10.1%		
Total	**100.0%**	**100.0%**	**100.0%**		

Note: **p significant at 0.01 level of significance

As a result, there exists a relationship between processing business cluster and productivity (p<0.01). Specifically, processing businesses in the pineapple cluster were more likely to produce on a larger scale than those in the palm cluster. This could partly be due to rising demand for output, as was explained by some large-scale pineapple processing businesses. In fact, three of the businesses interviewed, pineapple cases 1, 2 and 3, explained that the demand for processed fruit had risen. The situation meant that, on some occasions, Pineapple case 1 had to import raw materials from abroad to meet their clients' demands. This is to ensure that they are able to keep doing business with them. The situation is explained by the operations manager below:

> *...we fly in the mango from Brazil to Ghana and then process it in Ghana and export it to Europe. In fact, which company can do that? It's very expensive. In that period we don't make any profit but that's part of the commitment and trust building. We don't want them to have their shelves empty. We are committed to them and they are committed to us* (Pineapple case 1; Nsawam, 2014)

The results from this section show that processing businesses in the two clusters produced more output in the present year than in the previous one. These findings on the increased output in the two clusters are critical to the discussions on spatial organisation since these processing businesses have different factors affecting their operations and differences in their supply chain structures and yet they appear to have experienced increases in output. Figure 5.4 below summarises the findings in this chapter.
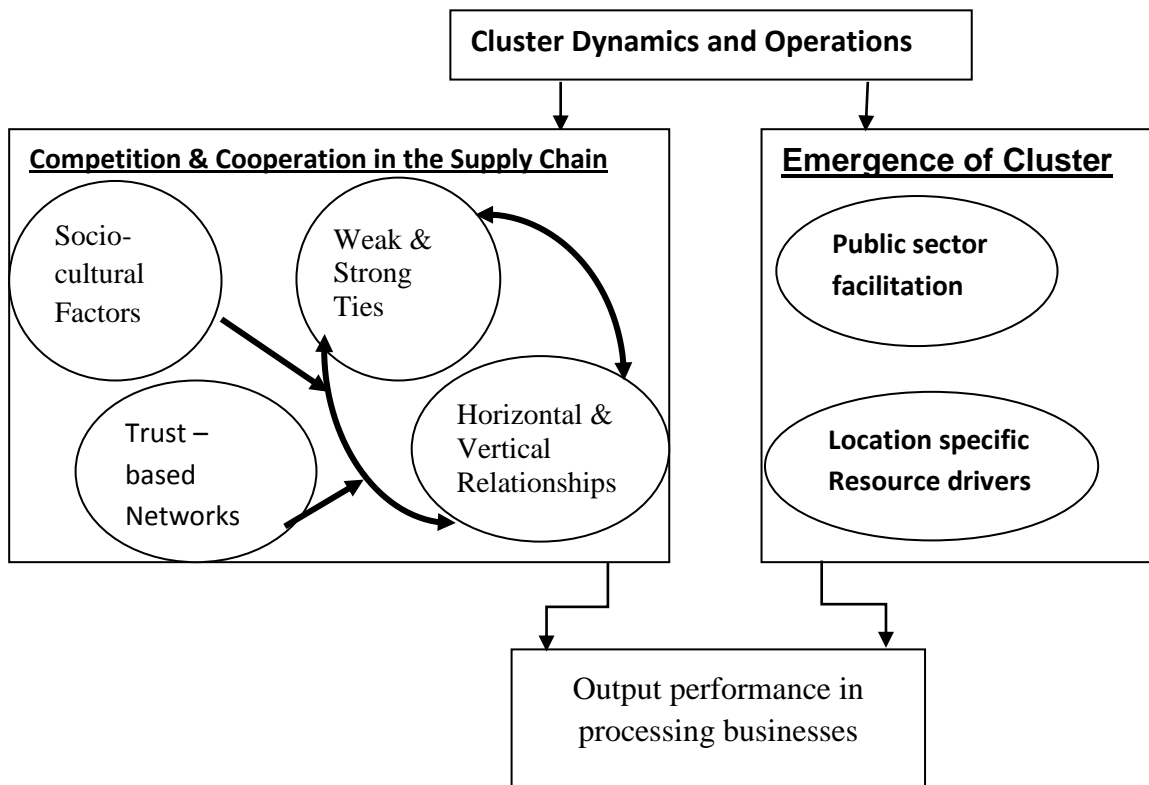
Figure 5.4 A model of the nature of business cluster's dynamics and operations

5.5   Reflections on key issues arising from the chapter

This chapter, summarised in Figure 5.4, began with an examination of the critical factors that are important to the discussions on the location of firms. The chapter further examined how the various actors in the cluster, through vertically and horizontally 'weak' and 'strong tie' relationships are modifying the level of competition and cooperation along the supply chains in the clusters.

Emergence of fruit processing cluster

In addressing the first research question, What key factors are responsible for stimulating the emergence of the clustering activities?, the factors responsible for the emergence of

businesses in the clusters were determined through looking at the history of the place and the key resources upon which businesses relied in their decision to locate in the clusters (Lui, et al, 2012; Jain et al, 2013). Critical to the findings was the facilitating role public sector institutions play and resource-based issues such as access to raw materials, access to labour, access to markets, access to technical advice, access to machinery, and access to credit facilities.

The factors that influence the emergence and location of businesses in an environment are not explicitly cast in stone but there are common features that cut across most discussions on location. The continuous role the public sector plays in setting-out incentives and offering valuable services in the processing activities may not be apparent when clusters are examined statically with a mathematical model, as in the agglomeration theory. The holistic examination of the emergence of the clustering activities, in the case of the pineapple and palm, has revealed that socioeconomic and institutional factors such as resource availability, formal and informal relationships, trust networks and support from public institutions were pivotal in the emergence of the clustering activities. The role government institutions played and the sequence of cultivation of farms and the subsequent locating of processing units support the argument that the history of a location cannot be captured by a static mathematical model (Martin and Sunley, 1996; Martin 1999; Motoyama, 2008).

The findings confirm the work of Krugman (1991) that three most important factors that serve as centripetal forces for the organisation of economic activities in the two clusters are raw material, labour and market. As opposed to the situation in Europe (Fujita and Thisse 2009), labour supply in the two clusters is abundant and serves to draw businesses to locate there. This labour pooling is rooted in Krugman's (1991) work on agglomeration. However, the source of this labour is critical to make sense of the operations of the businesses and has not been adequately captured in the agglomeration theory. This research has provided ample evidence about where processing businesses acquire labour for their operations.

The relative proximity of the pineapple cluster to Accra, Ghana's capital, and Nsawam municipality draws skilled and unskilled labour to the operations in the cluster. By virtue of the fact that their operations are situated between a city and a town, there is an influx of labour to the cluster which makes labour easily available. The situation in the palm cluster appears to be different. The processing activities largely take place within rural communities that offer abundant labour supply for the operation of these businesses. The two comparative

labour pooling situations have made labour relatively elastic and affordable. Combined with the availability of raw material, this brings about increasing returns to scale which are drawing businesses to the cluster.

In the case of access to market, the findings contradict the axiom in Krugman's (1991) agglomeration model that firms will be located at sites with relatively large demand or near the firm's main market in order to minimise cost. In the case of the pineapple and palm clusters, their outputs are mainly for European and African markets respectively. This has been made possible due to lowering transportation and communication costs, as was noted in the work of Baldwin (2011). As a result, processors in the pineapple cluster internationalised from the onset. The processors established their market links prior to both setting up in the cluster and taking advantage of the lowering costs of transport and communication to ensure that they meet their customers' needs. These findings support Porter's (2000) argument that it is no longer necessary for businesses to locate near to the markets they serve, but question the agglomeration model's notion on closeness to market.

The presence of distributors in the clusters reduces the relevance of locating processing businesses closer to the market; this is particularly the case with the palm cluster. The results support the work on location decision and the role of distributors by Murillo et al (2012). Unlike the vertical relationship role of distributors, the palm cluster provides a more socially integrated set of distributors who have strong ties with processors and farmers, and provides a facilitating role to processors in the form of financial assistance in order to keep the distribution process running.

In addition, the findings support Krugman's argument on the relevance of land[21] in the agglomeration processes (seen by Krugman as immobile dispersing factors). However, the role played by land in the agglomeration process may need to be modified. In the pineapple cluster, where businesses actively cultivated their raw materials, the suitable land appears to be the attracting factor rather than the raw material availability, as has been espoused by scholars on clusters in developing economies inspired by the Resource-Based View (Galvez-Nogales, 2010; Sonobe et al, 2011; Clarke and Ramirez, 2014).

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[21] Land is used in an economic sense to include soil, climate and vegetation

In terms of access to specialist knowledge, credit and machinery receiving a lower response, this confirms Porter's (2000) argument that some resources can effectively be sourced in the global market. The finance and specialist knowledge and machinery were mostly sourced externally through, for example, machinery suppliers and external shareholders. The use of information communication technologies by the processors in the pineapple cluster facilitates the acquisition of relevant specialist knowledge from remote locations. The presence of external credit sourced by external shareholders means that processing businesses do not rely on local supply for funding. The findings support the argument that advancements in technology and competition are increasingly influencing the acquisition of the resource needs of businesses in a location (Porter, 2000; Cairncross, 2001; Baldwin, 2011)

Supply chain relationships in the cluster

For the second research sub-question, What types of networking and interactions exist along the supply chain in the business clustering?, Table 2.1 provides ample support for the discussions on networking and how this networking along the supply chain influences the operation of the clusters in developing economies.

5.1635

The evidence underscores the relevance of strong and weak ties along the vertical as well as horizontal relationships between key actors in the cluster (i.e. processors, farmers and distributors) in keeping the clusters vibrant. In particular, there is a strong relationship between processors and farmers in both palm and pineapple clusters. There is also a strong inter-business relationship between small-scale processing businesses in the clusters, particularly small-scale palm processors, whose processing activities are borne out of their socially embedded relationship with farmers. These inter-business relationships have produced different levels of competitions and cooperation among businesses in the cluster and these varying outcomes of the relationship are influencing processing businesses' operation.

The findings support the discussions on clusters by Porter (1998, 2000) that demonstrates the important relationships among its key actors, and these relationships ensure that businesses in the cluster create a unique social interaction (Granovetter, 1985) which is fostering dynamic cooperation and competition within the clusters. The frequency of interaction among processors and between processors and farmers in the palm cluster has created a web of complex social structures deeply rooted in the culture within the location. These embedded

social structures in the palm cluster support the argument that relationships in clusters serve as social capital for their members and drive the level of competition and cooperation within the palm cluster (McCann and Folta, 2010; Brass, 2011; Halgin, 2012). The presence of processor-processor and processor-farmer social relationships in the palm cluster has, for example, generated collective efficiency which is influencing the distribution of valuable resources like raw materials within the cluster (Storper, 1997; Borgatti and Halgin, 2011; Klumbies, 2011).

However, the comparative study of the two clusters shows that different levels of inter-firm rivalries and cooperation coexist in determining their operations. Porter's work provides no comparative explanations on the sources of these different levels of cooperation and rivalries with which businesses are confronted in determining their operation within a cluster. The comparative analysis of the two clusters shows that businesses are performing under different levels of competition and collaboration in the use of resources and distribution of outputs. Minimal levels of horizontal competition and higher levels of vertical cooperation are seen in the pineapple cluster, and relatively higher levels of horizontal cooperation and higher levels of vertical competition are evident in the palm cluster. This finding is new to the practical and theoretic discussions on clusters, particularly within the setting of a developing economy.

Output performance of fruit processing businesses

With regard to the second research sub-question, how do processing businesses perceive their level of output performance in the clusters, the discussions on cluster performance in developing economies have shown mixed results in the literature (see section 2.7). Comparative analyses on clusters have mostly been between clusters in different countries with different socio-cultural environments. As a result, examining the output performance of fruit processing business clusters in the same region, with different products and supply chain structures is important to the discussions on clusters in developing economies.

The empirical data on the output performance of processing businesses in the two clusters shows that both clusters have been growing and their outputs are equally increasing. This is against the backdrop that these clusters have different levels of rivalry and cooperation and a different history to their emergence. The findings on fruit processing businesses operating in a developing economy offer new information in support of Krugman's (2011) proposition for future research on agglomeration in developing economies. This is not surprising, because processing businesses in the pineapple cluster are more likely to produce on a large scale

compared to their counterparts in the palm cluster. The key issue here is output performance in the palm cluster is led by small and medium scale businesses as against those medium and large-scale ones within two different clusters, which has a big implication for policy

The findings in this chapter are essential in understanding issues of co-location or businesses within clusters in Ghana due to the increasing significance of clusters as a development policy tool in developing economies (Sepulveda, 2008; OECD, 2009; Storper, 2011). The analysis in this chapter has revealed critical factors that facilitate the location of processing businesses within clusters in Ghana. These factors are in line with agglomeration theories espoused by scholars such as Krugman and Porter. Furthermore, the interactions between the key actors have exposed the role that collective efficiency plays in building social capital for the operation of businesses in the cluster.

The dynamism in these clusters is critical and provides fresh reasons in support of Krugman's (2011) call for spatial discussions in developing economies. However, rather than examining only tradable market signals such as price and cost, untraded non-market signals such as social network interactions, knowledge and innovations in these clusters may offer valuable insight into the operations of these clusters. The next chapter focuses on the intangible factors of knowledge and innovation within the pineapple and palm clusters in order to ascertain the role they play in sustaining the operations of processing businesses.

CHAPTER SIX: THE NATURE OF LEARNING, ADAPTATION AND INNOVATION

6.1 Introduction

The aim of this chapter is to examine the various forms of knowledge and innovation that processing businesses adopt in their operations and how they influence the processing businesses' activities in the clusters. As seen in Chapter five, actors in clusters benefit from inter-business interactions within the clusters and internationally. These interactions were key to the flow of knowledge and innovation for the operation of processing businesses' activities (DiGiovanna, 2002; Becattini et al, 2010; Asheim, 2012). Knowledge and innovation may emanate from within or outside the clusters' operations. Scholars argue that clusters that depend solely on local cluster knowledge are less innovative and competitive compared to those with international knowledge. Innovative businesses often adopt or create knowledge and technologies that are outside their knowledge spectrum (Munari et al, 2011; Morrison et al, 2012). However, different businesses have different absorptive capacities for knowledge and technologies, be it from within or internationally. This requires a lead actor in the cluster to decode the knowledge and technologies for the benefit of his or her business and other businesses within the cluster.

This chapter will address the following research sub-questions: *What are the main sources of information and types of knowledge that processing businesses adopt in their operation? How are businesses able to adopt new knowledge and technologies in their operations?*

The chapter is divided into four sections. The first section (6.2) begins by investigating the various sources of information and knowledge within the cluster. Section 6.3 examines the importance of knowledge gatekeepers in adopting and transmitting knowledge to processing business operation in the clusters. The level of innovation activities within businesses operations and among other processing businesses are examined in section 6.4. The final section (6.5) provides a reflection on key findings.

6.2 Information and Knowledge Transferred in Clusters

This section will present the various sources of information and the forms of knowledge on which processing businesses in the clusters rely in their operations. To do this the section will

examine person/informal and business/formal source of information and knowledge in order to address the first research sub-question: What are the main sources of information and types of knowledge processing businesses adopt in their operation?

6.3   Classifying Various Sources of Information and Knowledge

The findings show that most of the businesses interviewed (five out of seven) in the pineapple cluster appear to lean more towards external sources of information and knowledge. This is because most of their shareholders and customers are based in Europe. Only a couple (two out of the six) of the palm processing businesses relied on external sources of knowledge and information. In fact, the majority (four out of the six) of the palm processing businesses indicated that they relied on the internal business environment in the Ghanaian economy for information and knowledge. In effect, pineapple processing businesses rely more on international sources of information and knowledge for their operation through their 'mother' organisation and customers, while the palm processing businesses rely more on the domestic business structures for information and knowledge. The summaries of the findings on processing businesses sources of information and knowledge can be seen in Tables 6.1 below.

Table. 6.1: Processing businesses' access to information and knowledge	
Sources of information and knowledge for business operations	Case type and number
Through direct customer audits and visits	Pineapple case 1, 2, 3, 4
Through international food fairs	Pineapple case 1, 3, 4
Through our experts and consultants	Pineapple case 1 Palm case 1, 2
Through our owners or mother company abroad	Pineapple case 2, 3, 6 Palm case 3, 4
Through communication with customers from afar	Pineapple case 1,2, 3, 4, 7 Palm case 1, 4
Through interaction with other processing businesses	Palm case 2, 3, 4, 6
Through business support institutions	Pineapple case 7 Palm case 5

The results from the findings in Table 6.1 appear to show that businesses' information and knowledge about operations is coming from the interactions with other processors, interaction with shareholders and stakeholders from abroad and from public institutions. This has

implications for the level of innovation in the operation of the businesses and the cluster as a whole. For instance, there is a positive relationship between businesses that rely on international sources of information and knowledge for their operation and their level of innovation (Becattini, 2010; Asheim 2013). Clusters that are outward looking appear to perform better than those that rely on the local cluster environment to operate (Schilirò, 2012). In order to appreciate the effects of internal and external sources of knowledge and information on the level of innovation, international-based and local-based sources of knowledge in the two study areas are discussed below.

6.3.1   International sources of knowledge and information

The international links of the two clusters involve all the various activities of the cluster that are undertaken outside the Ghanaian economy. These activities mainly involve formal relationships with suppliers, customers and shareholders outside the cluster which directly or indirectly influence the activities of the processing businesses through knowledge transfer.

Entrepreneurs and shareholders' international links

The findings show that two out of the six palm processing businesses interviewed had international links and only one palm processing business had an international shareholder in the form of a 'mother' company through which information and knowledge on their operations are sourced (see Table 6.1). In contrast, five out of the seven pineapple processing businesses interviewed had international links, with three of these having shareholders based in Europe that offer information about their operations. These international links are further explained to have mainly been gained through the entrepreneurs' work experience in Europe. The managers of pineapple cases six and four explain how entrepreneurs and shareholder links in Europe are facilitating the supply of information and knowledge needed for their business operations:

> *[Information] mostly comes through the managing director... We sometimes get information from our shareholders in Europe on expected changes occurring in the market in Europe, particularly when the countries we export to are making changes to policies in the country* (Pineapple case 6; Nsawam, 2014).

> *Our director [lived] in Europe where he discovered the MD2 in Italy. So he traced it from it Costa Rica [...], learnt how to cultivate and prepare the crop [...]. They taught him how to produce the crops and everything that accompanies it [...]*

he contacts them regularly when we need information (Pineapple case 4; Nsawam, 2014)

International trade fairs

The findings have shown that trade fairs and exhibitions have been seen as a source of information and knowledge for the operations in the cluster. Two out of the seven pineapple processing businesses acquire information and knowledge through trade exhibitions and fairs. None of the palm processing business, however, acquire information and knowledge in this way. These fairs bring together buyers, machine suppliers, competitors and other stakeholders to showcase their products and build networks within the industry.

> *Actually we participate in international food fairs. We have one in Berlin; we call it 'fruit logistica'. So we go for these programmes and we market our products and get information. Normally in fruit logistica you have suppliers, input dealers, competitors, we have equipment, we have information services. All these people are there if you interact with them and based on what you want you can then get in touch with them* (Pineapple case 2; Nsawam, 2014)

The different sources of structured knowledge for the clusters' operations have greater implication for the level of innovative activities a business may exhibit (Becattini et al, 2010). Whereas the operational knowledge of processing businesses in the pineapple cluster is externally derived and supported by their research centres, the palm cluster businesses rely on public institutions and have only minimal access to research centres.

6.3.2   Local sources of knowledge and information

The local environments of the two clusters involve various activities of the cluster that are undertaken within the Ghanaian economy. This includes both formal and informal relationships with actors in the clusters including public sector institutions that are directly and indirectly influencing the activities of the processing businesses.

Informal groupings as a source of information and knowledge

A greater proportion of the palm processing businesses interviewed (four out of six) rely on interactions within the cluster as a means by which to obtain information and knowledge. However, none of the pineapple processing businesses indicated that their interaction in the cluster was their source of information and knowledge. This finding supports the communal nature of palm processing businesses' operation in the cluster (section 5.3). The secretary of

the small-scale palm processing business association explains how the interaction among their members and farmers helps them to access information and knowledge on changing trends in the palm fruit yields and its effects on the prices of palm oil in the cluster. The 'cordial' relationships support their knowledge about the marketing activities and offer members of the association a window to maximise their sales in the market. The palm processing businesses' association secretary explains how through the collective efforts of small-scale processing businesses information on marketing are made available:

> *...in terms of changing oil prices, we are able to provide information to processors on rising palm oil prices in order to determine prices of their goods. Also, with respect to palm fruit, farmers provide information on their yield to alert processors of possible rising volume of palm fruits. This is to ensure that if anyone has palm oil not sold he/she is able to dispose of it before the increasing palm fruit yield occurs. This is because rising palm fruit yields reduce palm oil prices in the market* (Palm case 7; Kwaebibirem, 2015)

Personal interaction with processors, particularly small scale and to a lesser extent the medium-scale, revealed that their operations relied on family relations. For instance, Palm case 2 (a family-based, medium-scale enterprise) offered training, knowledge and information on the operation of the palm business to all their family members such that the plant engineer was the brother of the CEO. In the case of small-scale palm processing businesses, the findings reveal that there is a rise in the number of small-scale processors (section 5.3) who are mostly ex-farmers who, through relationships with other processors, again have valuable knowledge on the running of their family-based processing businesses. For these family-owned businesses, they hope to transfer the ownership of the businesses onto their children. The owner of Palm case 10 explains how, through relationships in the cluster, he has been able to gain know-how on how to process harvested palm fruits, and the presence of family in the palm processing businesses:

> *... [Famers] don't get much so I decided to do some processing myself. Several of my friends are operating it so I was taught how to operate these processing machines. Since then I have been processing.... I used to send my palm fruit to the mills for processing, but with time a friend who operates the processing showed me how to do the processing.... [And] ... now I get buyers who come to me asking for palm oil and even give me the money before I harvest. The farming alone was not enough. Now I am working with my son, who is helping because now I am getting older* (Palm case 10; Kwaebibirem, 2015)

The findings thus appear to show that the social environment facilitates the spread of palm processing operational knowledge among various actors in the palm cluster. The situation sits very well with arguments made by the industrial district theory in that such informal or 'tacit' knowledge becomes embedded into the socio-cultural frame of a local milieu. The observation in the palm cluster has demonstrated that knowledge in operating a palm processing businesses is not hidden and therefore can be accessed by all firms in the cluster. The techniques of processing palm fruits on a small scale have become common knowledge in the cluster, so farmers can easily comprehend them. It is therefore not surprising that there has been a rise in the number of palm processing businesses, particularly the small-scale businesses (section 5.3).

Circulation of information and knowledge through movement of labour

The findings from the palm cluster show that most of the processing businesses (four out of six) indicated that they acquired their processing knowledge from their past experiences while working in other processing businesses within the cluster. In contrast, only one of the interviewed processing businesses in the pineapple cluster attributed the establishment of their business to knowledge acquired from previous employment. Many of the owners of the small businesses in the palm cluster are in fact ex-workers or have employed the services of ex-workers from the large- and medium-scale businesses collocated in the cluster. The role past experience play in transmitting valuable knowledge and information is captured in the interview with the small-scale palm processors' association secretary:

> *Most of us have worked in other companies before starting our business. You may have the farm, but the machine and the operation require someone who understand the operations to make sure you are making enough palm oil... the machines are there but you need a good miller to run your business* (Palm case 7; Kwaebibirem, 2014)

The movement of labour, particularly observed in the palm cluster, between processing businesses influenced the flow of information and knowledge for the operation of businesses in the cluster. These businesses explained that unwritten information and operating techniques had been transferred as a result of the movement of labour. In particular, the medium- to small-scale businesses in the palm cluster said they rely on skilled labour from large companies. They explained that these ex-workers are the source of relevant information and skills for their operations, or act as knowledge carriers.

For instance, in the case of Palm case 4, the successful setting up of the palm processing business was through his employment as the manager, with extensive information and knowledge about the oil palm operations at the factory level. In addition, he uses his relationship with his previous employer to acquire information from Palm case 1, to help in running the processing activities in Palm case 4. The case of how Palm case 4 was appointed to manage a palm processing business and the use of personal links in a large-scale processing business to acquire information for his current employer is captured in the in the extract below:

> ...GOPDC is an independent large company, so we follow them gradually... I have worked with GOPDC for years before joining this company so it helps, and I am able to get in touch asking certain questions that help the business.... I was a machine operator then later I became a supervisor in charge of their operation... [so] ...I did gather a lot of experience. I started from the field so I have a lot of experience in planting, harvesting, pruning and brushing, I have some experience. Then when I moved to their factory too I gathered more experience also there. That is where I was when I was poached by SGR Ghanaoil ltd to run their operations for them (Palm case 4; Kwaebibirem, 2014)

According to Palm case 2, those who were employed brought new ideas while adopting new ones. These findings mean that the absorption and movement of labour between businesses facilitates the spread of information and knowledge about the operational activities among businesses in the clusters.

Public sector support infrastructure

In all, one out of the seven pineapple processing businesses interviewed and three out of six palm processing businesses interviewed had gained some information and knowledge from public institutions. The results from the interviews show that palm processing businesses are more likely to receive knowledge and information from public support institutions compared to the pineapple processing businesses. The businesses that received information and knowledge on their operation were mostly small- and medium-scale processing businesses. The knowledge and information were transferred through training programmes and educational seminars by extension officers and research centres such as the Centre for Scientific and Industrial Research (CSIR) and Oil Palm Research Institute (OPRI). For instance, Palm case 2 explains how their processing business has benefited from seminars and

training to improve their yields and how they have been educated on the dangers of using additives such as 'Sudan four dyes' in the oil palm they produce:

> *From time to time government institutions... go round and educate people... some two or three day seminars with us trying to train us on the processing and for good yield and to educate us on some practices that we don't have to do, like some people engaging in rating the oil with 'Sudan four dye' and all those things* (Palm case 2; Kwaebibirem, 2015)

The transfer of information and knowledge in the palm cluster has also been promoted through training and educational programmes offered to businesses in the palm cluster by public sector institutions such as the Ghana Export Promotions Authority (GEPA) National Board for Small Scale Industry (NBSSI) and the Ministry of Food and Agriculture (MoFA). These institutions created the platform to sensitise palm fruit farmers and processors in the cluster through training and educational seminars on best farming and processing practices in the cluster. Palm case 11 explains how information and knowledge on their activities are disseminated through training programmes and the media for the benefit of processing businesses in the palm cluster:

> *We do sensitisation, as I said; at times too when we* [are] *organising training programmes we ask some 'media houses' to come and cover us, and also we go on these radio programmes to talk about our activities for people to know what we are doing so that they will come and learn from us* (Palm case 11; Kwaebibirem, 2014)

The findings appear to suggest that the public sector support infrastructure for dissemination of information is more geared towards small businesses that cannot afford to buy knowledge about their business operations.

6.4 Innovative Activities in Clusters

The section examines how processing businesses perceive the level of innovation activities within their operations and among other processing businesses in the cluster. The various types of innovation that have emerged in the clusters are then examined to support the overall level of innovation in these clusters.

6.4.1 Perceived levels of innovation within and between processing businesses

The findings from the survey show that processing businesses in both clusters recorded minimal levels of innovation (Appendix 2). Internally, only 11.8% and 5.8% of processing businesses in the pineapple and palm clusters respectively said they were 'Very Innovative' in their operations. The majority of processing business in both clusters (54.9% and 47.1%, palm and pineapple respectively) indicated that they had been 'Slightly Innovative' over the past years. Measuring innovation between the range 'Very innovative' and 'Slightly Innovative', a higher percentage of processing businesses within the pineapple cluster believed their businesses have been very innovative when compared to those in the palm cluster.

When it comes to comparing the level of innovation among processing businesses, only 11.8% and 6.1% of the processing businesses in the pineapple and palm clusters respectively indicated that they were 'Very Innovative' in their operation in comparison to other processing businesses. A relatively higher number (41.2%) of the businesses in the pineapple cluster said they are 'Innovative' in their operation in relation to palm processors. Compared to the pineapple businesses, a slightly lower number of processing businesses in the palm cluster (29.3%) stated that they were 'Innovative' compared to other businesses that operate within the cluster. It suffices to note that a relatively high percentage (22%) of the palm processing businesses said that they were 'Not Innovative' in their operations compared to other processing businesses operating in the cluster. In contrast, only 5.9% of the pineapple processing businesses indicated that they were 'Not Innovative' in their operations compared to other processing businesses in the cluster. In comparing perceived innovativeness between processing businesses within the clusters, the findings show that processors in the pineapple cluster are more likely to perceive themselves as more innovative compared to those in the palm cluster.

Justifying the levels of perceived innovation in the clusters

The processing businesses in both clusters offered several reasons for their operational innovativeness. Survey respondents gave several responses when they were asked to mention the most important innovative activity that their businesses had undertaken in the last two years. The responses from the survey have been categorised into six main headings, as can be seen on Figures 6.1 and 6.2. Innovation in this sense is made up of activities that influence the production process, the type of product offered, and creative ideas that have the capability

of influencing businesses performance in the industry. The categorisation is explained in Table 6.2 below.

Table6.2: Categorisation of forms of innovative activities in clusters	
Categorisation	Explanation of category
Mechanising operation by introducing new processing methods	This involves the introduction of new machinery or technologies in the production process in order to positively influence production. They include mechanisation of packaging lines, installation of depulpers, boilers and processing lines, etc.
Refurbishment of machinery and operating environment	This involves all processes that lead to upgrading of existing infrastructures and technologies in the production process. They include modernising the electrical systems, expanding the boiler capacity, maintaining and repairing existing technologies, etc.
Best practices as prescribed by the industry	They involve processing businesses working towards using required industrial benchmarks in their processing activities. They include minimising the free fatty acid level, using steam boiling methods, etc.
Further processing of by-products or expanding product range	This involves product diversification and processing of aspects of the by-products to maximise the use of raw materials. They include extracting palm kennel oil and animal feed, introducing new product lines, rebranding, etc.
Renewable energy supply	This involves the generation of new forms of energy to support the processing activities. They include biogas and solar, etc.

The findings show that the majority of the businesses in the clusters had pursued innovative activities. For instance, about half (47%) of the processing businesses surveyed in the pineapple cluster indicated that 'Further Processing of By-products or Expanding Product Range' was the most important innovative activity undertaken. In the case of the palm cluster, 'Refurbishment of Machinery and Operating Environment' was mentioned as the most important innovative activity (39%) pursued. All the processing businesses surveyed in the pineapple cluster indicated in turn that they had been engaged in some innovative activity during the last three years. That said, more than a quarter of the processing businesses surveyed (28%) in the palm cluster indicated that they had not pursued any innovative activities in the last three years. This result may be attributed to the dominance of small-scale palm processing businesses whose scale and mode of operation had seen little to no improvement. In another breath, some processing businesses in the pineapple cluster (6%) had selected 'Renewable Energy Supply' as their most important innovative activity, although none of the processing businesses in the palm cluster mentioned this activity as

being important The foregoing analyses of these categories a is illustrated in Figures 6.1 and 6.2 below.
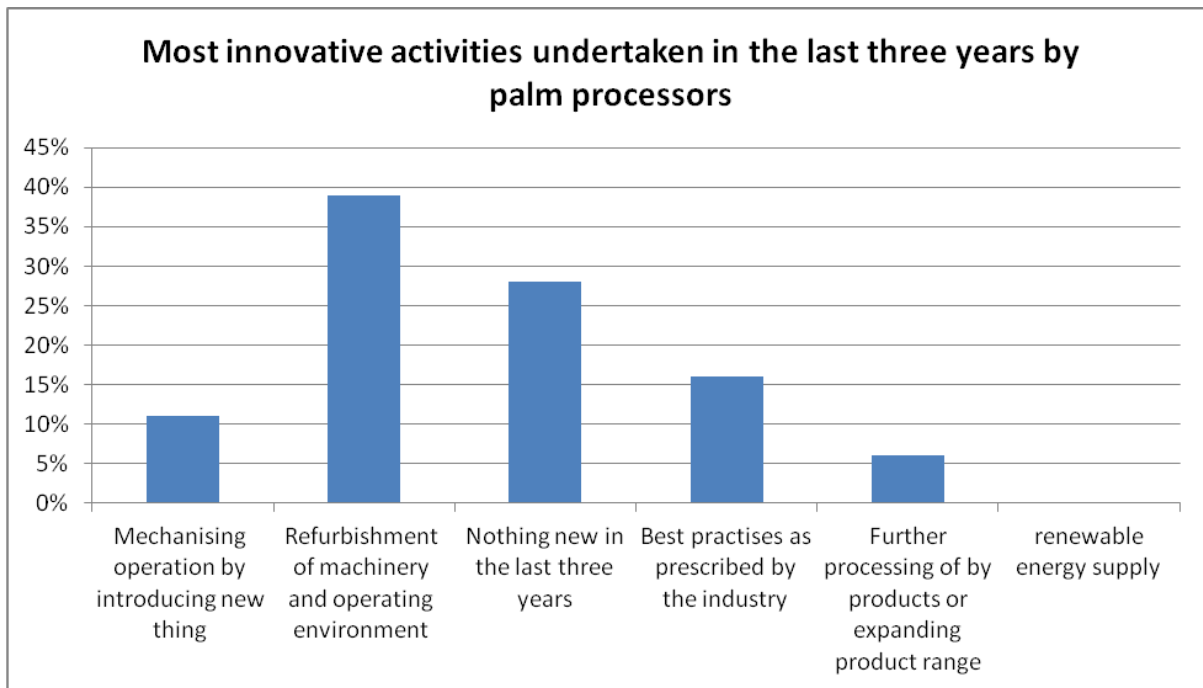
Figure 6.1: The most important innovative activities undertaken by palm processing businesses
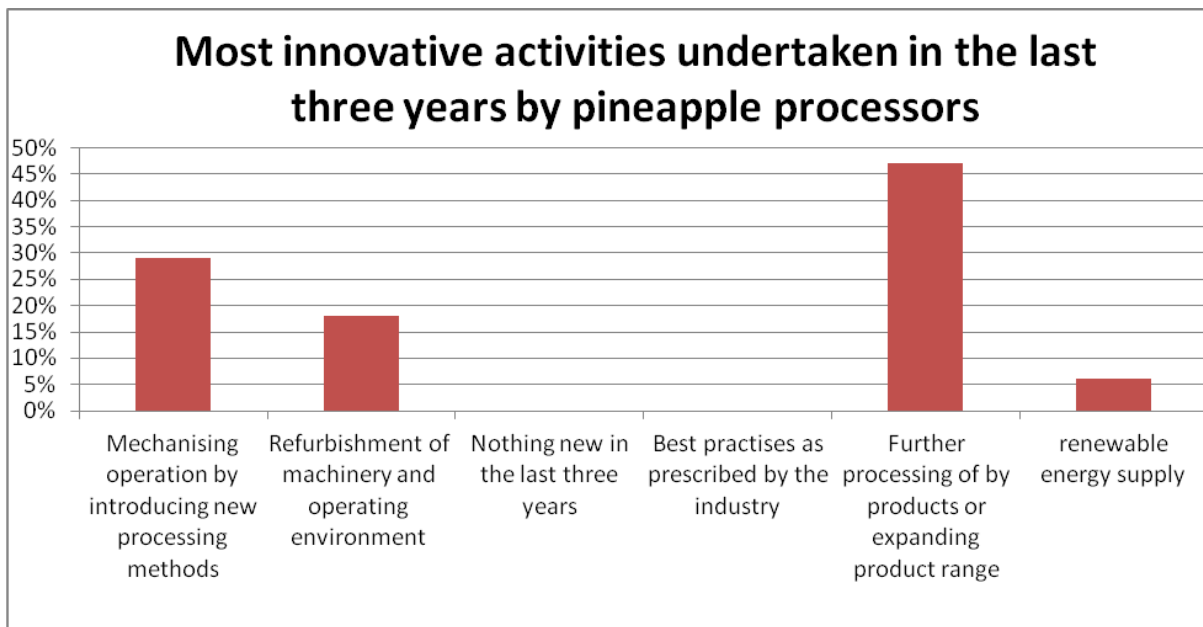
Figure 6.2 The most important innovative activities undertaken by pineapple businesses

The findings from the categorisation show that processing businesses in the pineapple cluster appear to be more innovative than those in the palm cluster. For instance, with the rising

difficulties in energy supply in the Ghanaian economy since 2012 (Republic of Ghana Budget, 2015), the inclusion of 'Renewable Energy Supply' in the list of important innovative activity in the pineapple cluster means that these processing businesses are more responsive towards productivity. The finding on innovation activities synchronises with the different sources and forms of knowledge and information. The pineapple cluster, which has greater external links and more codified form of knowledge flowing in the cluster, appears to be comparatively more innovative than the palm cluster, which depends more on a tacit form of knowledge from within the cluster and local economy.

6.4.2   Knowledge and innovation adopted in the clusters

This section specifically examines two cases of knowledge and innovation adoption and transfer and their effects on the clusters' operations. The case of transferring pineapple technology from Costa Rica and the adoption and reproduction of palm processing technologies will assist in answering the research sub-question on how businesses in the clusters are able to adopt new knowledge and technologies in their operations.

6.4.3   Absorption and transmission of new knowledge internationally

Findings so far show that the past exposure of businesses may have influenced the internationalisation activities of processing businesses in the clusters. The exposure of processing businesses in the clusters has been beneficial in that five out of the seven pineapple processing businesses interviewed confirmed that external sources of information were instrumental to their operations. In fact, it is through the exposure to international activities of a processor that critical knowledge about a unique breed of pineapple (MD2) was acquired for the benefit of the entire cluster.

The external exposure has become the means through which crop technology has been transferred into the pineapple cluster. The director of Pineapple case 4, through his exposure in Europe, was able to identify the MD2 breed of pineapple, which has a growing market demand. After locating the origin of the pineapple, he was able to establish good relationships and transferred the crop to Ghana in the year 2000. The manager of Pineapple case 4 explains the process through which the initial seedlings were brought into the country below.

It appears that this entrepreneur served as the 'pipeline' through which new innovation in the form of a different breed of pineapple was made available to the pineapple cluster in Ghana. As the interceptor of such knowledge, this entrepreneur decoded the new knowledge by learning how to cultivate the crop.

The transmission of this new technology required collaborative efforts from 'gatekeepers' in the pineapple cluster. Through collaborative efforts with public sector research institutions they worked towards making the new technology accessible to businesses within the pineapple cluster, for example, by acclimatising the crop. The manager explains how the seeds from Costa Rica were acclimatised through the collaborative efforts of agronomists in Ghana and Costa Ricans to make the product available to other farmers in the cluster:

> *Well, the crop itself came into Ghana in the year 2000. It's pineapple from Costa Rica. Initially we were into smooth cayenne, the local one; that's what we were dealing with until we discovered this new variety from Costa Rica – that's the MD2. So that's how it started and it got to this country. We were the first people to bring the crop into the country. So ever since it came we also didn't keep everything [to] ourselves; we gave it to our sister farmers so that they can grow it in Ghana, so we spread the variety throughout the whole of the country... we are the pioneers who started before the Ghana agronomist also did research to verify it and brought a new variety, almost the same variety, in to the system again; that's two, so that we get more of the seed, so that's how we started... Our director, Mr Koranteng, he was staying in Europe by then and he discovered the variety when he was in Italy. So he tracked it from its source and he was told that it was from Costa Rica, so he did follow up [in] that country. And he went there and saw the farmers and they gave him everything on it. They taught him how to produce the crops and everything that accompanies it* (Pineapple case 4; Nsawam, 2014)

The finding also shows that, for effective transmission of this new technology, actors in the cluster worked with the owners of this technology to transfer their knowledge about the production of the pineapple into the pineapple cluster. By so doing, the processing businesses in the pineapple cluster are able to retain unique knowledge that is exclusive to the region.

The strong external relationship and exposure of pineapple processing businesses offers them the opportunity take advantage of such technologies (see sections 5.3 and 6.2). The manager in Pineapple case 4 explains that through their initiative the custodians of the crop technology were invited to train pineapple producers within the cluster on how to prepare and cultivate this new product. This form of interaction with farmers in the cluster serves not only to transfer coded knowledge about the cultivation of pineapples but also some unwritten

knowledge acquired over years in the cultivation of the product. Such linkages in the transfer of knowledge and technology in the pineapple cluster may minimise the bottlenecks associated in the transmission and absorption of external knowledge. As a result, farmers and processors in the pineapple cluster have benefited from the crop introduced. In fact, all of the processing businesses interviewed cultivate the externally introduced breed from Costa Rica. The MD2 breed of pineapple has been captured in Picture 6.1 below.

> *... [It] initially wasn't favourable with the climate over here because of the heat. So we acclimatised it. That is where the Ghana agronomist came in to do, yeah ... when we started, the initial objective was to produce more of the seed, that's the packets, or the plantlets, so that was the initial objective before we considered it into, for its production into the fruit itself. So from there that's where we started growing more... how to get more of the fruits, we plant more and we now aim for the fruit for its exportation. And also we did that [with] the help of the Costa Ricans. My boss invited them here and they came to educate us on the planting, the structuring, the fertilisation, and everything on it. So they came to Ghana and educated us, we and the sister farmers all. We did the first training at our farms, that's where the first training took place, before the Ministry of Agriculture also came into the initiative, also took the initiative... [And] ...we have benefitted hugely from them and people have benefited hugely from it* (Pineapple case 4; Nsawam, 2014)

Picture 6.1: MD2 Pineapples from Costa Rica

Source: Photograph taken by the author (2014)

6.4.4 Appropriating processing technology from the external context

The findings show that, with the exception of large- and some medium-scale processing businesses in the palm cluster, most of the processing businesses interviewed rely on processing machines produced by 'machinery artisans' in the cluster. Five out of the six palm processing businesses interviewed indicated that they rely on 'machinery artisans' not only for repairing but also for adapting their machines to process palm fruits (Appendix 4). The 'machine artisans' are directly linked to the introduction of the first palm processing machines in Ghana by a 'Whiteman'22. The introduction of this machine encourages the setting up of machine production and repair centres in the palm fruit cultivating communities, such as Kwae, Kade and Boaedua among others, to enhance extraction. Palm case 12 argues that the continuous processing of palm fruits means that there will be more importation of processing machinery from overseas, which will facilitate their imitating abilities to produce more machines for the processing businesses in order to increase production. Palm cases 5 and 11's explanations are provided below:

> *Therefore, a lot of people began to develop machines to extract these essential palm oils. This led to the proliferation of machine called Kramer [which] is named after a 'whiteman' who developed of the palm oil extractor in the district.* (Palm case 5; Kwaebibirem, 2014)

> *... the more they process the palm the more buyers do come and the more they buy the machines ... If the machines had not come it wouldn't have been good. The first machines were brought in by a man called Kramer He was a German and also a Scottish man who was an engineer [who] also imported some from Germany. When he brought it and built it, Ghanaians artisans have been able to replicate them all and advanced them* (Palm case 12; Kwaebibirem, 2014)

The 'machine artisans' in the cluster are engaged in the manufacturing of processing equipment required by processing businesses in their operations. Their activities are mostly generating appropriate technology from imported machinery. Through their interactions with palm processing businesses, these artisans are able to deconstruct imported machinery and successfully replicate and adapt to the needs of the cluster it. A machine artisan interviewed (Palm case 12) believes that he possesses an 'inbuilt intuition' which assists in producing

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22 Obroni is the literal 'Twi' meaning foreigner

imageries of machines he has seen. He argues that these imageries come in the form of 'visions' which are then translated into drawings and eventually they are produced. The way in which machine artisans are able to replicate other machinery is explained by Palm case 12:

> *If you see any artisan there is some sort of inbuilt things which the 'Whiteman' referred to as science. There is something within that triggers design in the mind even when you are sleeping so when the person rises he is able capture those images into drawings. That is the basic truth...it appears like a vision. Even now if someone passes by with a machine, I am able to take a mental picture of it or visualise it and replicate it* (Palm case 12; Kwaebibirem, 2014).

The explanations of innovativeness in the Ghanaian context based on the interview point to important linkage between knowledge acquired, artisanal creativity and spirituality. Artisans believe that their ability to create machinery comes from god. For instance, spirituality and god has also been linked to an inventor in Ghana called 'Apostle Kwadjo Sarfor' who is the founder of the Christo Asarfo church in Ghana. In fact, the artisan likened himself to this inventor when explaining the source of his innovativeness. By relating their creations to god, within weak legal institutional structures, ideas and inventions from artisans do not subscribe to Intellectual Property Right (IPR). As a result, several artisan activities have sprung up equally offering processors machinery by imitating each other. In effect, where an artisan has been innovative the bureaucratic legal system and cost serve as a setback to intellectual property right. Artisans themselves provide training schemes to the youth through which their innovations spread out.

> *Yes, like Apostle Kodwo Sarfo[23], anyone who wants to do something like engineering or science and can build something that functions, he has got something within given by God. He visualizes it and these things have a specific period [in which they] can occur. When he visualises it, it comes within a twinkle of an eye. He internalises it and immediately begins to draw. For such individuals if they combine their talent with education, then they become extraordinary. That is how I am; I was not an apprentice, I didn't have any master, but [it] is just that I enjoy doing the work of God. [...] For I believe that anything that is science is from nature, God has created everything and we are just refining it and exploring it to get something from it* (Palm case 12; Kwaebibirem, 2014).

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[23] Christo Sarfo church – an inventor in Ghana

The findings from the palm cluster show that 'machinery artisans' are engaged in the production of manually and electronically operated pressing machines that are used to extract palm oil, they have the steam boilers for cooking the fruits, loading ramps and palm fruit hoppers that strip the palm fruits from the palm bunches. These and many other machines were observed at 'machinery artisan' workshops in the cluster. Some of the machines are shown in Pictures 6.2 and 6.3 below.

Picture 6.2 Machine Artisan processing equipment (1)

Source: Photograph taken by the author (2014)

 Picture 6.3: Machine Artisan processing equipment (2)

 Source: Photograph taken by the author (2014)

Mr Aseidu, a 'machine artisan' (Palm case 12), explained that there are four main types of machinery produced for businesses engaged in processing activities. The various machines vary based on the quality of work and the cost of producing them. Palm case 12 argues that

the manual press, though relatively affordable, requires more labour and a great volume of work in order to offset the cost of operation. The second electronic press produces output mixed with sludge which requires further processing, and the remaining two offer quality but are relatively expensive. The explanation offered by palm case 12 is provided below:

> *We have more than four types of machine. The first one is* [made] *by adding some other parts to the pounding component which we adopt manual means to extract the oil for the processors. We also have another one that we make in which the machine processes and extracts the oil but the oil it brings out is not clear, it comes mixed with the sludge, which requires further cooking, like the refinery, before you are able to get the oil. We also have another machine that follows. But unfortunately you didn't come to meet it. For that machine, the method in the second machine is applied in a different form... Also ... the new one I am still working on. For that one I have manufactured it for about four businesses. That new one is very huge and also expensive, very big, for industrial [use]. This new one is based on different things* (Palm case 12; Kwaebibirem, 2014)

Effects of the 'machine artisanal' activity

As a result of the production and trade by 'machine artisans' within the palm localities, businesses engaged in the palm processing have taken advantage of the machines in their operations. Most of the businesses that were interviewed indicated that these artisans have been helpful in their processing activities. The manager of Palm case 4 explains how the presence of machine processing businesses influence the owners of his business to opt for locally manufactured equipment when they wanted to start palm processing activities in the cluster:

> [to start operating]... *the Italian investor was to supply the machines but... after searching online, realised that machines for extracting palm oil can be produced here in Ghana. So the investor* [requested that] *Ghana machines can be used for the processing s. He saw no need to import machines into Ghana when there are processing machines here. As a result* [the investors] *came down to trace the producer of these machines in Ghana and ordered for one of the machines* (Palm case 4; Kwaebibirem, 2014)

The finding shows that the presence of 'machine artisans' has influenced the processing activities in the cluster. Most of the businesses (five of six) interviewed relied on 'machine artisans' for the supply of machine parts and repair their machinery when they break down. The gains the cluster receives from the 'machine artisans' are summed up in the concern raised by Palm case 3 as responsible for the recent growth in the number of millers in the

palm cluster due to easy access to this machinery which is affecting their operations:"...the rising number of small processors worries us. At first it wasn't like [that], but now people can get machines easily from machine producers now. So there are many millers operating" (Palm case 3, Kwaebibirem, 2014). This means that aside it being a gain to the cluster the existing processing businesses see these rise in the number of processors as pressure on the intense raw material competition in the palm cluster.

The machine artisanal activities in the palm cluster also offer farmers an avenue to add value to their farm outputs and as a result increase the value of their raw materials. The artisan explains that the situation ensures that farmers do not depend on processing businesses to determine the price of their palm fruits:

> *...had it not been that the machines were produced her, the farmers would have to carry their palm fruits to the company who, after receiving them when fruits are in abundance... the company will ask you to go and come back in two weeks when you don't have money you will have to wait for a while to get paid ... Some will buy without the farmers knowing the worth of the palm fruits. But, because we know its worth and* [have] *the machines to extract* [the oil], *the farmers are able to get their money's worth for their produce after extracting* [it] (Palm case 12; Kwaebibirem, 2015).

The benefit of adopting innovative means in clusters appear to be evident in both the palm and pineapple clusters. An artisan contributes to the technology by appropriating and creating new technologies, and tacitly acquiring pineapple technology from abroad provides evidence on the importance of external knowledge and innovation on the operation of clusters. Figure 6.3 summarises the findings in this chapter.
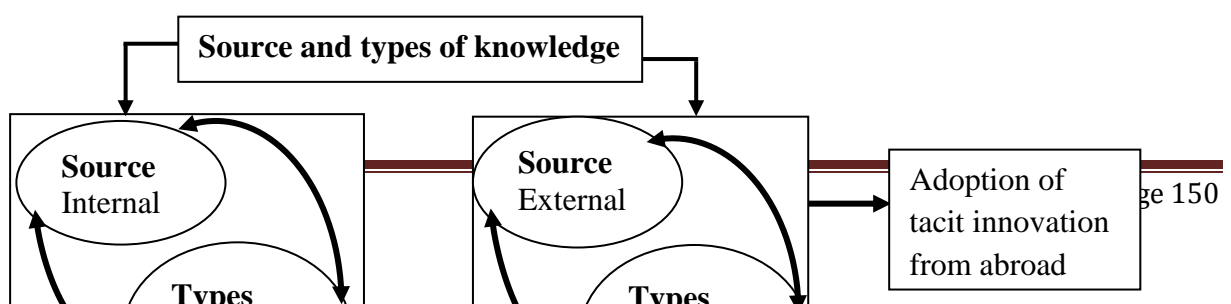
Figure 6.3 Adoption of knowledge and innovation in internationalising businesses

6.5   Reflections on Key Issues Arising from the Findings

The chapter has reported on the flows of knowledge and sources of innovation that support the operations of processing businesses in the clusters. The employees' past experience and the kind of social groupings to which businesses belong offer a tacit form of knowledge unique to the operations of processing businesses in the clusters (Oinas, 2000). The Marshallian argument about build-up of a local pool of expertise and know-how, and a culture of labour flexibility and cooperation resulting from dense social interaction and trust appears to have been manifested (Marshal, 1928). This is particularly the case in the palm cluster, where the pool of skilled labour has been produced as a result of the operation of a generalised nature of knowledge about palm processing activities. This form of externality has been made possible due to the socio-cultural environment within which these processing businesses operate (DiGiovanna, 2002). Tacit knowledge, which Nonaka and Krogh (2009) argue is location specific, has been transmitted through the movement of workers between jobs and thus providing differences in location. The socio-cultural environment also encourages very informal relationships and groups that operate on trust to drive the spread of tacit knowledge in the cluster (Munari et al, 2011). Farming is a socio-cultural activity which cannot be separated from processing due to the wide spread of processing knowledge; as a result, most processing activity has become communal and part of the socio-cultural fabric of the palm cluster. The flow of knowledge on palm processing activity has become a household venture and every farmer able to acquire locally manufactured machinery has become a processor. In effect the knowledge about how palm fruits are cultivated has become locked

into the socio-cultural environment where businesses are located (Brusco, 1982; Asheim, 2001; Becattini, 2002). This could explain the rise in the number of small-scale palm processing businesses and as a result generate competition in the palm fruit market.

Furthermore, out-grower-processor relationships alongside public sector infrastructures offered a platform for educating and training farmers and processors on the best agronomical and food processing practices in the cluster. These forms of training offer a more structured and codified form of knowledge (Asheim and Hansen, 2009). The presence of research institutions run by both processing businesses and the government provides different forms of specialised knowledge for the clusters. The presence of governmental institutions such as OPRI and CSIR are all linked to public university research establishments that provide technical knowledge which may be afforded to small businesses in the cluster. Large- and medium-scale processing businesses also have research and training facilities in support of their operations. The presence of research and technical institutions in facilitating information flow is important to sustain cluster operations and is a critical feature of most vibrant clusters (Porter, 1998; Rocha, 2004).

It is worth noting that, whereas both clusters have exhibited tacit and codified forms of knowledge, there appear to be different combinations of these forms of knowledge in the two clusters. Asheim (2012) called the blend of both codified and tacit knowledge targeted at solving specific problems synthetic knowledge which generates incremental innovation among firms. Indeed, Asheim's (2012) ideas appear to have been captured in the findings from the two clusters in relation to the different combinations of tacit and codified forms of knowledge observed. While the palm cluster is dominated by a tacit form of knowledge, the pineapple cluster is dominated by a codified form of knowledge. As a result, the levels of innovation observed in the empirical report differ between the two clusters. This confirms Asheim's (2001) assertion that learning, as an innovation process, is embedded in the routines of the location.

Overall, although the two clusters appear not to be highly innovative, which is not surprising for processing business clusters in developing economies (McCormick 1999; Schmitz and Nadvi, 1999; Altenburg, 2011), the marked difference in the level of innovation associated with source and type of knowledge and information flow has an important implication for

policy. This is particularly important since there is a growing literature on the role external investors and multinational companies (MNCs) play in transferring new innovation from outside the cluster. Although most of the pineapple clusters have external investors and are linked to MNCs, critical innovations have been attributed to the innovativeness of local entrepreneurs. Furthermore, in the last decade the government has persistently invested resources into research and innovations in agro-processing businesses, especially small businesses, in order to ensure value addition and make these businesses competitive (Budget Statements, 2005–2015). However, despite these investments, processing businesses do not see their operations as innovative.

The pineapple cluster, which is perceived as relatively innovative, has processing businesses that are more outward looking and lean more towards the use of a codified form of knowledge in their operations (Becattini et al, 2010). The critical issue here is how businesses in the clusters adopt new technologies and transmit them through personal interactions and relationship ties among members in close proximity in these sectors (Gallié, 2009; Munari et al, 2011; Asheim et al, 2012). The case of the pineapple technology brought from Costa Rica provides a solid basis for the way in which businesses in the pineapple cluster have collectively facilitated the transmission of such innovation for the benefit of the entire cluster. This is a significant key input into the innovative activities in the pineapple cluster.

Alternatively, imitations of technology which are exogenous to the cluster, particularly in the palm cluster, are influencing innovations (Oinas, 2000). This flies in the face of the argument by Asheim (2001) that imitation, based on exogenous knowledge, is problematic in itself and it does not represent a proper innovative. The role of the 'machine artisan', who has the ability to imitate external technology for processing businesses in the cluster, provides compelling evidence for imitating exogenously transmitted knowledge. The creation of different forms of machinery, through imitation, to meet the production needs of local processing businesses increases the number of processing businesses, due to the affordability of these machines. The artisans have thus become the key interceptors, adaptors and transmitters of external state-of-the-art technology.

CHAPTER SEVEN: CLUSTERS' INTERNATIONALISATION AND RELATIONSHIPS WITH THE EXTERNAL MARKET

7.1 Introduction

This chapter aims to examine how fruit processing businesses are able to penetrate the international market and how their exposure and interactions in the international market are furthering their internationalisation process. The chapter starts by identifying the various means through which processing businesses in the clusters internationalise and the key factors that promote the internationalisation processes. The relationships between processing businesses and external buyers have been argued to be critical to the internationalisation process. These relationships reduce the psychic distance that exists between businesses and their internationalisation process (Johanson and Vahlne, 2009). Processing businesses and supporting institutions from the public sector have also been noted to support internationalisation in developing economies and the discussions will concludes with the analysis of public support for exports.

This chapter seeks to address following the research sub-questions: *How do processing businesses' relationships with external markets sustain the internationalisation activities in the clusters? How do exporting processing businesses in the two clusters perceive public sector support towards their growth?*

The chapter is divided into four main sections. The first section (7.2) investigates the nature of internationalisation activities of processing businesses in the clusters. Section 7.3 examines the role of direct and indirect external market activities in the operations of the two clusters. The processing businesses' perceptions on export support from public sector supporting institutions are investigated in Section 7.4. The final section (7.5) provides a summary of the chapter.

7.2 The Nature of the Fruit Processing Businesses' External Marketing Activities in the Two Clusters

This section examines the key feature of the exporting activities carried out in the two clusters. It will look at the mode of distribution and differences in destinations of these

products and other features of the processing businesses that may influence exporting activities, such as the ownership structure of the businesses. The business owners' level of exposure to the international market will also be discussed to determine its influence on exporting activities of businesses.

7.2.1   Exporting destination and channels

The evidence from both the quantitative and the qualitative results shows that exporting processing businesses in the palm cluster mainly sell their products to sub-regional markets This comprises countries in West Africa, specifically, Nigeria, Togo, Burkina Faso, Ivory Coast and Benin. The pineapple cluster on the other hand mainly trades with European markets. From the survey, the majority (95.6%) of exporting processing businesses in the palm cluster export to neighbouring countries while all (100%) the exporting processing businesses in the pineapple cluster internationalise into European countries. The interview data supports the findings from the survey, because all the palm processing businesses indicated that they sell in sub-regional markets while three-quarters of the pineapple processors export mainly to European countries.

In terms of the years of exporting (Appendix 3), all the pineapple processors have been exporting for less than 15 years ago and the majority (43%) of these processors started exporting less than five years ago. The majority (62%) of the palm processors have been exporting for less than 10 years and only 9% have been exporting for less than five years. The findings appear to show that the pineapple processors' exporting activities are more recent compared to the palm processors'. Considering that most (65%) pineapple processing businesses were established less than 15 years ago and 65% of the palm processors more than 15 years ago, the finding appears to show that the pineapple processing businesses have been more outward looking from the onset. This is symptomatic of the 'born global phenomenon'.

On the issue of the frequency of exports, 85% and 57% of the palm and pineapple processing businesses respectively indicated that they export weekly. While none of the palm processors export daily, 28% of the pineapple processors do. This significant daily export may be attributed to the perishable nature of their fresh cuts, which they air freight to supermarkets in Europe.

With respect to the proportion of the total output exported, all the pineapple processing businesses exported above 60% of their output and 57% of the processors exported above 80% of their total output in the year. In the case of the palm cluster, 83% of the processors indicated that they export above 60% of the output but only 29% export above 80% of their output. The findings suggest that a higher percentage of the pineapple processors' output is exported compared to the palm processors. This could be as a result of the high demand for palm oil in the local market.

Survey data also shows (Table 7.1) that there is a significant relationship between a business cluster and the choice of export channels (p<0.01). Specifically, businesses in the palm cluster were more likely to export via agents and buyers than those in the pineapple cluster, who export via the company's export team or unit.

Table 7.1: Distribution/Export channels

Export Channels	Palm	Pineapple	x^2	P	Fishers Exact P
Agents/Distributors/Buyers	93.3%	14.3%	26.45	0.00**	0.00**
Company's export team/unit	6.7%	85.7%			
Total	100.0%	100.0%			

Note: **p significant at 0.01 level of significance

This finding is supported by the qualitative data which shows that most processing businesses (five out of six) in the palm cluster sell their products in sub-regional markets through distributors. By concentrating on the cluster, processing businesses in the palm cluster offer a central point for the sale of palm oil and as a result draw buyers from the domestic economy and sub-regional economies in a form of market externalities (Krugman, 1991). One of the palm processing entrepreneurs explains:

> *... for the sale of the palm oil, there are several modes of selling it but largely [it is done] through buyers. There are several buyers, some come to buy [it] to sell for consumption in Accra, and some buy and sell in Togo, Nigeria, Mali and Benin. Others also buy [it] to export but they are not many* (Palm case 5; Kade, 2014).

Field observation confirms that processing businesses rely on buyers to sell their produce. For example, these processors usually operate along unmotorable roadsides to market their

products and ensure easy access to possible buyers of the oil palm. The situation means that businesses in the palm cluster are always working towards securing buyers for their produce and therefore rate the access to marketing relatively higher than the pineapple cluster.

The case of the pineapple cluster reveals that most of the processing businesses (six out of seven) have a defined market or client to which they supply. Their buyers are known and they distribute the product to these buyers, mainly in the European market; that is, based on pre-orders. Processing based on their international market orientation, businesses in the pineapple cluster pursue market opportunities through their networks. The markets are pre-determined and so entrepreneurs value the relationship with their customers. The comment by one of the managers in the pineapple cluster explains the marketing activities in that cluster:

> *The main market is purely in Europe.... they send us orders... we fill the shelves of those big supermarkets like Sainsbury, Marks & Spencer, ASDA and Waitrose...* (Pineapple case 1; Nsawam, 2014)

The evidence also shows that the palm processing businesses trade with sub-regional markets mainly through the intermediary role played by buyers and distributors. In contrast, the pineapple processing businesses engage directly with their customers, who are mainly located in Europe. These two clusters therefore describe different market trajectories and channels for internationalisation.

7.2.2 Fruit processing businesses exposure to the international market

Nine out of the 13 processing businesses in the pineapple and palm clusters said that their businesses were set off by the owner's exposure to the international market. Five out of the seven pineapple processing businesses interviewed were exposed to the international market before commencing the internationalisation activities. Out of these five processors, four had the experience while working abroad and two were exposed through the franchising activities of multinational companies. In the case of the palm processing businesses, two were exposed to international market links before commencing export while one was through the activities of a multinational franchise. All the processing businesses which were prompted by such exposure are exporting. The two quotes below illustrate this point:

According to the chairman, he was working with one of the fruit producing companies in the UK ... So he came to Africa and settled in Ghana in 1997. He got the permit and then started [operating]... He wanted the factory to be closer to where the fruit is produced and also for the customer to be able to eat it within 24 hours after harvest because there was a market for freshly processed fruits. So, that is the whole idea about how the company started. So we started from Ghana and the first production was in 1998... we process and export everything. Almost 99.9% of our fresh cuts are exported. So that is the reason why our company was located in Africa and not Europe (Pineapple case 1; Nsawam, 2014)

... I used to live in the UK and in the 1990s I returned to Ghana and started the cultivation of palm fruits on the family land... I saw that adding value to the palm fruits, there will be ready markets in the neighbouring countries [...] I stared processing for my distributors in Togo and Nigeria (Palm case 5; Kwaebibirem, 2014)

In effect, the business owners' exposure to the international market (Mohr and Batsakis, 2014; Cesinger and Kraus 2012) has led to the establishment of processing businesses. This was facilitated by an ownership structure that some companies adopted. This means that from the onset businesses were familiar with the international market to which they would be exporting, and therefore had broken the 'psychic barriers' to internationalisation as highlighted in the literature.

7.2.3 Ownership structure of processing businesses and external marketing

The evidence suggests a relationship between ownership and export structures. The qualitative data shows that four out of the six palm processing businesses interviewed were 'sole proprietors'[24] while only one out of the seven pineapple processing businesses interviewed was a 'sole proprietor'. All the remaining businesses (six) were into partnerships; five of them are actively exporting businesses. This is supported by the quantitative data, which shows that 88.6% of exporting palm processing businesses surveyed were sole proprietor compared to a relatively higher number (71.4%) of exporting pineapple processing businesses which were in 'partnership' (Table 7.2).

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[24] A business organisation that is owned by an individual

This overwhelming evidence shows that the palm cluster is dominated by sole proprietors (also known as 'one man business') with a relatively lower scale of production. This may account for their reliance on distributors to cart their output to the sub-regional markets. Alternatively, pineapple processing clusters are dominated by 'partnership' businesses with a large-to-medium scale of operation. This may account for their ability to permeate the international market, and deal directly with customers, particularly when most of them have international shareholders who are directly linked to the distribution activity of the business. This evidence support recent discussions on the role that MNCs and external investors play in the promotion of clusters in developing economies (Goerzen et al, 2014; Shehu et al, 2014).

Table 7.2: Type of business ownership

Ownership	Palm	Pineapple
Sole proprietorship	88.6%	28.6%
Partnership	11.4%	71.4%
Total	100.0%	100.0%

Furthermore, with the exception of Palm case two, almost all businesses that operate partnerships in the two clusters have partners outside the country. As a result, they are better resourced, operate medium- to large-scale production units and are outward looking, leaning, for example, towards the international market. The observation by the manager of Palm case 3 explains that the nature of the business partnership is key to meeting their machinery needs, which supports their scale of operation and exports:

> ...*The business is a free-zone company[25] established with the help of some Italians. The mother company is in Italy, so they came and established the business and since it started they have been very helpful... They have been bringing machinery and other technologies down for the processing activities here. And recently they came, and they often come to inspect the machinery* (Palm case 3; Kwaebibirem, 2014)

Similarly, the manager of Pineapple case 6 explains how the business's internationalisation had support from several partners external to the Ghanaian economy:

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[25] Free-zone companies require that a percentage of the business is owned by a Ghanaian

> *...we have been processing about 500,000 tons of pineapple and oranges to the EU and for the past four years we have been exporting all our products into the EU... Most of our resources in terms of cash do come from the owners of the company, actually. Most of them are Dutch... British... and one Ghanaian... that is where we get our source of income from* (Pineapple case 6; Nsawam, 2014)

The situation is not different from other companies interviewed (Pineapple case 3, Pineapple case 2 and Pineapple case 1).

Businesses exporting in the pineapple cluster had multiple ownership or partners compared to those in the palm cluster, whose ownership was largely made up of sole proprietors. The findings therefore show that exporting businesses that operate as partnerships have owners who are either MNCs and private investors based overseas or have been exposed to the international market. This facilitated the business setup as opposed to those with sole proprietorship. This may explain why the pineapple processing businesses behave more like born global businesses as opposed to the palm processing businesses, which depend on distributors. In effect, exposure to the international market and business's ownership structure may influence the speed of businesses' internationalisation process.

7.3   Export Relationships with Distributors and Customers

The findings appear to show that processing businesses in the palm cluster are predominantly owned by individuals and export to neighbouring countries through agents. Exporting processing businesses in the pineapple cluster which are predominantly partnership-based export to European countries through business export teams. This section will examine the relationship between processing businesses and distributors (exporters/buyers) in the two clusters.

Indirect customer-processor relationship in external markets

Despite differences in ownership structure, channels of export and export destination, the interview data has shown that the internationalising palm processing businesses are defying the liability of small size and foreignness by adopting a trust-based distribution system (explained in section 5.3). The distributors in the palm cluster known as 'Atɔfuɔ', literally meaning 'buyers/distributors', may be either located in the cluster or operate outside the cluster or even outside the country.

Distributors are responsible for searching for and identifying customers in external markets and sending information on the nature of the products that customers want. The distributors are informally the mediators between the palm processor and their numerous clients in the West African market. The following extracts from distributors in the palm cluster explain the role they play in marketing products abroad:

> *...when I had the hint there were markets for [palm] in our neighbouring countries, I expressed my interest in buying large volumes of palm oil. I started to buy from the various Kramers in a yellow gallon, jerry-cans, the 25 litres, and piled them up to get a drum. So when I have a greater quantity I send it to Togo to look for customers in order to increase my profit. When I got to Togo market I sell it to other buyers in that market who will pay me in CFA [Togo currency] for which I change into Cedis when I get to Ghana for further purchases of palm oil to be made, like reinvesting* (Palm case 9; Kwaebibirem, 2014).

> *...normally the market booms on Fridays in Togo; that is when you are able to establish customer relationships. Soap makers and traders come and seek the palm oil sellers. Every customer says what they want to see in the palm oil because it is either they buy it for soap making or consumption. For soap making they are not very particular, but the one for consumption they have so many things they want. So we have to know what type they want so that we can send it to them next time when we go back to the market* (Palm case 8; Kwaebibirem, 2014).

These distributors do not only fill the knowledge gaps about the products and find customers, they have also become the means through which credit facilities and product technical advice are offered to processing businesses in the palm cluster. In fact, the various distributors of these processing businesses serve as the main conduit through which financial credits are offered to processing businesses by customers to facilitate and secure the needed supply of palm oil in the cluster. The financial credit relationships between the processes and consumers through the distributors are explained by a distributor in the palm cluster as follows:

> *... [Consumers] advanced half of the money's worth of the total amount of palm oil expected of me. Say they expect 1 tonne, they will pay half in advance and the other half on delivery of all the required quantity ... to make sure I keep the supply at regular interval ... [so] ... we provide advance money to ... [processors] ... to pay for one drum to encourage and commit them to supply to me because they know I will always pay when their palm oil is ready. So when they supply the two drums then I pay their balance to them ... So to offer [processors] advance ... [which] boosts the relationship...* (Palm case 8; Kwaebibirem, 2015)

The interaction between distributors and customers has been built based on trust which has been built over a long period. This trust is equally extended to the relationship between processors and distributors. Products from the cluster are sent to the West African sub-region countries (Nigeria, Togo, Ivory Coast, Burkina Faso, Benin) by agents who operate within or outside the cluster. Through their interaction with customers, distributors are able to gain their trust to secure a regular supply of palm oil. These consumers themselves are manufacturing businesses producing soap and other consumables. From the interview, these customers (manufacturing businesses) consider distributors as their agents and are willing to offer them huge sums of money to be used as advance payment in securing palm oil from the cluster. Credit advancements come with a lot of trust between the distributors and their customers. According to the distributors, satisfactory past dealings with one another are the basis for the level of trust in their relationship with the customers they supply (Granovetter, 1985). The trust-building process and access to finance is explained by a distributor in the palm cluster as follows:

> *So, for instance, when I established my links in Togo, I took four gallons for which they paid me and requested more palm oil to be supplied. As time went on I increased my weekly supply to over five drums [1.5 tons] and was constantly meeting their request. They then advanced money for the number of drums they requested. So, for instance, they advanced half of the money's worth of the total amount of palm oil expected of me. Say they expect six drums, they will pay half in advance and the other half on delivery of all the required quantity* (Palm case 9; Kwaebibirem, 2015)

In effect, an advanced payment is made to distributors in order for them to extend advance payment to palm processing businesses in the cluster. Likewise, disbursement of credit to processors equally requires some level of trust between palm processing businesses and distributors. There is selectivity in the choice of credit recipient. The individual processors selected must be known to the distributors and should have a cordial relationship with them. The distributor's discretion here is important. The distributor must know the processing site and should have been operating with them for a while. The requirement for the assessment of such credits is explained by a distributor in the palm cluster:

> *You see, before I give any advance payment I need to know you. By virtue of the fact that I don't know you, I cannot give you advance payment for fear of losing my money. So anyone I advance money to is known to me and [I have visited] their operating site. I have been working with them for a while now, so I know them and they come to me and I visit them* (Palm case 8; Kwaebibirem, 2014).

The advance payment offered provides an alternative source of finance to farmers' outputs. This has brought fierce competition in the sale of palm fruits and palm oil in the palm cluster because farmers are converting their raw material in order to sell to these distributors at a higher value. Besides that, they are able to access finance in advance, which is preferred to the two-week waiting period before payment.

The examination of the role that distributors play in the internationalisation process within the West African sub-region suggests that the palm cluster internationalisation activities owe a lot to the role played by the buyers/distributors ('Atɔfuɔ'). The activities of these 'Atɔfuɔ' in the palm cluster may offer a level playing field through which all processors dispose of their output (Hessels and Terjesen, 2010). This may be the reason for the proliferation of small-scale processing businesses in the palm cluster whose insatiable demand for raw materials is contributing to the excess demand over supply situation (discussed in section 5.2 of Chapter five).

The finding suggests that, besides serving as a means to 'locate financial providers' for businesses (Balabanis, 2000), the 'Atɔfuɔ' play an essential role in the 'distribution of finance' among trusted processes. Their presence in the cluster and their links to social groups and activities (section 5.3) provide the means to identify and build a trust network of processors who will constantly supply their output needs. In effect, the 'Atɔfuɔ' may not only be a means of disposing output but also a socially integrated financial credit opportunity for palm processing businesses within the cluster

Direct customer-processor relationship in the international market

In contrast to the palm cluster, the pineapple cluster has direct experience with its customers and the relationship built has little to do with intermediaries. Businesses in the pineapple cluster work primarily with their exporting teams to make the products available to customers mostly based in Europe. The export team is part of the export department, which is responsible for ensuring that the products are kept in a desirable state until they reach the customers.

Overall, the finding shows that all the exporting pineapple processing businesses in the pineapple cluster use information and communication technology when interacting with customers. All the businesses are resourced with ICT facilities through which they have

regular interaction with their customers in the sale and distribution of their products. Orders and feedback are made via emails and phone calls on a regular basis.

Most of the exporting pineapple processing businesses in the cluster (four out of five) have direct visits from customers, who come to audit their factories and operations on a regular basis. Processing businesses directly visit their customers through several means. These visits are part of a quality assurance process for the customers and ensure that the products meet their desired standards and expectations.

One of the exporting pineapple processing businesses (Pineapple case 1) indicated that they equally visit their customers directly through their foreign offices or through their shareholders or travel from Ghana to their customers in the course of their dealings. The operations manager of Pineapple case 1 explains how these various methods of communication facilitate their relationship with customers in Europe:

> *...we use the internet a lot, so all customers send all their requests through the internet and there is mainly an hourly communication between us and our customers, so in terms of information there is good communication between us and our customers. Even every year there is an audit by some of the customers, so they audit some of the packages to be sure that everything that you are doing is… so every year they come and audit us and any recommendations and advice they propose, we implement them... We sometime visit them to discuss possible new businesses and we have an office in Heathrow that [we] visit and they monitor the products we send* (Pineapple case 1; Nsawam, 2013)

These modes of interaction provide an essential means for bridging the psychic distance between what is happening in Europe and the way businesses in the pineapple cluster should respond to it. For instance, when exported products have been damaged the ICT becomes a means through which this is resolved. Pictures and videos of the damaged products are shown and their contents are valued for the necessary corrections to be effected. In cases where the pineapple processing business has a local office, an officer is appointed to deal with the problem. In other cases, representatives may be sent to assess the situation if necessary. These three scenarios adopted in dealing with problems with customers are explained by managers of three different pineapple processing businesses below:

> *Scenario 1- Picture and video*
>
> *Anytime we send produce and there is a problem, they just contact us direct and tell us his is what we have done and this is the problem that has come. And they*

will send us through [an] email. They send us a picture or video of whatever had happened with respect to the product and we also answer them and give them feedback and tell them what has happened to the product; if there is any problem with the product during the packaging, we inform them and they become aware. And then whatever that goes on we always interact with each other and get the solutions for them (Pineapple case 4; Nsawam, 2014).

Scenario 2 – Local office interaction

"Most of [our customers] are in the UK, anyway, because that's our largest market. They try to look for new markets and also interact with customers. We also have our fruit check personal manager in the UK. So it's easy if there is any complaint from any customers about the state of our product: he carries the message to us and sits down with them on how to solve the problem and we continue with our relationship" (Pineapple case 1; Nsawam, 2014).

Scenario 3 – Direct travel of officials

So if [our customers] complain that there is spoilage, like they say, "I know your fruits went through quality checks but I think there is spoilage". "Oh really?" Then we fly to go and check [and] then we have to pay back because it has already been paid for, just so that we can maintain the relationship, our intention is to make them satisfied, so we lose [money] (Pineapple case 3; Nsawam, 2014).

These various forms of interaction and communication between customers and pineapple processing businesses mean that they rely on each other and have a cordial relationship, which helps them to appreciate each other's needs and expectations. This relationship ensures that, when the processing businesses are unable to meet their customers' demands, the customers are considerate and do not shift to other competitors. In cases where they face challenges in terms of access to finance, their customers adjust the buying prices to increase their returns. At other times when they have labour unrest, consignments have been increased in order to increase the levels of revenue to address the situation. The manager of Pineapple case 4 explains the situation and points out how important the relationship with its customer is to the organisation:

... normally if there are difficulty on our side we inform the clients and they advise us, and also you inform them and they advise what support they can give, whether financially or maybe increment supply or any other stuff like that. So we normally inform them and make them aware of what is going on or what is happening here, the difficulties we are going through, the challenges that we are facing. So we make them aware so they also use their expertise to advise us and also tell us what is going on over there. Both of us can, I mean, deliberate on the issue which

is present so that we can get the best solutions so that it will benefit both partners (Pineapple case 4; Nsawam, 2014).

The findings show that external marketing activities of pineapple and palm processing businesses rely on cordial relationships directly with customers and indirectly with distributors respectively. Hence, the two exporting clusters, despite their differences in the nature and structure of internationalisation (Figure 5.3), have a similar need for relationship building to facilitate their process of internationalisation. However while the pineapple processing businesses internationalised from the onset, the palm cluster relied of distributors to gradually search for market opportunities within the West African region.

7.4   Public-Private Relationships and the Internationalisation Process

This section focuses on the role that the public sector plays in supporting and facilitating internationalisation by addressing the following research sub-question: How do processing businesses in the clusters perceive the public sector support for internationalisation? The examination of the public sector's contribution to internationalisation in a developing economy like Ghana is undertaken against the backdrop that developing economies have weak institutional frameworks (Rodrik, 2008; Stiglitz, 2011; Xu and Mayer, 2012; Primi, 2013). There is also the widespread belief that exporting activities in clusters in most developing economies are mainly promoted through government-led programmes and policies (Rasiah and Vinanchiarachi, 2013; Martinovic et al, 2013).

7.4.1   Export support to processing businesses

The findings from the survey data show that none of the 99 processing businesses in the two clusters have received export support from the public sector in the last five years. The general feeling from the palm and pineapple clusters is that the export support has been minimal to nothing. In fact, all of the processing businesses in the palm cluster said they have received no support so far. On the other hand, three out of the seven pineapple processing businesses indicated that they had received some form of assistance. This has been in the form of finance, tax exemptions for free-zone companies, provision of security in land disputes and technical assistance on crops.

In terms of financial support received, the Eastern regional Director of Trade explains that financial packages from the government and its foreign partners including the Export Development and Agricultural Investment Fund (EDAIF) programme and Millennium Development Authority (MiDA) have been made accessible to pineapple processing business. However, these businesses do not see this financial support as government support. Processing businesses in the pineapple cluster perceive it as international support that does not qualify as government support. The perception is that the financial assistances received in the pineapple cluster is international support:

> *We were able to get financial assistance from MiDA and that is how come we started the automation... MiDA really assisted us through SPEG to relocate. Aside [from] MiDA, others are external loans that we contract; there's not any government support... EDIAF is also [an] international programme and has been running for a while and they also give support in a form of loans* (Pineapple case 2; Nsawam, 2014).

Pineapple processing businesses in the cluster also seem to rely on support from political appointees who are constantly reneging on their promises. As a result, the businesses' perceptions have been influenced by these disappointments. The operations manager of Pineapple case 1 explains this very clearly:

> *I will tell you. They [politicians] will come and talk beautifully [but] when it comes for implementation it's zero. I remember Clement Domado, the Minister of Agriculture, came to the factory [and] we made some of our complaints to him. He agreed to start a committee that will look into our concerns. Ever since, that is the beginning of this year, up to now he has never called for any meeting, He just talks big. The last time even the chairman went to see the Minister for Trade and Industry, Harruna Iddrusu, about this land issue and he was rather telling the chairman to relocate... He really didn't really know why the company was sited here (Pineapple case 1; Nsawam, 2014).*

This generalised perception in the clusters may account for the low score on the support government offers to processing businesses. The perceptions regarding public sector support appear to have been narrowed to only tangible assistance received, which ignores the presence of public institutions that coordinate the activities of these businesses in the clusters. This is because most processing businesses (four out of seven) in the pineapple cluster and one processing business in the palm cluster indicated they have benefited from public sector support export services such as finance and tax exemption of businesses in the free zone.

However, despite benefiting from the services, processing businesses appear not to recognise and relate this support to their operations.

7.4.2   The role of other support institutions and agencies

The evidence shows that only a small number of palm processing businesses are associated with public sector export-supporting institutions and agencies such as the Ghana Export Promotion Authority (GEPA, 13.4%) and Ghana Standards Authority (GSA, 7.3%). Relatively higher levels of interaction exist between the pineapple processing businesses and public sector export-supporting institutions and agencies (GSA, 88.2% and GEPA 47.1%) in the cluster. This may be because the pineapple processing businesses export directly as opposed to the indirect exporting activities in the palm cluster. However, it is surprising, because 54% of the palm processing businesses are engaged in some form of palm oil exportation through their respective distributors. The GSA attended to product quality to meet the international requirement set in the international market and international organisations. The GEPA provided the enabling environment to facilitate businesses' exporting activities through programmes such as trade fairs/exhibitions and sensitisation programmes, among others. It is not surprising that pineapple processing businesses rated the agency higher than their palm counterparts. However, considering that some palm processing businesses are interacting with these agencies in the course of trading in the sub-region, one wonders why the remaining businesses are not.

The relatively lower levels of interactions in the palm cluster may be explained by some evidence from the qualitative data. The first factor worth noting is the fact that the GEPA and GSA are not decentralised, which means that businesses requiring certification and accessing of a given export promotional scheme must visit their head office, which is situated in Accra. The situation is such that processing businesses that do not have technology and research facilities will have to travel from the Eastern region to Ghana's capital in order to assess such a facility before they are given certification for their product. The situation with an export-supporting institution such as the GSA is characterised by the head of the eastern regional directorate of Trade and Industry as hampering their business operations:

...as far as these two agencies [FDA and GSA] *are concerned, they are challenged in terms of staffing so they operate at the regional level. Even FDA, Eastern Region, was working under Volta Region; it was quite recently that they opened a regional office here. So how do* [you] *expect businesses to pack bag and baggage and go to HO26 for their products to be tested? They will rather choose to stay and then produce to the local market* (Institution case 1; Koforidua, 2014)

Processing businesses in the clusters also noted that the level of bureaucracy and corruption makes the assessing of any facility in these export-supporting institutions laborious. From the identification of an export support package up until the adoption of this package by processing businesses, a lot of red tape has to be dealt with. Processing businesses have low expectations of export support for their businesses. The frustration and bottlenecks in dealing with export promotion agencies is explained by the manager of a palm processing business as follows:

...just yesterday I was at [the] Export Promotion Council. They had asked for samples of our products to send to the various embassies to promote our products. But as I went through the whole experience I just reflected on the frustrations in doing business in Ghana. [So] I was referred to the Export Promotion Council, that that is their responsibility to collect data so that I get to know the trends to be able to plan for the future. When I went I was told I have to write a letter, addressed to the director. I said, "Can I send it by email?" They say no, I have to come and deliver the letter [by] hand. In this day and age?! I was so disappointed... [Also] ...I know they have a membership drive, so I said, "How much, do we have to pay anything?" and she said, "It is at the discretion of the director of export promotion council". And it is really unfortunate. I mean doing business in Ghana is tough, it's really tough, and I tell people I wonder why we go into it because we do not have an environment that is supportive at all (Palm case 11; Madina-Accra, 2014).

This institutional 'bottleneck' confirms work by several scholars that identifies it as a common feature of developing economies' institutions (Xu and Mayer, 2012; Amoako and Lyon, 2013; Primi, 2013). The interaction and relationship between exporting processing businesses and export-supporting institutions generates pressure on these businesses, not to mention the potential exporting businesses in the cluster. As long as these challenges persist,

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[26] Volta regional capital

the processing businesses' perceptions of export-supporting institutions will remain the same. Where the institutional challenges existed, Amoako and Lyon (2013) argue that the cultural elements of social ties formed the basis for building trust amongst businesses towards internationalisation. This may be applicable to the palm processing businesses in the cluster, but may not hold in the case of the pineapple cluster, since they seldomly interact and are only joined together by fruit production. Figure 7.1 presents a summary of the findings in this chapter
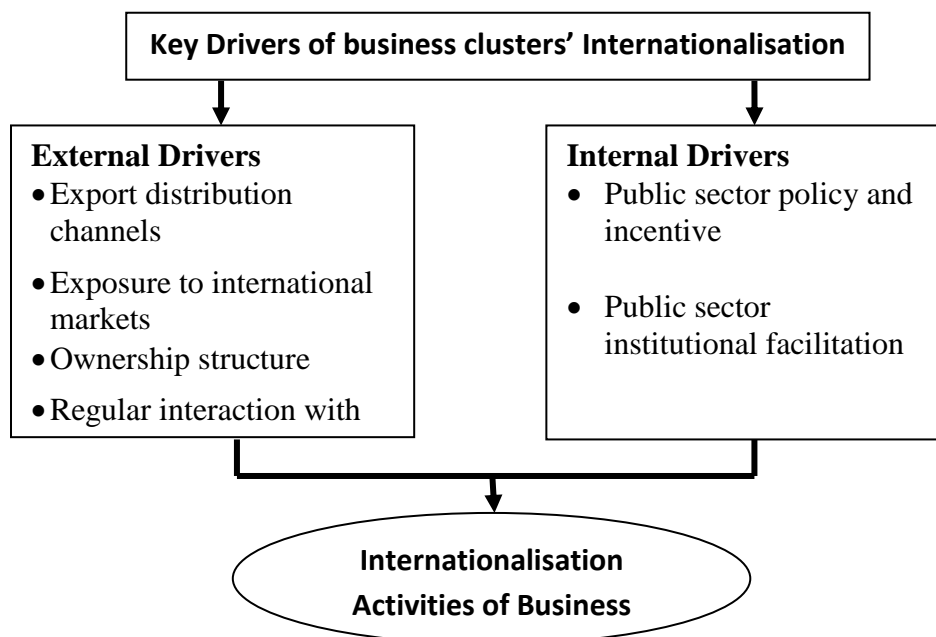
Figure 7.1: Drivers of business clusters' internationalisation

7.5   Reflections on Key Issues Arising from the Findings

This chapter began by examining internationalisation activities of clustered firms by looking at three variables: the exposure to the international market, channels of distribution, and relationship between the exporting businesses and their customers or distributors in the cluster. The processing businesses' perceptions of the role public sector export-supporting institutions and their relationship with these exporting institutions in exporting outputs from the clusters were also examined.

The first research question addressed in this chapter was: *What factors sustain the establishment and operation of exporting businesses in the clusters?* The findings suggest

that the exposure of businesses owners to the international market had a significant impact on the internationalisation processes in the clusters (Mohr and Batsakis, 2014; Cesinger and Kraus, 2012; Oviatt and McDougall, 1995). The ownership of processing businesses appeared to differ for businesses that had external exposure. In addition, the channels of distributional for these businesses were equally influenced by the owners' exposure to the international market, with businesses which had exposure in Europe, from the onset, extensively internationalised directly in that region. This is made possible because the barriers to internationalisation confronting processing businesses may have been minimised due to the knowledge they possess about these markets. These processing businesses were aware of their target markets and the prevailing trading conditions in the international market through their networks and shareholders. Through the use of telecommunication technology and constant direct contact, the relationships with the external links have also been maintained. This has facilitated the exporting activities of processing businesses, particularly within the pineapple cluster. The situation underscores the 'born global' argument that businesses may internationalise at birth without the need to conform to the gradualist stage-based notion of internationalisation and its learning curve (Johanson and Vahlne, 1977; Cavusgil and Knight, 2009).

The evidence reveals that processing businesses with no exposure to the international market had relied on distributors to get their produce to the final consumer while those with exposure dealt directly with customers in external markets. This confirms Terjesen et al's (2008) suspicion concerning business exposure and internationalisation. Distributors do not just assist in reducing the psychic distance between the processing businesses and the international market (Johanson and Vahlne, 2009) but also contribute to finding more customers, and reduce uncertainty and risk (Terjesen et al, 2008; Hassels and Terjesen, 2010). These distributors have also become the liaison through which credit facilities flow from consumers to processing businesses. Distributors have a two-way trust system, one with the consumers who over a period of time build stronger relations with them to offer advance cash, and the other with the processing businesses from whom the palm oil is purchased. The two-way trust system is developed over several periods of interaction and confirms Granovetter's (1985) assertion regarding the development of trust networks. By their presence in the cluster, distributors have formed a social trust network which facilitates their distributional activities and their issuance of credit facilities in the cluster.

As far as the second research question is concerned, How do processing businesses in the clusters perceive the public sector support for internationalisation?, findings show that the perception of businesses about the export support infrastructure in the clusters relied on processors' personal experiences, which centred on financial or tangible gains from public sector institutions.

Export support infrastructure is perceived by processing businesses in the clusters as minimal to nothing. Processing businesses experience of constant failed promises appears to have eroded any confidence they have about receiving any export support. This has influenced their perception of the availability of any export support programme in such a way that any form of assistance received is not regarded as export assistance. The level of perception is worsened by the bureaucratic and non-decentralised nature of the export support institutions with which these processing businesses have to deal. This finding confirms work by Amoako and Lyon (2013), Xu and Mayer (2012) and Primi (2013) on the institutional bottlenecks businesses must traverse to undertake internationalisation activities in developing economies.

CHAPTER EIGHT: CONCLUSION AND IMPLICATIONS OF THE RESEARCH

8.1 Introduction

The discussions on the exporting activities of business clusterings are important for theoretical, practical and policy purposes in the drive towards industrialisation in developing economies. However, there are few works on business clustering internationalisation, particularly in these countries (Krugman, 2011). This gap in the literature has been addressed here through the examination of the factors that influence business clusters' internationalisation in two exporting clusters in the eastern region of Ghana. The study addressed the following research questions:

- What role does competition and cooperation in the supply chain play in cluster dynamics and resource accessibility in Ghana?

- How do Ghanaian businesses in clusters learn and adopt innovations for their operations?

- What factors influence the internationalisation activities of fruit processing businesses clusters in Ghana?

In addressing these questions, the study adopted a mixed methods approach which involved the use of both qualitative and quantitative techniques to comparatively examine palm and pineapple processing clusters in Ghana. The method ensured that data concurrently collected from 99 survey data, 24 interviews and observations were merged in the analysis in order to provide detailed and corroborated results for the research.

8.2 Summary of Findings

8.2.1 Clusters' dynamics and the role of cooperation and competition

The research sought to establish the foundation for the organisation of clustering activities within the palm and pineapple clusters in Ghana. Three key factors of agglomeration economies were perceived by processing businesses to influence their location in the clusters:

- The abundance of raw materials in both clusters serves as a converging factor but the rising urbanisation and land fragmentation has become a dispersionary factor in their location (Behrens and Roberto-Nicoud, 2008; Krugman, 2011)

- The presence of labour with operational knowledge of that embedded in the socio-cultural environment of the cluster serves as a valuable asset to the clustering activities – a situation synonymous to that of the Italian district (Brusco, 1982; Becattini, 2000)

- The presence of viable international marketing channels available to the cluster questions the agglomeration model's postulations that firms locate near sites with relatively large demand (Porter, 2000; Murillo et al 2012; Baldwin, 2012)

The research further sought to understand the nature of networking along the supply chains of the palm and pineapple clusters in order to appreciate dynamism within these clusters in Ghana. The findings showed three distinctive relationships, processor-farmer, processor-processor, and processor-distributors, which have generated different levels of cooperation and competition.

- In the case of processor-farmer relationships, the abundance of fruits in the pineapple cluster has led to minimal level of competition in their sale and distribution. However, the presence of a large number of small-scale processing businesses born out of the social structure of the palm cluster has led to stronger relationship with indigenous farmers. The relationship between small-scale processors and farmers at the expense of large-scale multinational operatives has led to an excessive level of competition in the sale of palm fruits.

- Processor-processor relationships showed strong inter-firm cooperation among small-scale palm processors who belong to similar community groupings or associations. These communal grouping are seen by large-scale operatives as a threat since the farmers are themselves members of these social groupings. The pineapple processors seldomly meet, and operate independently of each other, but evidence shows that they cooperate to solve common problems.

- Distributors are an integral part of the palm cluster and have a personal relationship with small-scale processing businesses, offering them advance payments to improve their purchasing power for palm fruit. The financial support to small-scale palm processors is fuelling the level of competition between small-scale processors and large-scale processors in the palm cluster.

The findings from the two cases support the postulation that no two spatial organisations are the same. Social interaction within different clusters produces unique local-based social interactions (Granovetter, 1985; Zell et al, 2014; Hinz et al, 2015) which foster the dynamism of cooperation and competition within the clusters.

8.2.2 The role of learning, adaptation and innovation in clusters

Source and type of knowledge

The evidence shows that processing businesses in the pineapple cluster learn extensively from international (external) knowledge for their operation; that is, through their customers, mother companies, owners and shareholders with international links. The palm processing businesses, on the other hand, learn from the domestic (internal) environment, through their social networks and formal institutions within the economy. As a result, the findings show that the palm processing businesses lean more towards a 'tacit' form of knowledge in their operation while the pineapple processing businesses lean towards a more 'codified form' of knowledge (DiGiovanna 2002; Oinas, 2000).

The knowledge about palm processing activities circulates and can be assessed by all businesses, as they are embedded within the social structure of the community. The situation in the palm cluster sits very well with arguments made by the industrial district scholars that such informal or 'tacit' knowledge becomes embedded into the socio-cultural milieu (Becattini, 2002; Asheim et al, 2011; 2012). This has led to the proliferation of palm processing businesses, particularly the small-scale businesses.

Moreover, the fact that pineapple processing businesses seldomly interact with each other and instead rely on international sources of information and knowledge for their operation sits well with the codified form of knowledge they adopt. This form of knowledge is transmitted into the cluster by the external linkages that the businesses in the pineapple cluster have been able to establish. The information in this case has to be transmitted through the organisational set-ups in order to reap the benefit this knowledge may offer (Munari et al, 2011; Nonaka and

Krogh, 2009; Asheim et al, 2012; Todtling et al, 2012). The setting up of an out-grower training school by a pineapple cluster to formally teach farmers how to adopt specific agronomic practices in order to meet the customers' expected requirements is a case in point.

Adoption and transmission of new knowledge and innovation

Gatekeepers in clusters are the means through which new knowledge is transmitted inside the cluster. For example, the gatekeeper in the pineapple cluster learnt and adopted the cultivation of the MD2 pineapple through international exposure from Costa Rica. The gatekeepers in the palm cluster appropriate external new knowledge (technologies) for processing palm fruits from abroad. Consequently, pineapple processing businesses perceive their operations as relatively more innovative compared to the palm processing businesses.

The exposure of an entrepreneur in the pineapple cluster served as the 'pipeline' through which the product (MD2 pineapple) and the production techniques were acquired (Bathelt et al, 2004; Morrison, 2008; Guo and Guo, 2011; Balland et al, 2015). Through the entrepreneur and the collaborative efforts of actors in the cluster, the external new knowledge was decoded and made accessible to all processing businesses in the cluster. Nowadays, MD2 is the dominant type of pineapple produced in the pineapple cluster. On the other hand, the artisans in the palm cluster adopt and reproduce imported palm processing technologies in order to make processing machinery accessible to processing businesses in that cluster. Through their interactions with processors, the artisans are able to acquire knowledge and expertise on new technology, which they reproduce at a suitable expect and scale in order to make it more efficient for usage in the palm cluster. The artisans offer an array of designs in various sizes that meet the processing businesses' specifications, in particular, for small- and medium-scale businesses.

The evidence presented contradicts the assertion that the differentiated variety of knowledge and institutional frame may serve as bottlenecks in the transmission of new knowledge and innovation in clusters (Moodysson, 2008; Munari et al, 2011). The various sources and nature of information and knowledge acquired have implications on the ability of businesses to adopt and transmit such information and knowledge. The specific characteristics of an organisation are embedded in any form of knowledge transmitted (Gallié, 2009; Munari et al, 2011; Asheim et al, 2012) and the capacity of the adopting business is necessary to effectively absorb new knowledge (Todtling et al, 2012; Asheim et al, 2012). The comparative study of the successful adoption of external new knowledge into the palm and

pineapple clusters demonstrates that the nature of information and knowledge offers a new angle to the discussions on the absorptive capacity of businesses in clusters. The fact that businesses in the clusters lean towards different sources of information and yet have both intercepted and are adopting externally new knowledge in their operation is critical evidence about knowledge and innovation in clusters. This offers a comparative contribution to the discussions on knowledge transfer and gatekeepers in clusters, specifically in developing economies (Bathelt et al, 2004; Morrison, 2008; Balland et al, 2015).

8.2.3 Clusters' internationalisation and relationships with the external market

Factors sustaining internationalisation activities in the clusters

The evidence reveals that several factors influence exporting activities of processing businesses in the two clusters. These include the ownership structure of processing businesses, the channel of distribution and the exposure of business owners to the international market. The findings show that the palm processing businesses lean towards sub-regional trade while the pineapple cluster concentrates on the international market. The processing businesses in the palm cluster mostly depend on buyers and distributors to supply their products to sub-regional markets. In contrast, the pineapple processing businesses engage directly with their customers, who are mainly in Europe. The differences observed between processing businesses in the two clusters are supported by the relationship these processing businesses have with their distributors or customers in the process of internationalisation.

These findings suggest that processing businesses, particularly in the pineapple cluster, internationalise by acquiring the necessary knowledge of the product market directly or through the efforts of shareholders or multinational companies. This means that the psychic distance of internationalisation had been broken prior to the business setup. Processing businesses in the international market do not always need to gradually learn the market conditions and possible barriers before exporting (Johanson and Vahlne, 1977, 2009). The evidence supports the 'born global' argument on internationalisation by demonstrating how the presence of MNCs and private international investors facilitates the internationalisation processes in agro-processing businesses, in particular, 'born global' businesses which are operating within business clusters in developing economies (Kalinic and Forza, 2012; Dib et al, 2010; Efrat and Shoham, 2012; Krishna et al, 2012).

Fruit processing businesses' perceptions of public sector support towards exports

The processing businesses in the two clusters perceived export-related public sector support as 'minimal to nothing'. However, the same data show that export support does exist in these clusters. The findings appear to show that businesses are interested only in tangible forms of support and any other form of support that cannot be quantified is classified as no support at all.

There is also a high level of mistrust from processing businesses in the cluster towards local politicians. There appears to be high expectations from processing businesses in the two clusters about support for their operations, but these expectations, captured in tangible political promises, are constantly being reneged upon. These continuous disappointments have brought lack of trust in government support programmes. This has affected their perceptions of the support programmes they have received in that they do not recognise their interaction with public sector export-supporting infrastructure in the course of internationalisation as support.

The perceived challenges and failures in public sector institutional support and their effect on internationalisation have been underscored by several scholars in developing economies (Siglitz, 2011; Amoako and Lyon, 2013; Meyer and Peng, 2015). However, some of these negative perceptions are mainly fuelled by inadequate communication and may be a prerequisite for removing possible structural gaps in the relationships between different institutions (Smallbone and Welter, 2012).

8.3   Contributions to Theory

Location-specific peculiarity

This research presents six key contributions to literature. The first contribution primarily focuses on current debates on specific location factors that define the decision of firms to co-locate. The studies on agglomeration posit that the unique or peculiar business condition combined with the socio-cultural environment of the cluster have an effect on the cluster operation. In effect, no two clusters may be the same (Granovetter, 1985; Markusen, 1996; Helmsing, 2002; Becattini, 2002; Motoyama, 2008). Indeed, despite originating from the same economy, the dynamic nature of the two clusters studied sets them apart – from their

emergence to internationalisation. The dominance of strong socio-cultural ties among actors in the palm cluster and the prevalence of weak ties among actors in the pineapple cluster have moulded and influenced the processing businesses activities in these two clusters. This peculiarity has been espoused by extant studies on clusters and embedded in Porter's cluster axiom (Porter, 1998; Martin and Sunley, 2003; Motoyama, 2008). The study contributes to the debate by showing that location-specific factors influence cluster dynamics, particularly in clusters in the same economy in developing economies.

Varying competition and cooperation

The study also adds to the existing knowledge on the role of competition and cooperation in clusters by underscoring how different factors influencing competition and cooperation in two different clusters produce similar results. The key ingredient of clustering has been viewed as the level of rivalry and cooperation (Porter, 2001; Delgado et al, 2014; Galbreath, 2015). Competition and cooperation coexist in a cluster and define its dynamism (Porter, 2000; Martin and Sunley, 2003; Huggins and Izushi, 2011). Different levels of significance have been attributed to the interplay of competition and cooperation by different cluster models and how their presence influences the cluster dynamics (Newland, 2003; Hanna and Walsh, 2008). The contribution of this study is manifested in the examination of the different levels of rivalry and cooperation in two exporting clusters within a developing economy setting.

Minimal levels of horizontal competition and higher levels of vertical cooperation in the pineapple cluster are a result of abundant raw material supply, minimal effect of socio-cultural factors and the direct export by businesses to specific niche markets in Europe. In contrast, the palm cluster's relatively higher levels of horizontal cooperation and higher levels of vertical competition are linked to limited supply of raw materials, strong socio-cultural milieu and the fact that businesses mostly trade in sub-regional markets through distributors.

Presence of parallel institutions

The research further contributes to the literature on the development of parallel institutions in the cluster to complement the apparent failure of existing institutions. The network ties between actors have led to the emergence of social and informal institutions to fill the gap created by institutional weakness in the cluster (Welter and Smallbone, 2006; Smallbone and

Welter, 2012; Hoskisson et al, 2013; Amoako and Lyon, 2013). The presence of 'informal' financial schemes operated by distributors within the palm cluster (which offer financial support to processing businesses) are borne out of the interaction among actors and seek to address a given need of the processing businesses. The embedded social relationships within the palm cluster engendered trust among actors over a period (Granovetter, 1985; Schmitz and Nadvi, 1999; Becattini, 2002; Schilirò, 2012). Trust-based relationships in turn promoted the creation of such 'parallel' institutions as the 'informal' financial institutions. This is against the backdrop that the processing businesses have raised issues of bottlenecks in accessing finance from formal financial institutions (e.g. banks). Processing businesses scored access to finance as the least important factor for locating businesses in the clusters. As a result, the study offers a perspective on the creation of parallel institutions by actors in clusters through trust relations. This contributes to theoretical discussions on how businesses contribute to prompt institutional change; that is, not in isolation but within the context of clustered businesses.

Gatekeepers of knowledge

The study also contributes to theories on external knowledge and knowledge 'gatekeepers' by demonstrating how outward- and inward-looking clusters adopt external knowledge for their operation. Business clusters that are outward looking seem to be more innovative and adopt new knowledge in their operations (Becattini et al, 2010; Asheim, 2012; Todtling et al, 2012), whilst clusters that are outward looking adopt codified knowledge instead (DiGiovanna, 2002; Becattini et al, 2010; Asheim, 2012). The adoption of codified knowledge required an intermediary ('gatekeeper') to decode and transmit the coded knowledge that does not belong to the clustered businesses' repertoire of knowledge (Torre, 2008; Tortoreillo; 2015 Morrison et al, 2015). Even though the pineapple cluster is more outward looking and the palm cluster is more inward looking, the finding revealed that new technology was adopted in both. In the case of the pineapple cluster, this occurred through exposure to the international market and through an entrepreneur through whom the technology was made accessible to other businesses in the cluster. In the palm cluster, 'artisans' served as mediators for processing technology from abroad. Contrary to most of the literature, the pineapple processor moved to Costa Rica and tacitly learnt how to produce the MD2 pineapple and then introduced the knowledge to Ghana (Balland et al, 2013; Maskell, 2015; Tortoreillo; 2015). However, the artisans in the palm cluster created appropriate palm processing technology by imitating technologies from abroad (Leamer and Stopper, 2001; Stopper and Venables, 2004; Gertler

and Levitte, 2005). Thus, the study provides a different perspective on how external knowledge can be transferred into clusters.

Born global vs. traditional internationalisation

The study also contributes to the debate on internationalisation theory by demonstrating that 'born global' and 'gradualist internationalising' businesses are evident in clusters. The traditionalist or gradualist postulation argues that commencement of the internationalisation process requires businesses to address the problem of 'psychic distance' (Johanson and Vahlne, 1977, 2009, 2015; Kalinic and Forza, 2012; Forsgren, 2015; Eriksson et al, 2015). International New Ventures (INV) and the Born Global (BG) theories in turn assert that businesses may internationalise from the onset without the need for a period to overcome such a psychic distance (Oviatt and McDougall, 1994; Bell et al, 2003; Freeman, et al, 2013; Coviello, 2015; Cavusgil and Knight, 2015). The comparative study of the clusters has shown that pineapple processing businesses generally internationalised directly from the onset. This has been attributed to the fact that owners had exposure to these markets before the commencement of the processing activities, and due to the presence of MNCs and private investors partnering local processors in the pineapple cluster. On the other hand, internationalisation in the palm processing cluster required that distributors gradually sought market opportunities in the international market, to which they had no exposure. The fact that the majority of the palm processing businesses produce on a small scale has not been helpful in actively pursuing internationalisation activities. Hence, the pineapple cluster leans towards the BG postulation on internationalisation while the palm cluster relates more towards the traditional school of internationalisation.

Public sector support toward exporting clusters

The role of public sector support for internationalisation is another area of contestation in this study. Support for the internationalisation activities of businesses in developing economies has been confronted by institutional challenges such as corruption, bureaucracy and inefficiency (Amoako, 2012; LiPuma et al, 2013; Lazzarini, 2015). The literature on public sector support for the exporting activities of businesses in clusters has shown mixed results. In one breath, public sector institutions do collaborate and provide export support through their different agencies (Belloc and Di Maio, 2011; Clarke and Ramirez, 2014; Martinovic et al, 2013). However, the actions of public institutions seldomly assist businesses, and their activities are shrouded with institutional bottlenecks and import strategies that are crowding

out potential exporting businesses, particularly in developing economies (Stiglitz, 2007; Amoako and Lyon, 2013; LiPuma et al, 2013). The study shows that, although there is support available for businesses in the two clusters, mistrust between businesses and public sector exporting institutions (and the bureaucracy in sourcing these support packages) has led to processing businesses perceiving public sector support as limited to non-existent. This situation is forcing businesses in the palm cluster to adopt trust-based relationships to create 'parallel' institutions such as the informal financial support scheme to support their operations in the cluster.

8.3.1   Practical implications

The fierce competition observed in the sale of palm fruit to processing businesses in the cluster has implications for the operations of large-scale processing businesses, who seemed more detached from the community in which they operate. This means that, although they may have contractual agreement with farmers, these farmers feel more at ease in diverting fruits to members in their close community who offer direct cash or advance payment for the fruits. Large-scale processing businesses need to either modify their payment arrangement, which at the moment is in the form of a cheque or direct debit, or the payment time frame, which is currently estimated at two to three weeks. This has serious implications for continuous production in lieu of the fact that there is a growing shift towards informal financial systems within the communities in which they operate. This has implications for the supply of fresh fruit bunches to large-scale processing businesses. In order to address this, large-scale processing businesses should modify their strict formal business structures in dealing with farmers. This can be done by bringing the farmer groupings together into an association such that the group will work towards addressing the needs of individual members with support from these large-scale processors. The payment method and period of payment for fresh fruit bunches should change from cheques to cash paid at the point of supply, and regular checks should be carried out to determine the competitive rates in the cluster in order to offer the best price.

The communal nature of processing businesses in the palm cluster could be emulated by the pineapple processing businesses in addressing common problems that pertain to their operations, like land litigation and infrastructural challenges, rather than depending on the promises of political appointees. The implication here is that there is a need for the pineapple

processing businesses to develop a relationship with one another in order to create a more collective force in effectively addressing their operational challenges. This can be achieved by using their existing export assessment point on Blue Skies' premises to create a platform or social grouping through which common challenges confronting these businesses and the cluster can be addressed collectively.

8.3.2   Policy implications

The study has shown that the centralised nature of the Ghana Export Promotion Authority (GEPA) and Ghana Standard Authority (GSA) is perceived as an impediment to the internationalisation activities in the cluster. The implication here is that the processing businesses in both clusters are unable to access the support programmes available for export. These support services could be important since they offer businesses the opportunity to liaise with external networks, which this study has identified as a critical element of the internationalisation process. To facilitate the exporting activities at the district and municipal levels, a more decentralised form of public sector institution should be made available through the Business Advice Centres (BAC), similar to how business registrations are carried out. Representatives from both GEPA and FDA could be made to share facility and logistics with the BAC in all the districts. By so doing, the centre would become a one-stop shop for all businesses seeking advice and technical support for exporting.

The presence of clusters that are experiencing output growth despite the distinctive differences in their levels of cooperation and competition and socio-cultural environments is relevant to spatial policy discussions. This is because discussions on the use of spatial policy in dealing with inequality in regions point to spatial differentiation as a key factor (Hausmann and Rodrik, 2003; OECD, 2009, 2014). This is also because 'cluster', as a policy tool, is not cast in stone (Martin and Sunley, 1996; Martin 1999; Motoyama, 2008; Storper, 2011). Therefore, the findings have greater implications for a developing economy like Ghana which may want to consider cluster policy in addressing imbalances in the country. In particular, the study offers a compelling perspective on how different clusters with unique spatial organisation are able to produce similar results in terms of processing businesses' output growth. This has significant implication for Hausmann and Rodrik's (2003) argument about 'self-discovery' at the micro level. Clustered businesses harnessed their peculiar potential within the environment in which they operate so as to sustain their operations and grow their

outputs. As a result, the study draws policy makers' attention to the role of spatial theory in the developmental process and recommends that the unique socio-cultural and economic characteristics of a place should be harnessed in order to unearth potential, rather than modify locations.

Furthermore, the study combined spatial organisation with internationalisation within an unstable institutional environment. Bearing in mind that most theories on spatial organisation are modelled within more functioning and stable institutional structures of development (Sepulveda, 2008; Ibeh, et al, 2011; Coenen, 2015), the study provides a compelling argument for policy consideration in developing economies. Cluster-based policy adopted in developing economies should incorporate or be cognisance of internationalisation strategies that meet the needs of the cluster. This is because theories on spatial organisation do not appear to address internationalisation of firms (Krugman, 2011; Kuwahata, 2015; Pradhan and Das, 2016). The findings thus provide a platform to push the policy discussion on spatial organisation and exporting activities of businesses in developing economies forward. Policy developments that can be implemented are as follows:

- Establishment of export development units within clusters to coordinate exporting activities of small-scale palm processing businesses in order to improve the value of their outputs.

- Setting up of a more functioning BAC that has FDA and GEPA units in each district in order to encourage small business entrepreneurs to strive for quality that meets the international market requirements.

Finally, in regards to SME policy, the implication is particularly clear in the palm processing cluster, where over 80% of the processing businesses are small-to-medium enterprises whose operations have a wider communal operation in a more rural economy. There is a need for regulatory measures on palm processing distributors in the sub-region to avoid exploitation of processing SMEs by enticing them with ready cash before the fruits are even purchased for processing. Particularly, in the case of out-growers contracted by large-scale operators, the situation may lead to an ideal production time and raise their operation costs. The implication in monitoring the distribution stage means that SMEs can be offered better pricing for their

product and by so doing this could increase the incomes of these local farmers and processors.

Evidence shows that these SMEs and distributors hardly seek assistance from product standard authorities (FDA or GSA) and therefore critical issues in the palm business such as the prevalence of 'Sudan four dye' and free fatty acid levels are not monitored. This can and does have serious implications for regional trade, since there are serious health risks associated with selling palm oil that has not been checked to meet the required standards. The government must task and resource the FDA and the GSA to clamp down on the sale and distribution of non-standardised palm oil from Ghana which could damage the international reputation of local clusters.

8.4   Limitations

Access to information

This study has a number of limitations. The first limitation relates to access to information. The processing businesses' database used in the study was obtained from the Eastern Regional branch of the National Board for Small Scale Industry (NBSSI), Business Advisory Centres (BAC), and the Ministry of Trade and Industry (MoTI). However, the database does not constitute an exhaustive list of all businesses located within the two case study areas. Hence, therefore, any generalisation is limited to the businesses recorded in this database.

There were other limitations in the interview collection, particularly with public sector institutions such as the FDA and GEPA, which objected to the use of audio recorders. As a result, the research had to directly document the interview sessions, which meant that only summaries were captured on the spot. This affected the depth of information acquired from these public sector institutions.

Access to participants

There were also issues of access to the case study areas. Problems include unmotorable roads, particularly in the palm cluster, which impeded the smooth collection of interview data. The case in point is the road from Kade to the Oil Palm Research Institute, which led to the cancellation of two appointments because the road flooded, which made it impossible for the researcher to contact the participant in the field. The interview location had to be rescheduled in a suitable environment at the participant's convenience before the interview could be

conducted. It is for these reasons that telephone surveys were conducted. The road network therefore limited the researcher's ability to visit the clusters thoroughly in order to gain a more holistic appreciation of its operation.

Methodology

Additionally, the study could be methodologically criticised on the two-stage approach (concurrent sampling technique), which uses semi-structured interviews and a questionnaire. While there was a degree of control on the selection of interviewees in the semi-structured interviews, this was not the case for the selection of the respondents for the survey questions. Nonetheless, the adoption of a telephone survey technique, due to issues of language and distance, meant that those randomly chosen respondents had a clear understanding of the questions asked and the survey was completed by the intended people.

The different representation of respondents in the two study areas – palm case 82 and pineapple case 17 – can be also subjected to criticisms. However, compared to the sample size and subjected to Yamane's (1967) formula for determining representative sample size, the sample disparity has a minimal effect on the study. However, since the categorisation could affect the mean average of the various statistical calculations made, a non-parametric test was used in order to minimise the effects in the findings (Field, 2012).

The adoption of the case study approach used in the study may also be seen as a limitation. The adoption of case studies reduces the study's scientific generalisability (Yin, 2009). The presence of the researcher as an active participant in the research brings with it perceived subjectivity, which has the potential to cause bias. Nonetheless, the research questions aimed at understanding why clustered processing businesses are internationalising required a case study (Creswell, 2014). I was aware of these potential biases and therefore adopted the mixed research design of both deductive and inductive approaches in collection, analysis and presentation of the findings in order to reduce my subjective influence on the study.

8.5   Suggestions for Future Research

The study focused on exporting clusters and the factors that drive their exporting activity. The research was limited in explaining the reasons why other processing businesses within the clusters are not exporting. There is therefore the need for research to understand the possible hindrance to processing businesses export. This can help policy makers and trade

support institutions offer support that is direct and relatable to processing businesses in their exports.

The study of processing business internationalisation in the clusters examined the relationships along the supply chain of businesses in the two study areas without considering other exogenous variables. These exogenous variables may include fuel price fluctuation, recent electricity crises, changes in government policy and international market demand. A study examining the effect of exogenous variables on the operations of these clusters would be beneficial to new entrepreneurs wanting to start up in the cluster.

Furthermore, the study adopts inter-cluster comparison within the same economy. The examination of literature has shown that there are few literary works on inter-cluster comparison in the same economic setting. Therefore, further research into comparing cluster operations and internationalisation in a developing economy can help increase the pool of literature to support cluster policy in developing economies.

In addition, the findings showed that 92% of the entrepreneurs or owners of these processing businesses were male. The population data on the Ghanaian economy shows that overall there are more females than males. Studies have also shown that females are the breadwinners in most homes and are key to alleviating poverty. Therefore, further research to ascertain the role women play in the two clusters will be essential to support policy decisions.

REFERENCES

Abor, J. & P. Quartey (2010). "Issues in SME Development in Ghana and South Africa". *International Research Journal of Finance and Economics*, 39. Available from http://www.eurojournals.com/irjfe_39_15.pdf. (Accessed on 29/10/2012)

Acedo F. J. and Galán J. L. (2011). "Export stimuli revisited: The influence of the characteristics of managerial decision makers on international behaviour". *International Small Business Journal* 29(6) 648–670

Adewale, A. R. (2012) "Does Import Substitution Industrialisation Strategy Hurt Growth?: New Evidence from Brazil and South Africa". *African and Asian Studies*, Volume 11, Issue 3, pages 288-314, Online ISSN: 1569-2108, http://dx.doi.org/10.1163/15692108-12341235 (Accessed, 18/11/2013)

AFDB (2005). Ghana Export Marketing and Quality Awareness Project Appraisal Report African development fund http://www.afdb.org/fileadmin/uploads/afdb/Documents /Project-and Operations/ganah_0222.pdf (Accessed on 7/3/13)

Ahammad, Mohammad Faisal, Shlomo Yedidia Tarba, Yipeng Liu, and Keith W. Glaister. "Knowledge transfer and cross-border acquisition performance: The impact of cultural distance and employee retention." *International Business Review* 25, no. 1 (2016): 66-75.

Alfaro, A. L., Bizuneh, G., Moore, R., Ueno, S., & Wang, R. (2012). South Africa: Automotive Cluster. http://www.isc.hbs.edu/pdf/Student_Projects/2012% 20MOC% 20Papers/MOC%20 South%20Africa%20Automotive%20Final.pdf (Accessed 13/06/2013)

Al-Hyari, K. Al-Weshah, G. and Alnsour, M (2012). "Barriers to internationalisation in SMEs: Evidence from Jordan". *Marketing Intelligence & Planning,* Vol. 30 No. 2, pp. 188-211

Altenburg, T. (2011). Industrial policies in developing countries, overview and lessons from seven countries cases. Discussion Paper / Deutsches Institut für Entwicklungspolitik ISSN 1860-0441

Altenburg, T and Meyer-Stamer, J. (1999). "How to Promote Cluster: Policy Experiences from Latin America". World Development Vol. 27, No.9, pp. 1693-1713

Amal M. and Filho A. R. F. (2009) "Internationalization of small- and medium-sized enterprises: a multi case study". *European Business Review* Vol. 22 No. 6, 2010 pp. 608-623

Amin, A and Cohendet, P (1999) "Learning and Adaptation in Decentralised Business Networks". *Environment and Planning* , Vol 17, pp 87-104

Amin, A and Thrift, N. (1992) "Neo—Marshallian Nodes in Global Networks". *International Journal of Urban and Regional Studies*. Vol. 16, No 4

Amoako, I. O., & Lyon, F. (2014; 2013). "'We don't deal with courts': Cooperation and alternative institutions shaping exporting relationships of small and medium-sized enterprises in Ghana". *International Small Business Journal*, 32(2), 117-139.

Anderson, T., Hansson, E., Serger, S. S., and Sorvik, J. (2004) "The cluster policy whitebook. International Organisation for Knowledge Economy and Enterprise Development", IKED, Sweden.

Andersen, O. (1993). "On the internationalization process of firms: A critical analysis". *Journal of International Business Studies,* 24(2): 209–232.

Andersson, S. (2000). The internationalization of the firm from an entrepreneurial perspective. *International Studies of Management & Organization*, 63-92.

Angelucci F. (2013) Analysis of incentives and disincentives for palm oil in Ghana.Technical notes series, MAFAP, FAO, Rome. http://www.fao.org/3/a-at550e.pdf (accessed 16/11/2015)

Antwi-Asare, T. O., and Addison, E. K. Y. (2000). Financial Sector Reforms and bank Performance in Ghana, Overseas Development Institute.

Arndt, C., Buch, C. M. and Mattes, A. (2012) "Disentangling barriers to Internationalization Canadian" *Journal of Economics*, Vol. 45, No. 1

Artz, G. M., Kim, Y., & Orazem, P. F. (2016). "Does agglomeration matter everywhere?: new firm location decisions in rural and urban markets*". *Journal of Regional Science*, *56*(1), 72-95.

Aryeetey E., J. Harrigan and M. Nissanke (Ed), (2000) Economic Reforms in Ghana: The Miracle and the Mirage, Woeli Publishing Services, Accra

Aryeetey, E. and Kanbur, R. (eds) (2008) The Economy of Ghana; Analytical Perspectives on Stability, Growth & Poverty. Woeli Publishing Services, Accra

Asare, R., Akuffobea, M., Quaye, W., & Atta-Antwi, K. (2015). "Characteristics of micro, small and medium enterprises in Ghana: gender and implications for economic growth". *African Journal of Science, Technology, Innovation and Development*, *7*(1), 26-35.

Asheim B. (2001) Localised Learning, Innovation and Regional Clusters. in Mariussen A. (2001) Cluster Policies – Cluster Development? : A contribution to the analysis of the new learning economy. Nordregio 2001:2, Stockholm, Sweden.

Asheim, B (2009). "Guest Editorial: Introduction to the Creative Class in European". *City Regions*, vol. 85(4):355–362.

Asheim, B. (2012). The changing role of learning regions in the globalizing knowledge economy: A theoretical re-examination. *Regional Studies*, *46*(8), 993-1004.

Asheim B., Boschma R. and Cooke P. (2011a). "Constructing Regional Advantage: Platform Policies Based on Related Variety and Differentiated Knowledge Bases", *Regional Studies*, Vol. 45.7,

pp. 893–904, July 2011

Asheim, B., Smith H. L. and Oughton C.(2011b). "Regional Innovation Systems: Theory, Empirics and Policy", *Regional Studies*, Vol. 45.7, pp. 875–891

Asheim, B. and Hansen, H. K. (2009). "Knowledge Bases, Talents, and Contexts : On the Usefulness of the Creative Class Approach in Sweden". *Economic Geography* 85(4):425–44

Asleigh M. J. and Meyer E. (2012). "Deeepening the Understanding of Trust: combining repertory grid and narrative to explore the uniqueness of trust", p138-148 in Lyon F., Mollering G, and S M. N. K. (Ed) *Handbook of Research Methods on Trust*. Edward ElgarPublishing Ltd, UK

Autio, E. (2005) "Creative tension: The significance of Ben Oviatt's and Patricia McDougall's article ''Toward a theory of international new ventures''. *Journal of International Business Studies*, 36(1): 9–19.

Audia, P. G. and Rider, C. I. (2010). "Close, but not the same: Locally headquartered organizations and agglomeration economies in a declining industry", *Research Policy*, Volume 39, Issue 3, Pages 360-374,

Ayakwah, A. (2011). *An assessment of the effects of Ghana's trade policy on agro-processing SMEs in the Eastern Region* (Doctoral dissertation, School of Graduate Studies, Kwame Nkrumah University of Science and Technology)

Ayakwah, A. and Mohammed J. (2014). "Fuel Price Adjustments And Growth Of SMES In The New Juaben Municipality, Ghana", *International Journal of Small Business and Entrepreneurship* Research Vol.2, No.3, pp. 13-23, September 2014

Baah-Nuako, A. (1997) Studies on the Ghanaian Economy: Volume 1, "Pre-Revolutionary" Years. Ghana University Press, Accra

Baah-Boateng W. (2008). How has the Private Sector Fared in Ghana's Employment Generation Agenda? Ghana society of development dialogue publication *The New Legon Observer*, Vol. 2 no. 10. http://www.csr-weltweit.de/uploads/tx_jpdownloads/Christine_Dowuona-Hammond_Raymond_A_Atuguba_Ghana_.pdf (Accessed 7/3/2013)

Balabanis, G. I. (2000) "Factors affecting intermediate service offerings: the British examples". *Journal of International Business Studies,* 31(1), 83-99

Baldwin, R. (2011) Trade and industrialization after globalization's second unbundling: How building and joining a supply chain are different and why it matters. *NBER WORKING PAPER SERIES*, http://www.nber.org/papers/w17716

Baldwin, R. E., & Evenett, S. J. (2015). "Value creation and Trade in 21st Century Manufacturing". *Journal of Regional Science*, *55*(1), 31-50.

Balland, P. A., De Vaan, M., & Boschma, R. (2013). "The dynamics of interfirm networks along the industry life cycle: The case of the global video game industry, 1987–2007". *Journal of*

Economic Geography, *13*(5), 741-765.

Balland, P. A., Belso-Martínez, J. A., & Morrison, A. (2015). "The dynamics of technical and business knowledge networks in industrial clusters: embeddedness, status or proximity?". *Economic Geography*, 1-26.

Balland, P. A., Boschma, R., & Frenken, K. (2015). "Proximity and innovation: from statics to dynamics". *Regional Studies*, *49*(6), 907-920.

Basile, R., Pittiglio, R., & Reganati, F. (2016). "Do Agglomeration Externalities Affect Firm Survival?". *Regional Studies*, 1-16

Bathelt, H. , Malmberg A. and Maskell P. (2004) "Clusters and knowledge: local buzz, global pipelines and the process of knowledge creation Progress" *Human Geography* 28,1 (2004) pp. 31–56

Becattini, G. (2002a). "From Marshall's to the Italian "Industrial Districts". A Brief Critical Reconstruction". In Complexity and Industrial Clusters (pp. 83-106). Physica-Verlag HD

Becattini, G. (2002b) "Industrial Sector and Industrial Districts: Tools for Industrial Analysis". *European Planning Studies*, Vol. 10, No. 4

Becattini G., Bellandi M. and. De Propris. L (2010) Critical nodes and contemporary reflections on industrial districts, *Regional Studies Association Annual International Conference 2010* Monday 24th – Wednesday 26th May 2010 Regional Responses And Global Shifts: Actors, Institutions And Organisations

Behrens, C. and Robert-Nicoud, F. (2009) "Krugman's Papers in Regional Science: The 100 dollar bill on the sidewalk is gone and the 2008 Nobel Prize well-deserved Papers" in *Regional Science*, Vol. 88 N0.2

Behrens, K., & Thisse, J. (2007). "Regional economics: A new economic geography perspective". Regional Science & Urban Economics, 37(4), 457-465. doi:10.1016/j.regsciurbeco.2006.10.001

Bekele, G. W. and Jackson, R. W (2006) Theoretical perspectives on industry clusters. Morgantouwn: Regional Research Institute/West Virginia University, mai. 21 p. Disponível em: http://www.rri.wvu.edu/pdffiles/bekelewp2006-5.pdf (Accessed 4/2013)

Bell, J., Crick, D. & Young, S. (2004). "Small firm internationalization and business strategy. An Exploratory Study of 'Knowledge-intensive' and 'Traditional' Manufacturing Firms in the UK*". International Small Business Journal*. SAGE Publications, London Vol 22(1): 23–56

Bell, J., McNaughton R., Young, S. and Crick D. (2003) "Towards an integrative model of small firm internationalisation", *Journal of International Entrep*. 1, 339-362

Belloc, M. and Di Maio, M. (2011) Survey of the literature on successful strategies and practices for export promotion by developing countries, International Growth Centre. *Working Paper*

11/0248 June 2011

Bellandi, M. (2002) "Italian Industrial Districts: An Industrial economics Interpretation". *European Plan*

Bellandi, M. (2006) "A Perspective on Clusters, Localities and Specific Public good. Development of Urban and Regional Economies". p. 215 – 231 in Pitelis, C., Sugden, R. and Wilson J. R (eds) (2006) *Cluster And Globalisation. The Development of Urban and Regional Economies*. Edward Elgar.UK

Belussi, F. (2015). "The international resilience of Italian industrial districts/clusters (ID/C) between knowledge re-shoring and manufacturing off (near)-shoring". *Investigaciones Regionales*, (32), 89

Bhatti, M. A. and Kumar, M. D. (2012) "Internationalization factors and entrepreneurial perception: Indication from Yemen SME'S", *Far East Journal of Psychology and Business* Vol. 6 No. 1 January 2012

Bienkowska, D., Lundmark, M., & Malmberg, A. (2011). "Brain circulation and flexible adjustment: Labour mobility as a cluster advantage". *Geografiska Annaler: Series B, Human Geography*, *93*(1), 21-39.

Bilkey, W. J. & Tesar, G. (1977). "The export behavior of smaller Wisconsin manufacturing firms". *Journal of International Business Studies*, 9 (Spring/Summer): 93-98

Bin, G., & Guo, J. (2011). "Patterns of technological learning within the knowledge systems of industrial clusters in emerging economies: Evidence from china". Technovation, 31(2/3), 87-104. doi:10.1016/j.technovation.2010.10.006

Bjurulf, S., Vedung, E., Larsson, C. G., Karlstads universitet, Centrum för tjänsteforskning, & Fakulteten för humaniora och samhällsvetenskap (from 2013). (2013). A triangulation approach to impact evaluation. *Evaluation, 19*(1), 56-73.

Blaug, M. (1985) *Economic Theory in Retrospect. Cambridge*: Cambridge University Press. (1985a), Economic Theory in Retrospect, 4th ed., Cambridge

Boone, C. (2014). *Property and political order in Africa: Land rights and the structure of politics*. Cambridge University Press.

Bloodgood, J. M., Sapienza, H. J., & Almeida, J. G. (1996). "The internationalization of new high-potential U.S. ventures: Antecedents and outcomes". *Entrepreneurship Theory and Practice, 20*(4), 61–76.

Borgatti, S. P. and Halgin, D. S. (2011) "On Network Theory", *Journal of Organisation Science*, Vol 22, 1157 – 1167

Boja, C. (2011) "Clusters Models, Factors and Characteristics" *International Journal of Economic Practices and Theories*, Vol. 1, No. 1, 2011 (July)

Boschma, R. A., & Frenken, K. (2006). "Why is economic geography not an evolutionary science? Towards an evolutionary economic geography". Journal of economic geography, 6(3), 273-302.

Boschma, R. A., & Ter Wal, A. L. (2007). "Knowledge networks and innovative performance in an industrial district: the case of a footwear district in the South of Italy". *Industry and Innovation*, *14*(2), 177-199.

Boschma, R., Eriksson, R. H., & Lindgren, U. (2014). "Labour market externalities and regional growth in Sweden: the importance of labour mobility between skill-related industries". Regional Studies, 48(10), 1669-1690.

Boso, N., Story, V. M., & Cadogan, J. W. (2013). "Entrepreneurial orientation, market orientation, network ties, and performance: Study of entrepreneurial firms in a developing economy". *Journal of Business Venturing*, *28*(6), 708-727.

Bowleg, L., Fielding, N., Maxwell, J., & Molina-Azorin, J. F. (2016). The Future of Mixed Methods: A Five Year Projection to 2020.

Brennan, L. and Garvey, D.(2009) "The role of knowledge in internationalization", Research in *International Business and Finance*, Volume 23, Issue 2, Pages 120-133

Brakman S. and Garretsen H. (2009) "Trade and Geography: Paul Krugman and the 2008 Nobel Prize for Economics", *Spatial Economic Analysis*, Vol. 4, No. 1, 5 — 23

Brass, D. J. (2001). "Social capital and organizational leadership. The nature of organizational leadership": Understanding the performance imperatives confronting today's leaders, 132-152.

BraunV. And Clark V. (2006) "Using Thematic analysis in Psychology", Qualitative research in *psychology,* 3, 77-101

Brusco, S. 1982. "The Emilian model: productive decentralization and social integration". Cambridge *Journal of Economics* 6: 167-184.

Bryman and Bell (2010) *Business Research Methods* 3rd Ed Oxford Community Publication, London

Buckley, P. J. (2016). The contribution of internalisation theory to international business: New realities and unanswered questions. *Journal of World Business*, *51*(1), 74-82.

Burns, P. (2011). *Entrepreneurship and Small Business*, Third Edition, Basingstoke, Palgrave Macmillan

Butler, D. (2000). *Business planning: A guide to business start-up*. Oxford: Butterworth-Heinemann.

Cai, Y., & Liu, C. (2015). "The roles of universities in fostering knowledge-intensive clusters in Chinese regional innovation systems". *Science and Public Policy*, *42*(1), 15-29.

Cairncross, F. (2001). *The death of distance* 2.0: How the communications revolution will change our

lives" ([2nd]. ed.). London: Texere.

Carbonara, N. (2002). "New Model of Inter-firm Networks within Industrial Districts". *Entrepreneurship & Regional Development*, 14, 229-246

Casillas, J. C., Acedo F. J., Barbero, J. L. (2010). "Learning, unlearning and internationalisation: Evidence from the pre-export phase", *International Journal of Information Management*, Volume 30,

Casillas J. C. and Acedo F. J. (2013). "Speed in the Internationalization Process of the Firm" *International Journal of Management Reviews, Vol. 15, 15–29 (2013)*

Cassell, C. and Symon G. (2004), Essential Guide to Qualitative Methods in Organisational Research, London: Sage

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Cesinger, B. and Kraus S. (2012) "The pre-export model: prospects for research on rapidly internationalizing ventures?" *international journal of business research*, volume 12, number 3, 2012 p 17- 26

CEDEFOP (2008) Terminology of vocational training policy – A multilingual glossary for an enlarged Europe, *European Centre for the Development of Vocational Training Luxembourg*. http://www.cedefop.europa.eu/en/Files/4064 EN.PDF (Assessed 20/06/2013)

Cassell C. M. and Symon G. (2004) *Essential guide to qualitative methods in organisational research*, London, Sage publications

Cavusgil, S. T., & Knight, G. (2015). "The born global firm: An entrepreneurial and capabilities perspective on early and rapid internationalization". *Journal of International Business Studies*, *46*(1), 3-16.

Chen, P. L., & Tan, D. (2016). "Foreign knowledge acquisition through inter-firm collaboration and recruitment: Implications for domestic growth of emerging market firms". *International Business Review*, *25*(1), 221-232

Child, D. (2006). *The essentials of factor analysis*. (3rd ed.). New York, NY: Continuum International Publishing Group.

Clarke I, Ramirez M, 2014, "Intermediaries and capability building in 'emerging' clusters" *Environment and Planning C: Government and Policy* **32**(4) 714 – 730

Coad, A., Segarra, A., & Teruel, M. (2016). "Innovation and firm growth: Does firm age play a role?". *Research Policy*, *45*(2), 387-400.

Cole, M. A., Elliott, R. J., & Virakul, S. (2010). "Firm heterogeneity, origin of ownership and export participation". *The World Economy*, 33(2), 264-291.

Combes, P., & Duranton, G. (2006). "Labour pooling, labour poaching, and spatial clustering". *Regional Science and Urban Economics, 36*(1), 1-28. doi:10.1016/j.regsciurbeco.2005.06.003

COMCEC (2013) Promoting The SMEs Exports In The OIC Member Countries. *Standing committee for economic and commercial cooperation of the organisation of Islamic cooperation.* www.comcec.org/UserFiles/File/WorkingGroups/Trade/Promoting_the_SMEs_Exports_in_the_OIC_Member_States 13.06.2013.pdf (accessed 20/08/2013)

Cooke, P. (2001) "Clusters as Key Determinants of Economic Growth": The Example of Biotechnology. in Mariussen A. (2001) Cluster Policies – *Cluster Development? : A contribution to the analysis of the new learning economy*. Nordregio 2001:2, Stockholm, Sweden.

Cotelo, F. C., Hermann, B. M., & Goldbaum, S. (2015). Mr Krugman and the geographers: an unequal struggle in the field of economic geography.

Comrey, L. A. and Lee, H. B. (1992). A first course in factor analysis (2nd edition). Hillside, NJ: Lawrence Erlbaum Associates.

Coviello, N. (2015). "Re-thinking research on born globals". *Journal of International Business Studies*, *46*(1), 17-26.

Coviello, N. E. (2006) "The network dynamics of international new ventures", *Journal of International Business Studies* (2006) 37, 713–731

Cowling K. and Tomlinson P. R. (2011) "Post the 'Washington Consensus': economic governance and industrial strategies for the twenty – first century". *Cambridge Journal of Economics* 2011, 35, 831 – 852. Oxford University Press

Creswell J. W (2014) *Research Design: Qualitative and Quantitative and Mixed Methods*. International student edition. Sage Publication. London

Cuervo-Cazurra, A.(2011) "Selecting the country in which to start internationalization: The non-sequential internationalization model", *Journal of World Business*, Volume 46, Issue 4, Pages 426-437

David, L. L., Pritchett, L., Rodrik, D. and Eckaus R. S. (2002) "What's the Big Idea? The Third Generation of Policies for Economic Growth with Comments". *Economía.* Vol. 3, No. 1, pp. 1-39

Das, D. K. (2009). "South-South trade: beyond geography". *Economic Affairs*, 29(1), 86-88. doi:10.1111/j.1468-0270.2009.01875.x

Delgado, M., Porter, M. E., & Stern, S. (2014). *Defining clusters of related industries* (No. w20375). National Bureau of Economic Research.

Delgado, M., Porter, M. E., & Stern, S. (2014). "Clusters, convergence, and economic performance". *Research Policy*, *43*(10), 1785-1799

De Propris, L., Menghinello, S. and Sugden, R. (2008) "The internationalisation of production systems: embeddedness, openness and governance". *Entrepreneurship & Regional Development*, 20, 493–515

Dib, Luis Antonio, da Rocha, Angela and da Silva, Jorge Ferreira (2010), "The internationalization process of Brazilian software firms and the born global phenomenon: Examining firm, network, and entrepreneur variables ", *Journal of International Entrepreneurship*, 8, (3), 233-253

Digiovanna, S. (1996): "Industrial Districts and Regional Economic Development": A Regulation Approach, *Regional Studies*, 30:4, 373-386

Di Giacinto, V., Gomellini, M., Micucci, G., & Pagnini, M. (2013). "Mapping local productivity advantages in Italy: industrial districts, cities or both?".*Journal of Economic Geography*, lbt021

Di Maio, M. (2011) Experiences with Strategies and Practices for Export Promotion in Developing Countries and Some Implementation Issues with the Sierra Leone NES; Belloc, M. and Di Maio, M. (2011) Sierra Leone's National Export Strategy: Implementation Issues and Recommendations, IGC Working Paper 11/1018

Dirk De Clercq D. D., Harry J. Sapienza H. J. Yavuz R. and Zhou L. (2012) "Learning and knowledge in early internationalization research: Past accomplishments and future directions", J*ournal of Business* Venturing Volume 27, Issue 1, January 2012, Pages 143–165

Dickson K. B. and Benneh G. (1994) *A New Geography of Ghana*, Longman; London

Dunning J. H. (1988) "The Eclectic Paradigm of International Production: a Restatement and Some Possible Extension", *Journal of International Business Studies*, Spring 1988

Dunning, J. H. (2014). "Location and the multinational enterprise: a neglected factor?". In *Location of International Business Activities* (pp. 35-62). Palgrave Macmillan UK.

Dzanku, F. M. (2015). Household-specific food price differentials and high-value crop production in rural Ghana. *Food Policy*, *57*, 73-82.

Efrat, K. and Shoham, A. (2012) Born global firms: The differences between their short- and long-term performance drivers, Journal of World Business, Volume 47, Issue 4, , Pages 675-685

Eisingerich, A. B., Bell, S. J. and Tracey, P. (2009) "How can clusters sustain performance? The role of network strength, network openness, and environmental uncertainty", *Research Policy*, Volume 39, Issue 2, March 2010, Pages 239-253

Enright, M. J. (2000). "The globalization of competition and the localization of competitive advantage: policies towards regional clustering". In *The globalization of multinational*

enterprise activity and economic development(pp. 303-331). Palgrave Macmillan UK.

Eriksson, K. Johanson, J. and Majkgaird A. (1997) "Experiential Knowledge and Cost in the Internationalization Process", *Journal Of International Business Studies*, Second Quarter 1997

Eriksson, R., Lindgren, U., & Malmberg, G. (2008). "Agglomeration mobility: effects of localisation, urbanisation, and scale on job changes". *Environment and Planning A*, *40*(10), 2419-2434

Eriksson, R., & Lindgren, U. (2009). "Localized mobility clusters: impacts of labour market externalities on firm performance". *Journal of Economic Geography*, *9*(1), 33-53.

Eriksson, K., Johanson, J., Majkgård, A., & Sharma, D. D. (2015). "Experiential Knowledge and Cost in the Internationalization Process". In *Knowledge, Networks and Power* (pp. 41-63). Palgrave Macmillan UK.

European Union (2012) Internationalisation of business investments in R&D Directorate General for Research and Innovation

Evans, D. & Alizadeh, P. (1984): "Trade, industrialisation, and the visible hand", *The Journal of Development Studies*, 21:1, 22-46

Fan, C. C. and Scott, A. J. (2003) "Industrial Agglomeration and Development: A Survey of Spatial Economic Issues in East Asia and a Statistical Analysis of Chinese". *Regions Economic Geography* 79(3): 295–319, 2003

FAOSTATS, United Nations Food and Agriculture Organisation Statistical Databases (2009), <http://faostat.fao.org/site/639default.aspx> (Accessed .13).

Felipe, J. (2015). Modern industrial policy. *Development and Modern Industrial Policy in Practice: Issues and Country Experiences*, 1.

Felzensztein, C., Gimmon, E., & Aqueveque, C. (2012). "Clusters or un-clustered industries? Where inter-firm marketing cooperation matters". *Journal of Business & Industrial Marketing*, *27*(5), 392-402

Fingleton B. and Fischer M. M. (2010) "Neoclassical theory versus new economic geography: competing explanations of cross-regional variation in economic development" *Ann Reg Sci* (2010) 44:467–491

Fold, N., & Whitfield, L. (2012). *Developing a palm oil sector: the experiences of malaysia and ghana compared* (No. 2012: 08). DIIS Working Paper.

Forsgren M. (2002) "The concept of learning in the Uppsala internationalization process model: a critical review", International Business Review 11 (2002) 257 – 277. Elsevier Science Ltd

Forsgren, M. (2015). "The Concept of Learning in the Uppsala Internationalization Process Model: A Critical Review". In *Knowledge, Networks and Power* (pp. 88-110). Palgrave Macmillan UK.

Fosu, A. and Aryeetey, E. (2008) Ghana Post-Independence Economic Growth: 1960-2000. in Aryeetey, E. and Kanbur, R. (eds) *The Economy of Ghana; Analytical Perspectives on Stability, Growth & Poverty.* Woeli Publishing Services, Accra

Figueiredo, O. Guimarães, P. Woodward, D. (2009) "Vertical disintegration in Marshallian industrial districts" *Regional Science and Urban Economics*, Volume 40, Issue 1, January 2010, Pages 73-78

Freixanet, J. (2012) "Export promotion programs: Their impact on companies' internationalization performance and competitiveness", *International Business Review* Volume 21, Issue 6, December 2012, Pages 1065–1086

Freeman, S., Deligonul, S. and Cavusgil, T.(2013) "Strategic re-structuring by born-globals using outward and inward-oriented activity". *International Marketing Review* Vol. 30 No. 2, 2013 pp. 156-182

Fujita, M. and Thisse, J. (2009) New Economic Geography: An appraisal on the occasion of Paul Krugman's 2008 Nobel Prize in Economic Sciences. Regional Science and Urban Economics 39 109–119

Fujita, M., & Thisse, J. F. (2013). *Economics of agglomeration: cities, industrial location, and globalization*. Cambridge university press.

Fukunishi, T. (2013) *Delivering Sustainable Growth in Africa* [online]: Africa farmers and firms in a changing world, Palgrave Macmillan UK. Online source https://books.google.co.uk/books?isbn=1137377828 (accessed 16/11/2015)

Galbreath, J. (2015). "To cooperate or compete? Looking at the climate change issue in the wine industry". *International Journal of Wine Business Research*, *27*(3), 220-238.

Geldes, C., Felzensztein, C., Turkina, E., & Durand, A. (2015). "How does proximity affect interfirm marketing cooperation? A study of an agribusiness cluster". *Journal of Business Research, 68*(2), 263-272. doi:10.1016/j.jbusres.2014.09.034

Galvez-Nogales E. (2010) Agro-based clusters in developing countries: staying competitive in a globalized economy. *Agricultural Management, Marketing and Finance Occasional Paper No. 25. Food and Agriculture Organization of the United Nations*: Rome

Geldes, C., Felzensztein, C., Turkina, E., & Durand, A. (2015). "How does proximity affect interfirm marketing cooperation? A study of an agribusiness cluster". *Journal of Business Research*, *68*(2), 263-272.

Gephart, R. (2004) "From the Editors and the Academy of Management" Journal. Academy of Management Journal, 47(4) 454-462

GEPC Export report (2012) The Annual Export Report of Ghana Export Promotions Council, 15 April, 2013

Gereffi, G., & Lee, J. (2016). "Economic and social upgrading in global value chains and industrial clusters: Why governance matters". *Journal of Business Ethics*, *133*(1), 25-38.

Giuliani, E. (2007). The selective nature of knowledge networks in clusters: evidence from the wine industry. *Journal of economic geography*, *7*(2), 139-168.

Ghana Statistical Service (GSS). *2010 population and Housing Census: Summary report of final results, The GSS*, Accra, 2010

Ghana Statistical Service (GSS). *2002 population and Housing Census:* Summary report of final results, The GSS, Accra, 2002

Ghana Districts.com, Akuapim South Municipal Assembly and Kwaebibirem District http://www.ghanadistricts.com/districts1on1/kwaebibirem/?arrow=dnf&_=72&r=4&rlv=towns (Accessed on 3/2/2013)

Ghana Business News (2015) Ghana agriculture sector growth rate on downward trend https://www.ghanabusinessnews.com/2015/11/14/ghana-agriculture-sector-growth-rate-on-downward-trend/

GNA (2012) *NBSSI business advisors undergo training* http://www.spyghana.com/nbssi-business-advisors-undergo-training/ (accessed on 1/2/2013)

Gerefi, G. (1989). "Development Strategies and the Global Factory". *The ANNALS of the American Academy of Political and Social Science* September 1989 505: 92-104

Gertler, M. S., & Levitte, Y. M. (2005). "Local nodes in global networks: the geography of knowledge flows in biotechnology innovation". *Industry and Innovation*, *12*(4), 487-507.

Goerzen, A., Asmussen, C. G., & Nielsen, B. B. (2013). Global cities and multinational enterprise location strategy.*Journal of International Business Studies, 44*(5), 427-450. doi:10.1057/jibs.2013.11

Goldstein, A. E., & McGuire, S. M. (2004). "The political economy of strategic trade policy and the Brazil–Canada export subsidies saga". *The World Economy,* 27(4), 541-566

Gordon, I. R. and McCann, P. (2000) "Industrial Clusters: Complexes, Agglomeration and/or Social Networks?" *Urban Studies*, Vol. 37, No. 3, 513–532,

Government of Ghana (2004) Ghana Trade Policy, Ministry of Trade and Industry (MoTI), Accra.

Government of Ghana (2005). Growth and Poverty Reduction Strategy (GPRS II) 2006 – 2009. National Development Planning Commission (NDPC), Accra.

Government of Ghana (2010) Medium – Term National Development Policy Framework: Ghana Shared Growth and Development Agenda (GSGDA). National Developing Planning

Commission (NDPC). Accra.

Government of Ghana (2014) Medium – Term National Development Policy Framework: Ghana Shared Growth and Development Agenda (GSGDA). National Developing Planning Commission (NDPC). Accra.

GNA (2010) *NBSSI business advisors undergo training* http://www.spyghana.com/nbssi-business-advisors-undergo-training/ (accessed on 1/2/2013)

Ghana Statistical Service (2010) *Population and Housing Census, Summary Report on final results*. Ghana Statistical Service, Accra

GNA (2012) *NBSSI business advisors undergo training* http://www.spyghana.com/nbssi-business-advisors-undergo-training/ (accessed on 1/2/2013)

Granovetter, M. (1985) "Action and Social Structure: The Problem of Embeddedness". *The American Journal of Sociology,* Vol. 91, No. 3, pp. 481-510

Granovetter, M. (1983). "The strength of weak ties: A network theory revisited". *Sociological theory*, *1*(1), 201-233

Greene J. C. (2008). "Is Mixed Methods Social Inquiry a Distinctive Methodology?" *Journal of Mixed Methods Research*, Volume 2 Number 1, 7-22

Greve H. R. (2009). "Bigger and safer: the diffusion of competitive advantage strategic management" *journal Strat. Mgmt. J.*, 30: 1–23 (2009

Gunnarsson, C. (1985). "Development theory and Third World industrialisation", *Journal of Contemporary Asia*, 15:2, 183-206

Guest G., Bunce A. and Johnson L. (2006) "How Many Interviews are Enough?" An Experiment With Data Saturation and Variability field methods, vol. 18, no. 1 6 59–82

Han, Z. (2009) "A Model of Clustering Process in Low Income Economies", *international journal of business management.* Vol. 4 (12)

Hashai N. and Almor T. (2004) "Gradually internationalizing 'born global' firms: an oxymoron?" *International Business Review* 13 (2004) 465–483

Hanna, V., & Walsh, K. (2008). "Interfirm cooperation among small manufacturing firms". *International small business journal*, *26*(3), 299-321.

Hausmann, R., and Rodrik,D. (2003). "Economic Development as Self Discovery". *Journal of Development Economics,* 72(2), 603–633

Harrison, B. (1992). "Industrial Districts: Old Wine in New Bottles?", *Regional Studies*, 26:5, 469-483

Harrison, B. (1994). "The Italian industrial districts and the crisis of the cooperative form: Part I",

European Planning Studies, 2:1, 3-22

Hausmann R., Hwang J. and Rodrik D. (2007). "What you export matters" *Journal of Economic Growth* (2007) 12:1–25

Helmsing, A. H. J. (2001) "Externalities, Learning and Governance: New Perspective on Local Economic Development". *Development and change* vol. 32, 277 - 308

Helpman, E. and Itskhoki, O. (2010). "Labour Market Rigidities, Trade and Unemployment", *Review of Economic Studies* (2010) **77,** 1100–1137

Hessels, J., & Terjesen, S. (2010). "Resource dependency and institutional theory perspectives on direct and indirect export choices". *Small Business Economics*, 34(2), 203-220. doi:10.1007/s11187-008-9156-4

Hilmersson, M., Papaioannou, S., (2015). "SME international opportunity scouting – empirical insights on its determinants and outcomes". *Journal of International Entrepreneurship, 13*(3), 186.

Hinz, O., Schulze, C., & Takac, C. (2014). "New product adoption in social networks: Why direction matters". *Journal of Business Research*, *67*(1), 2836-2844.

Hodder, B. W., & Lee, R. (2015). *Economic Geography (Routledge Library Editions: Economic Geography)* (Vol. 3). Routledge.

Hsu, M. S., Lai, Y. L., & Lin, F. J. (2013). "Effects of Industry Clusters on Company Competitiveness: Special Economic Zones in Taiwan". *Review of Pacific Basin Financial Markets and Policies*, *16*(03), 1350017.

Huddleston, P., & Tonts, M. (2007). "Agricultural Development, Contract Farming and Ghana's Oil Palm Industry". *Geography*, 266-278.

Huggins, R. (2000) "The Success and Failure of Policy-Implanted Inter-firm Network Initiative: Motivations, Processes and Structure". *Entrepreneurship & Regional Development*, 12, 111-135

Huggins, R., & Izushi, H. (2011). *Competition, competitive advantage, and clusters: The ideas of michael porter*. Oxford: Oxford University Press.

Humphrey, J. (1995). "Industrial Reorganisation in developing countries: From Models to Trajectories". *World Development* 23 (1) 147 – 162

Ibeh, K.I.N. (2004). "Furthering Export Participation in Less Performing Developing Countries", *International Journal of Social Economics*, 31(1/2), 94-110

Ibeh K.I.N., (2003)."On the internal drivers of export performance among Nigerian firms: empirical findings and implications", *Management Decision*, Vol. 41 Iss: 3 pp. 217 – 225

Ibeh, K., Wilson J. and Chizema A. (2012). "The Internationalization of African Firms 1995–2011: Review and Implications", *Thunderbird International Business Review* Vol. 54, No. 4

Indexmundi.com [online] Palm Oil Production by Country in 1000 Metric Tonnes http://www.indexmundi.com/agriculture/?commodity=palm-oil (Accessed, 10th June, 2016)

Isaksen, A., & Trippl, M. (2016). "Path Development in Different Regional Innovation Systems". *Innovation Drivers and Regional Innovation Strategies*, 66.

ISSER (2014) *Overview: Economic Development and Ghana's Economic Performance*, Global State of the Ghanaian Economy 2013, http://isser.edu.gh/files/Press_Kit.pdf (assessed 24/05/2015)

Ivanova, I., Strand, O., Kushnir, D., & Leydesdorff, L. (2016). "Economic and Technological Complexity: A Model Study of Indicators of Knowledge-based Innovation Systems". *arXiv preprint arXiv:1602.02348*.

Iyke, B. N., & Odhiambo, N. M. (2015). "A Comparative Analysis of Key Economic Policy Reforms in Sub-Saharan Africa: Experiences from three lower-middle-income countries" *Revista Galega de Economía*, *24*(2), 111-120.

Jan Johanson, Jan-Erik Vahlne, (1990),"The Mechanism of Internationalisation", *International Marketing Review*, Vol. 7 Iss: 4

Jain, N. K., Hausknecht, D. R., & Mukherjee, D. (2013). "Location determinants for emerging market firms". *Management Decision*, 51(2), 396-418.

Johanson, J., & Vahlne, J.-E. (1977). "The internationalization process of the firm: A model of knowledge development and increasing foreign market commitments". *Journal of International Business Studies,* 8(1): 23–32.

Johanson, J., & Vahlne, J.-E. (2003). "Business relationship learning and commitment in the internationalization process". *Journal of International Entrepreneurship*, 1(1): 83–101.

Johanson, J., & Vahlne, J. E. (2015). "The Uppsala internationalization process model revisited". *International Business Strategy: Theory and Practice*, 33.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). "Mixed methods research: A research paradigm whose time has come". *Educational Researcher, 33*(7), 14-26.

Johnson B., Onwuegbuzie A. and Turner L (2007) "Toward a Definition of Mixed Methods Research", *Journal of Mixed Methods Research* Volume 1 Number 2,112-133

Johanson, J. and Vahlne, J.-E. (2009), "The Uppsala internationalization process model revisited: from liability of foreignness to liability of outsidership", *Journal of International Business Studies*, Vol. 40 No. 9, pp. 1411-1431

Johanson, M., & Martín, O. M. (2015). "The incremental expansion of Born Internationals: A comparison of new and old Born Internationals". *International Business Review*, *24*(3), 476-

496.

Johnson, P. N., Nketia, S., & Quaye, W. (2015). "Appraisal of Logistics Management Issues in the Agro-Food Industry Sector in Ghana". *Journal of Agricultural Science*, *7*(3), p164.

Jones M. V. and Coviello N. E. (2005) "Internationalisation: conceptualising an entrepreneurial process of behaviour in time", *Journal of International Business Studies* (2005) 36, 284–303

Johnson B., Onwuegbuzie A. and Turner L (2007). "Toward a Definition of Mixed Methods Research", *Journal of Mixed Methods Research* Volume 1 Number 2,112-133

Kalinic, I. and Forza, C. (2012) "Rapid internationalization of traditional SMEs: Between gradualist models and born globals", *International Business Review*, Volume 21, Issue 4, Pages 694-707

Kahiya, E. T., & Dean, D. L. (2016). Export Stages and Export Barriers: Revisiting Traditional Export Development. *Thunderbird International Business Review*, *58*(1), 75-89.

Karaev, A. (2014). *A Comparison of Cluster Members and Non Cluster Members in Transition Economies: The Case of Bulgaria*, Republic of Macedonia (FYROM) and Serbia (Doctoral dissertation, University of Sheffield).

Kelton C. M. L., Pasquale M. K. and Rebelein R. P. (2008): Using the North American Industry Classification System (NAICS) to Identify National Industry Cluster Templates for Applied Regional Analysis, Regional Studies, 42:3, 305-321

Killick, T. (2008) What Drives Change in Ghana? A Political-Economy view of Economic Prospects in Aryeetey, E. and Kanbur, R. (eds) The Economy of Ghana; Analytical Perspectives on Stability, Growth & Poverty. Woeli Publishing Services, Accra

Kiss A. N. and Danis W. M. (2010) "Social networks and speed of new venture Internationalization during institutional transition: A conceptual model*". Journal International Entrepreneurship* 8:273–287

Kiely R. (1994) "Development theory and industrialisation: Beyond the impasse", *Journal of Contemporary Asia*, 24:2, 133-160

Kim, S. T. (2015). "Regional advantage of cluster development: A case study of the San Diego biotechnology cluster". *European Planning Studies*, *23*(2), 238-261.

Klumbies, I. (2011) "A Narrative Review on the Influence of Cluster Location on Firm Performance", *International Journal of Business Research*, volume 11, number 6, p. 83-100

Knickerbocker F, .T. (1973) *Oligopolistic reaction and the multinational enterprise.* Cambridge, m ass.: Harvard University Press

Knight, G., and Cavusgil, S. (2004). "Innovation, organizational capabilities, and the born-global firm". *Journal of International Business Studies*, 35, 124–141

Knight, G. A., & Liesch, P. W. (2016). "Internationalization: From incremental to born global".

Journal of World Business, *51*(1), 93-102.

Knight G, Madsen T, Servais P (2004) "An inquiry into born-global firms in Europe and the USA". *International Marketing Review* 21(6):645–665

Knorring, P. and Meyer-Stamer, J. (1998) New Dimensions in Local Enterprise Co-operation and Development: From Clusters to Industrial Districts. Contribution to ATAS Bulletin XI, "New approaches to science and technology co-operation and capacity building" The Hague and Duisburg

Knorringa, P., & Nadvi, K. (2016). "Rising power clusters and the challenges of local and global standards". *Journal of Business Ethics*, *133*(1), 55-72.

Koerber A. and McMichael L (2008). "Qualitative Sampling Methods A Primer for Technical Communicators" , *Journal of Business and Technical Communication* Volume 22 Number 4 p. 454-473

Kohler, M., & Khumalo, T. (2015). "Upgrading Export Structure In Sub-Saharan Africa". *International Business & Economics Research Journal (IBER)*, *14*(2), 269-286.

KPMG (2012) *Doing Business in Ghana* http://www.kpmg.com/GH/en/Documents/Doing%20business%20in%20Ghana%20-2012.pdf (accessed 24/05/2015)

Krishna V.V., Patra S. K., and Bhattacharya S. (2012) "Internationalisation of R&D and Global Nature of Innovation: Emerging Trends in India". *Science, Technology & Society* 17:2 (2012): 165–199

Krugman, P. (2009) "The Increasing Returns Revolution in Trade and Geography". *American Economic Review*, 99:3, 561–571

Krugman, P. (2011) "The New Economic Geography, Now Middle-aged". *Regional Studies*, Vol. 45.1, pp. 1–7, January 2011

Krugman, P. (1991a) "History and Industrial Location: The Case of the Manufacturing Belt". *The American Economic Review,* Vol. 81, No. 2

Krugman, P. (1991b) "Increasing Returns and Economic Geography". *Journal of Political Economy*, vol. 99, No. 3

Krugman, P. (1991c) *Geography and Trade*. The MIT Press, Cambridge Massachusetts, USA

Krugman P. (1999) "The Role Of Geography in Development" *International Regional Science* Review 22, 2: 142–16

Kuwahata, H. (2015). Effects of Agglomeration and R&D Activities on Plant Internationalization: Evidence from Japan.

Kuwornu J. K. M., Nafeo A. A.and Osei-Asare Y. B. (2013) "Financial Viability, Value Addition and Constraint Analyses of Certified Organic Pineapple Production and Marketing in Ghana" *African Journal of Basic & Applied Sciences* 5 (1): 12-24, 2013

Lagendijk, A (2006): "Learning from conceptual flow in regional studies: Framing present debates, unbracketing past debates", *Regional Studies*, 40:4, 385-399

Lal, D. (2012) "The Washington Consensus Dead?" *Cato Journal*, Vol. 32, No. 3 (Fall, 2012).

Lars Coenen (2015) "Engaging with changing spatial realities in TIS research", *Environmental Innovation and Societal Transitions*, Volume 16, September 2015, Pages 70-72, ISSN 2210-4224, http://dx.doi.org/10.1016/j.eist.2015.07.008.

Lazzarini, S. G. (2015). "Strategizing by the government: Can industrial policy create firm-level competitive advantage?" *Strategic Management Journal 36*(1), 97-112.

Leamer, E. E., & Storper, M. (2001). *The economic geography of the internet age* (No. w8450). National Bureau of Economic Research.

Lee, J., Kim, J. C., & Lim, J. (2015). "Globalization and Divergent Paths of Industrial Development: Mobile Phone Manufacturing in China, Japan, South Korea and Taiwan". *Journal of Contemporary Asia*, 1-25.

Lee, D. Y., & Tsang, E. W. K. (2001). "The effects of entrepreneurial personality, background and network activities on venture growth". *Journal of Management Studies, 38*(4), 583-602.

Leech N. and Onwuegbuzie A. (2010) "EPILOGUE The journey: From where we started to where we hope to go", *International Journal of Multiple Research Approaches* (2010) 4: 73–88.

Leech N. L. Dellinger A. B. Brannagan K. B. and Tanaka (2010) "Evaluating Mixed Research Studies: A Mixed Methods Approach". *Journal of Mixed Methods Research* 4(1) 17–31

Liao, T. (2015). "Local clusters of SOEs, POEs, and FIEs, international experience, and the performance of foreign firms operating in emerging economies". *International Business Review, 24*(1), 66-76. doi:10.1016/j.ibusrev.2014.06.002

Lin, J. Y. and Rosenblatt, D.(2012) Policy Research Working Paper 6040 Shifting Patterns of Economic Growth and Rethinking Development *The World Bank Development Economics Vice Presidency Office of the Chief* April 2012

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry* (Vol. 75). Sage.

Lindauer, David L. and Lant Pritchett. (2002). "What's the Big Idea? The Third Generation of Policies for Economic Growth." *Economia* 3(1): 1-22.

LiPuma, J. A., Newbert, S. L., & Doh, J. P. (2013). "The effect of institutional quality on firm export performance in emerging economies: a contingency model of firm age and size". *Small Business Economics*, *40*(4), 817-841.

Liu, X., Derudder, B., & Taylor, P. (2014). "Mapping the evolution of hierarchical and regional tendencies in the world city network, 2000–2010".*Computers, Environment and Urban*

Systems, *43*, 51-66.

Lu, R., & Reve, T. (2015). "Relations among Clusters". *European Planning Studies*, *23*(4), 828-845.

Lundgren, M., & Jansson, H. (2016). "Developing international business knowledge through an appreciative inquiry learning network: Proposing a methodology for collaborative research". *International Business Review*,*25*(1), 346-355.

Madhani, M. P. (2008) "Indian Software Success Story: A Resource-Based View of Competitive Advantages The Icfaian" *Journal of Management Research*, Vol. VII, No. 8

Marshall, A. (1920) *Principles of Economics*; An introductory volume (London: Macmillan and Co. 8th ed). http://www.booksshouldbefree.com/book/Principles-of-Economics-1-Preliminary-Survey (Accessed 4/2013)

Markusen, A. (1996). "Sticky places in slippery space: a typology of industrial districts". *Economic Geography*, 293-313.

Marrocu, E., Paci, R., & Usai, S. (2013). "Productivity growth in the old and new europe: The role of agglomeration externalities". *Journal of Regional Science, 53*(3), 418.

Martı´nez, A. Belso-Martı´nez, J. A and Ma´s-Verdu´, F (2012) "Industrial clusters in Mexico and Spain Comparing inter organizational structures within context of change", *Journal of Organizational Change Management* Vol. 25 No. 5, pp. 657-681

Martin, R. and Sunley, P. (1996) "Paul Krugman's geographical economics and its implications for regional development theory: a critical assessment". *Economic Geography* 72:259-292

Martin, R. (1999) "The new 'geographical turn' in economics: some critical reflexions". *Cambridge Journal of Economics*. 23, 65-91

Martin, R. and Sunley, P. (1999) "Slow Convergence? The New Endogenous Growth Theory and Regional Development," *Economic Geography*, Volume 74, Issue 3, pages 201–227

Martin, R. and Sunley, P. (2003) "Deconstructing clusters: chaotic concept or policy panacea?" *Journal of Economic Geography* 3 (1): 5-35.

Martin, R., & Sunley, P. (2010). "The new economic geography and policy relevance". *Journal of Economic Geography*, lbq042.

Martin, R., & Sunley, P. (2015). "Towards a developmental turn in evolutionary economic geography?". *Regional Studies*, *49*(5), 712-732.

Maine E. M., Shapiro D. M., and Vining A. R (2010) "The role of clustering in the growth of new technology-based Firms*". Small Business Economics*. Vol. 34:127–146

Martinovic, D., Karisik J. and Bico-Car M. (2013) "Internationalization And Cluster Potentials With Special Emphasis On Wood-Processing Sector In Bosnia And Herzegovina UTMS" *Journal of Economics* 4 (2): 231–242

Maskell, P. and Malmberg, A (1999) "Localised Learning and Industrial Competitiveness" *Cambridge Journal of Economics.* 23, 167 – 185

Maskell, P. (2014). "Accessing remote knowledge—the roles of trade fairs, pipelines, crowdsourcing and listening posts". *Journal of Economic Geography*, *14*(5), 883-902.

Maxwell, J. A. (2016). "Expanding the history and range of mixed methods research". *Journal of Mixed Methods Research*, *10*(1), 12-27.

McCann, B. T. and Folta, T. B. (2008) "Location Matters: Where We Have Been and Where We Might Go in Agglomeration Research" *Journal of Management*, Vol. 34 No. 3, 532-565

McCann, B. T., Reuer, J. J., & Lahiri, N. (2015). "Agglomeration and the choice between acquisitions and alliances: An information economics perspective". *Strategic Management Journal*.

McCormick D. (1999) "African Enterprise Clusters and Industrialisation: Theory and Reality", World Development Vol. 27, No.9, pp. 1531-1551 in Schmitz, H. and Nadvi, K. (eds) (1999) The multi-disciplinary international journal devoted to the study and promotion of world development. Volume 27, Number 9, pp. 1503-1734

McDougall P, Shane S, Oviatt B (1994) "Explaining the formation of international new ventures: the limits of theories from international business research". *Journal of Business Venturing* 9(6):469–487

McDermott G. A and Rocha H. O. (2010) "Clusters and Upgrading: A purposeful approach," *Journal for Organizations and Markets in Emerging Economies*, 2010, VOL. 1, No. 1(1)

McEvily, B., Perrone, V., & Zaheer, A. (2003). "Trust as an organizing principle". *Organization Science*, *14*(1), 91-103.

Mejri, K, and Umemoto, K. (2010) "Small-and medium-sized enterprise internationalization: towards the knowledge-based model". *Journal of Int. Entrep* 8(2):156–167

Mensah, A., & Brummer, B. (2015). Determinants of MD2* Adoption, Production Efficiency and Technology Gaps in the Ghanaian Pineapple Production Sector.

Mensah, P., Yamoah, E. E., & Adom, K. (2014). "Empirical Investigation of Service Quality in Ghanaian Hospitals". *European Journal of Business and Management*, *6*(18), 157-178.

Menzel M. and Fornahl D, (2009) "Cluster Life Cycle- dimensions and rationales of cluster evolution", *Industrial and Corporate Change*, vol. 19, No.1, PP 205-238

Mertens, D. M. (2010) "Divergence and Mixed Methods". *Journal of Mixed Methods Research* 4(1) 3–5

Mertens, D. M. (2010) "What Comes First? The Paradigm or the Approach?" *Journal of Mixed Methods Research* 6(4) 255–257

Mesquita, L. F., & Lazzarini, S. G. (2008). "Horizontal and vertical relationships in developing economies: Implications for SMEs' access to global markets". *Academy of Management Journal*, *51*(2), 359-380.

Meyer, K. E., & Peng, M. W. (2015). "Theoretical foundations of emerging economy business research". *Journal of International Business Studies*.

Mikell, G. (1989). Peasant politicisation and economic recuperation in Ghana: local and national dilemmas. *The Journal of Modern African Studies*,*27*(03), 455-478.

Mo, G. Y., Hayat, Z., & Wellman, B. (2015). How far can scholarly networks go? Examining the relationships between distance, disciplines, motivations, and clusters. *Communication and Information Technologies Annual (Studies in Media and Communications, Volume 9) Emerald Group Publishing Limited*, *9*, 107-133.

MoFEP (2012) *Composite Budget of Kwaebibirem district assembly* http://www.mofep.gov.gh/sites/default/files/budget/Kwaebibirem.pdf (Accessed 5/3/2013)

MoTI (2015) Regional Report on Agriculture and Industry, Eastern Region, Annual Summary of Production http://www.moti.gov.gh/sites/default/files/budget/Easten.pdf (Accessed 5/3/2016)

Mohr, A., & Batsakis, G. (2014) "Intangible assets, international experience and the internationalisation speed of retailers". *International Marketing Review*, 31(6), 601-620. doi:10.1108/IMR-09-2013-0186

Mohan, S., Khorana s. and Choudhury H. (2013) "Why developing countries have failed to increase their exports of agricultural processed products" *Economic affairs* volume 33, number 1, p. 48-68

Moodysson, J. (2008) "Principles and practices of Knowledge Creation: On the Organisation of Buzz and Pipelibes in Life Science Communication". *Economic Geography*, 84(4) 449-469

Morrison, A. (2008). Gatekeepers of knowledge within industrial districts: Who they are, how they interact. *Regional Studies, 42*(6), 817-835. doi:10.1080/00343400701654178

Morrison A. Rabellotti R and Zirulia L. (2012) "When Do Global Pipelines Enhance the Diffusion of Knowledge in Clusters?" *Economic Geography*, 89(1): 77- 96

Morrison, A., Rabellotti, R., & Zirulia, L. (2013). "When do global pipelines enhance the diffusion of knowledge in clusters?". *Economic Geography*,*89*(1), 77-96.

Morschett, D., Schramm-Klein, H., & Zentes, J. (2015). "Competitive Advantage of Nations and Regional Clusters". In Strategic International Management (pp. 171-197). Springer Fachmedien Wiesbaden.

Morse, J. M. (1995). "The significance of saturation". *Qualitative Health Research*, 5(2), 147-149

Morse, J. M. (2000). "Determining sample size". *Qualitative Health Research*, 10(1), 3-5

Motoyama, Y. (2008) "What Was New About the Cluster Theory?: What Could It Answer and What Could It Not Answer?" *Economic Development Quarterly* November 2008 22: 353-363

Munari F., Sobrero M. and Malipiero A. (2011). "Absorptive capacity and localized spillovers: focal firms as technological gatekeepers in industrial districts" *Industrial and Corporate Change,* Volume 21, Number 2, pp. 429–462

Murillo, R., Natarajarathinam, M., & Nepal, B. (2012). "Making location decision based on regional industrial capabilities: A case of a distributor". *The International Trade Journal*, 26(2), 154. doi:10.1080/08853908.2012.657591

Musso, Fabio (2013). "Is Industrial Districts Logistics suitable for Industrial Parks?". Acta Universitatis Danubius. *Œconomica* (2065-0175), 9 (4), p. 221-233

Naudé, W., Gries, T., Wood, E., & Meintjies, A. (2008). "Regional determinants of entrepreneurial start-ups in a developing country". *Entrepreneurship & Regional Development, 20*(2), 111-124. doi:10.1080/08985620701631498

Nesta L., Patel P. and Arundel A. (2003) Methods for Cluster Analysis. Prepared for Trend Chart *Policy Workshop on Innovative, Background Paper on Methods for Cluster Analysis*. ftp://ftp.cordis.europa.eu/pub/trendchart/reports/documents/ tcw14_methodology_background_paper.pdf, (assessed 13/06/2013)

Neumann W. L. (2000) Social Research Methods: Quantitative and Qualitative Approaches a Pearson Education Company 160 Ground Street Needham MA 02494, USA

Neupert, K., E., Baughn, C., C. & Dao, T., T., H. (2006), "SME Exporting Challenges in Transitional and Developed Economies", Journal of Small Business and Enterprise Development

Newlands, D. (2003). "Competition and cooperation in industrial clusters: The implications for public policy" .*European Planning Studies, 11*(5), 521-532. doi:10.1080/09654310303649

Nonaka I. and Krogh G. (2009) "Tacit Knowledge and Knowledge Conversion: Controversy and Advancement in Organizational Knowledge Creation Theory", *Organization Scienc*e Vol. 20, No. 3, May–June 2009, pp. 635–652

Nordman, E. R., & Melén, S. (2008). "The impact of different kinds of knowledge for the internationalization process of born globals in the biotech business". *Journal of World Business*, *43*(2), 171-185.

North, D. J., Baldock, R., Deakins, D., & Whittam, G. (2008).*Access to bank finance for scottish*

SMEs Institute for Small Business & Entrepreneurship.

Norwood, C. (2013). "Macro Promises of Microcredit: A Case of a local eSusu in Rural Ghana". *Journal of International Women's Studies*, *7*(1), 1-7.

NRI (2010) *Ghana Export Horticulture Cluster Strategic Profile Study Part II* – Recommended Actions, Part III Background Papers, World Bank Sustainable Development Network (WB-SDN), Africa Region, Agriculture and Rural Development (AFTAR), The Republic of Ghana Ministry of Food and Agriculture, European Union All ACP Agricultural Commodities Programme (EU-AAACP), Natural Resources Institute

OECD, (2007) *POLICY BRIEF, Competitive Regional Clusters* [Online]: National Policy Approaches, Organisation For Economic Co-Operation And Development,

OECD, (2009a) *POLICY BRIEF, How Regions Grow Organisation For Economic Co-Operation And Development* [Online] OEDC

OECD (2009b), *"Top Barriers and Drivers to SME Internationalisation",* [Online] Report by the OECD Working Party on SMEs and Entrepreneurship, OECD

OECD (2013b) *Fostering SMEs' Participation in Global Markets:* [Online] Final Report. Centre For Entrepreneurship, SMEs and Local Development, Organisation for Economic Co-operation and Development

OECD (2004) *Promoting Entrepreneurship and Innovative SMEs in a Global Economy:* [Online] Towards a More Responsible and Inclusive Globalisation. 2nd OECD CONFERENCE OF MINISTERS RESPONSIBLE FOR SMALL AND MEDIUM-SIZED ENTERPRISES (SMEs)

OECD (2005) OECD SME and Entrepreneurship Outlook: 2005, OECD Paris, page 17 [Online]. https://stats.oecd.org/glossary/detail.asp?ID=3123

OECD (2013a) Perspectives on Global Development 2013 Industrial Policies in a Changing World Shifting up a Gear [Online], OEDC

OECD (2014) *OECD Studies on SMEs and Entrepreneurship Italy:* Key Issues and Policies *OECD Studies on SMEs and Entrepreneurship Series*, OECD Publishing, 2014,

OECD (2015) *OECD Investment Policy Reviews OECD Investment Policy Reviews:* Nigeria 2015, OECD Publishing, 2015, 9264208402, 9789264208407.

Oinas, P. (2000) "Distance and Learning: Does Proximity Matter? In Boekema", F. et al (2000) "Knowledge, Innovation and Economic Growth. *The Theory and Practice of Learning Regions*

Oliver, J. L. H. (2015). "How do multinational enterprises co-locate in industrial districts? An introduction to the integration of alternative explanations from international business and

economic geography literatures". *Investigaciones Regionales*, (32), 115.

Onwuegbuzie Anthony J. (2012) "Introduction: putting the *mixed* back into quantitative and qualitative research in educational research and beyond: Moving toward the radical middle" *International Journal of Multiple Research Approaches* Volume 6, Issue 3, December 2012

Oppong, Felix; Aykut, Dilek; Smith, Gregory (2014) *Ghana economic update (October, 2014).* Washington, DC; World Bank Group. http://documents.worldbank.org/curated/en/2014/10/20325650/ghana-economic-update-october-2014 (assessed 24/05/2015)

Osei-Amponsah, C., Visser, L., Adjei-Nsiah, S., Struik, P. C., Sakyi-Dawson, O., & Stomph, T. J. (2012). "Processing practices of small-scale palm oil producers in the Kwaebibirem District, Ghana": a diagnostic study.*NJAS-Wageningen Journal of Life Sciences*, *60*, 49-56.

Otsubo, S. T. (2015). IN SEARCH OF A NEW DEVELOPMENT PARADIGM. *Globalization and Development Volume III: In search of a new development paradigm*, 162.

Oviatt, B.M. & McDougall, P.P. (1995). "Global start-ups: Entrepreneurs on a worldwide stage". *Academy of Management Executive*, 9, 30–43.

Oviatt, B. M., & McDougall, P. P. (1994) "Toward a theory of international new ventures". *Journal of International Business Studies,* 25(1): 45–64.

Papadopoulos, N. and Martin, M. O. (2010) "Toward a model of the relationship between internationalization and export performance," *International Business Review* Volume 19, Issue 4, August 2010, Pages 388–406

Pansiri J. and Temtime Z. T. (2008) "Assessing managerial skills in SMEs for capacity building". *Journal of Management Development*. Vol. 27 No. 2, 2008. Emerald Group Publishing Ltd.

Park, J-H. (2011) "Trade-induced Industrialization and Economic Growth " *International Economic Journal* Vol. 25, No. 3, 513–545, September

Parrilli, M. D. (2009) "Collective Efficiency, Inducement and Social Embeddedness: Drivers for the Development of Industrial Districts". *Entrepreneurship & Regional Development*. Vol. 21, No. 1, 1-24

Parrilli, D. M. (2006) "cluster trajectories in developing countries: a stage and eclectic approach applied to survival clusters in Central America. Development of Urban and Regional Economies". p. 215 – 231 in Pitelis, C., Sugden, R. and Wilson J. R(eds) (2006) *Cluster And Globalisation. The Development of Urban and Regional Economies*. Edward Elgar.UK

Petras, J. (1984): "Toward a theory of industrial development in the Third World", *Journal of Contemporary Asia*, 14:2, 182-203

Perez-Aleman, P. (2005). "CLUSTER formation, institutions and learning: The emergence of clusters and development in Chile". *Industrial and Corporate Change*, 14(4), 651-677

doi:10.1093/icc/dth063

Periyakoil, V. S., Neri, E., & Kraemer, H. (2015). No easy talk: A mixed methods study of doctor reported barriers to conducting effective end-of-life conversations with diverse patients: E0122321. *PLoS One, 10*(4) doi:10.1371/journal.pone.0122321

Pezalla A. E., Pettigrew J. and Miller-Day M. (2012) "Researching the researcher-as-instrument: an exercise in interviewer self reflexivity*". Qualitative Research* 12(2), 165-185

Pina, K., & Tether, B. S. (2016). Towards understanding variety in knowledge intensive business services by distinguishing their knowledge bases. *Research Policy*, *45*(2), 401-413.

Piore, M. and Sabel, C. (1984) *The Second Industrial Divide: Possibilities For Prosperity*, New York: Basic Books

Popescu C. (2010) "Industrial Clusters and Regional Development in Romania. Human Geographies" – *Journal of Studies and Research in Human Geography* (2010) 4.2, 17-34

Porter, M. E. (1998a) *On Competition*. Harvard Business School Press, Harvard, MA.

Porter, M.E. (1998b) *Clusters and the new economics of competition*. Harvard Business

 Review, 76 (6): 77-90

Porter, M. E. (1990a) *The Competitive Advantage of Nations,* London: Macmillan.

Porter, M. (1990b) *The competitive Advantage of Nations*. Harvard Book Review March – April, 73 – 91

Porter, M. (2000) "Location, Competition, and Economic Development: Local Clusters in a Global Economy." *Economic Development Quarterly*, vol. 14 no. 1, 15-34.

Porter, M. (2003) "The Economic Performance of Regions". *Regional Studies* Vol. 37.6&7 549-578

Porter M. E. (2008) "The Five Competitive Forces That Shape Strategy". *Harvard Business Review* January, 78-93

Potter, A., & Watts, H. D. (2011). "Evolutionary agglomeration theory: increasing returns, diminishing returns, and the industry life cycle". *Journal of Economic Geography*, *11*(3), 417-455.

Pradhan, J. P., & Das, K. (2016). "Determinants of Regional Exports". In *Manufacturing Exports from Indian States* (pp. 45-68). Springer India.

Pratt A. C. (2008) "Special Theme Articles: Cultural Commodity Chains Cultural Commodity Chains, Cultural Clusters, Or Cultural Production Chains?" *Growth and Change* Vol. 39 No. 1 (March 2008), pp. 95–103

Prange, C.(2012) "Ambidextrous internationalization strategies: The case of Chinese firms entering

the world market," *Organizational Dynamics*, Volume 41, Issue 3, Pages 245-253

Primi, A. (2013) The Return Of Industrial Policy: (What) Can Africa learn from Latin America? *Working paper prepared for JICA/IPD Africa Task Force Meeting Yokohama*, Japan, June 2-3, 2013

Rabellotti, R. (1999). "Recovery of a Mexican cluster: devaluation bonanza or collective efficiency?". *World Development*, *27*(9), 1571-1585

Rasiah R. (2009) Expansion and slowdown in Southeast Asian electronics manufacturing *Journal of the Asia Pacific Economy* Vol. 14, No. 2, May 2009, 123–137

Rajah Rasiah, R. and Vinanchiarachi J.(2013) "Institutional Support and Technological Upgrading: Evidence from Dynamic Clusters in Latin America and Asia" *World Economic Review* 2: 24-47, 2013

Reid, Stan D. (198)1. "The decision-maker and export entry and expansion". *Journal of International Business Studies*, 12 (Fall): 101-12.

Republic of Ghana Budget (2012). Theme - Infrastructural Development for Accelerated Growth and Job Creation; Highlights of the 2012 Budget; Ministry of Finance and Economic Planning

Republic of Ghana Budget (2015). Highlights of the 2015 Budget; Ministry of Finance and Economic Policy.

Rialp A., Rialp, J., Urbano D. and Vaillant Y (2005). "The Born-Global Phenomenon: A Comparative Case, Study Research". *Journal of International Entrepreneurship* 3, 133–171

Richardson, C. Yamin, M. and Sinkovics, R. R. (2012). "Policy-driven clusters, interfirm interactions and firm internationalisation: Some insights from Malaysia's Multimedia Super Corridor," *International Business Review*, Volume 21, Issue 5,Pages 794-805, ISSN 0969-5931

Rodrik, D. (2004) *Rethinking Growth Policies In The Developing* World Harvard University

Rodrik, D. (2006) "Goodbye Washington Consensus, Hello Washington Confusion? A Review of the World Bank's Economic Growth in the 1990s: Learning from a Decade of Reform" *Journal of Economic Literature* Vol. XLIV pp. 973–987,

Rodrik, D. (2008) Second-Best Institutions American Economic Review: *Papers & Proceedings* 2008, 98:2, 100–104

Rodríguez, A. and Nieto M. J. (2012) "The internationalization of knowledge-intensive business services: the effect of collaboration and the mediating role of innovation", *The Service Industries Journal*, 32:7, 1057-1075

Salancik, G. R. (1995) "Wanted: A Good Network Theory of Organisation", *Administrative Science Quarterly*, Vol. 40, No. 2 (Jun., 1995), pp. 345-349: www.jstor.org/stable/2393642

Santos-Paulino A. and Wan , G. (2010) "Southern growth engines and technology giants: introduction", *Econ Change Restruct* (2011) 44:1–5

Schmitz, H. (1984). "Industrialisation strategies in less developed countries: Some lessons of historical experience", *The Journal of Development Studies*, 21:1, 1-21

Schmitz H. (1999). "Collective Efficiency and Increasing Returns". *Cambridge Journal of Economics*. 23, 465 – 483

Schmitz, H. and Nadvi, K. (eds) (1999) "Clustering and Industrialization: Introduction", World Development Vol. 27, No.9, pp. 1503-1514

Schilirò D. (2011). "Italian Industrial Districts: A model of success or a weak productive system?" *aapp |Atti della Accademia Peloritana dei Pericolanti* Vol. 90, Suppl.No.1,

Schweizer R. (2012). "The internationalization process of SMEs: A muddling-through process", *Journal of Business Research* Volume 65, Issue 6, June 2012, Pages 745–751

Schweizer, R., Vahlne, J. E., & Johanson, J. (2010). "Internationalization as an entrepreneurial process". *Journal of International Entrepreneurship*, *8*(4), 343-370.

Scott, A. J. (1988). "Flexible production systems and regional development: The rise of new industrial spaces in North America and Western Europe". International Journal of Urban and Regional Research, 12(2), 171-186

Scott, A. J., & Storper, M. (2015). The nature of cities: the scope and limits of urban theory. *International Journal of Urban and Regional Research*, *39*(1), 1-15.

Senik, Z. C. and Scott-Ladd, B. Entrekin L. & Adham, K (2011) "Networking and internationalization of SMEs in emerging economies", *Journal of Int. Entrep*, 9:259–281

Sepulveda L. (2008) "Spatializing Industrial Policies: A View from the South", *Regional Studies* Vol. 42. 10 pp. 1385 – 1397

Shamsuddoha A.K., Ali M. Y., and Ndubisi, N. O. (2009) "Impact of Government export assistance on internationalization of SMEs from developing nations", *Journal of Enterprise Information Management* Vol. 22 No. 4, pp. 408-422

Sharon V. Thach, S. V., Gonzalez E. M. L. Fan C. And Garcia A. R. (2011) "SME's and the Problems of Development: An Innovative Costa Rican Approach", *Journal of Marketing Development and Competitiveness* vol. 5(2) p 59-69

Shehu, E., Sofka, W., & de Faria, P. (2014). "Multinational subsidiary knowledge protection - do mandates and clusters matter?" *Research Policy, 43*(8), 1320-1333. doi:10.1016/j.respol.2014.05.006

Singha, A. B. (2011) "Comparative advantage, industrial policy and the World Bank: back to first principles". *Policy Studies* Vol. 32, No. 4, July 2011, 447460

Singh, K., Osei-Akoto, I., Otchere, F., Sodzi-Tettey, S., Barrington, C., Huang, C., & Speizer, I. (2015). "Ghana's National Health insurance scheme and maternal and child health: a mixed methods study". *BMC health services research*, *15*(1), 108.

Silverman D. (2013) *Doing Qualitative Research* 4th Ed. Sage Publication, London

Smallbone D. & Welter F. (2012) "Entrepreneurship and institutional change in transition economies: The Commonwealth of Independent States, Central and Eastern Europe and China compared, Entrepreneurship & Regional Development": *An International Journal*, 24:3-4, 215-233, DOI: 10.1080/08985626.2012.670914

Smallbone, D., & Welter, F. (2001). "The role of government in SME development in transition economies. *International Small Business Journal, 19*(4), 63-77. doi:10.1177/0266242601194004

Smit, A.J. (2010) "The competitive advantage of nations: is Porter's Diamond Framework a new theory that explains the international competitiveness of countries?" *Southern African Business Review* Volume 14 Number 1

Sonobe T., Akoten J. E. and Otsuka K (2011) "The growth process of informal enterprises in Sub-Saharan Africa: a case study of a metalworking cluster in Nairobi," *Small Bus Econ* (2011) 36:323–335

Sonobe, T., & Otsuka, K. (2016). *Cluster-based industrial development: a comparative study of Asia and Africa*. Springer.

Sonobe, T., & Otsuka, K. (2014). *Cluster-Based Industrial Development:: KAIZEN Management for MSE Growth in Developing Countries*. Palgrave Macmillan.

Spencer G. M., Vinodrai T., Gertler M. S. and Wolfe D.(2010) "Do Clusters Make a Difference? Defining and Assessing their Economic Performance", *Regional Studies*, Vol. 44.6, pp. 697–715

Steinern M. and Hartmann C. (2006) "Organizational Learning in Clusters: A Case Study on Material and Immaterial Dimensions of Cooperation" *Regional Studies*, Vol. 40.5, pp. 493–506

Stejskal, J. and, P. (2012) "Competitive Advantage Analysis: A Novel Method For Industrial Clusters Identification", *Journal of Business Economics and Management*. Volume 13(2): 344–365

Stiglitz J. E. (2002) Globalisation And Its Discontent, Norton & Company Ltd, New York, USA

Stiglitz, J. E. (2007) *Making globalisation work*. Norton company New York USA

Stiglitz, J. E. (2011) *Rethinking Development Economics*, The World Bank Research Observer 26:230–236

Storper, M. and Harrison, B. (1991) "Flexibility, hierarchy and regional development: The changing structure of industrial production systems and their forms of governance in the 1990s".

Research Policy 20 (1991) 407-422

Storper, M. (1995) "The resurgence of regional economies, ten years later: the region as a nexus of untraded interdependencies". *European Regional and Urban Studies* 3:191-221.

Storper, M. (1997) *The Regional World: Territorial Development in a Global Economy*. New York: The Guildford Press

Norwood, C. (2013). "Macro Promises of Microcredit: A Case of a local eSusu in Rural Ghana". *Journal of International Women's Studies*, *7*(1), 1-7.

Storper, M. (2010) "Agglomeration, Trade, and Spatial Development: Bringing Dynamics Back" in. *Journal of regional science,* vol. 50, no. 1, pp. 313–342

Storper, M. (2011) "From Retro to Avant-garde: A Commentary on Paul Krugman's 'The New Economic Geography, Now Middle-aged' ". *Regional Studies*, Vol. 45.1, pp. 9–15,

Sun, X., & Hong, J. (2011). "Exports, ownership and firm productivity: Evidence from china". *The World Economy*, 34(7), 1199-1215. doi:10.1111/j.1467-9701.2011.01373.x

Szirmai, A. (2012) "Industrialisation as an engine of growth in developing countries, 1950–2005". *Structural Change and Economic Dynamics.* 23. 406– 420

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn & Bacon.

Tan, J., Shao, Y., & Li, W. (2013). "To be different, or to be the same? An exploratory study of isomorphism in the cluster". *Journal of Business Venturing,*28(1), 83-97.

Tang K. Y (2011) "The Influence of networking on the internationalization of SMEs: Evidence from internationalized Chinese firms". *International Small Business Journal* 29(4) 374–398

Tashakkori, A., & Teddlie, C. (1998). "Mixed methodology: Combining qualitative and quantitative approaches". *Applied social research methods series* (vol. 46). Thousand Oaks, CA: Sage.

Tashakkori A. and Teddlie C. (2010) "Putting the Human Back in ''Human Research Methodology'': The Researcher in Mixed Methods Research", *Journal of Mixed Methods Research* 4(4) 271– 277

Teddlie C. and Tashakkori A. (2012) "Common "Core" Characteristics of Mixed Methods Research: A Review of Critical Issues and Call for Greater Convergence". *American Behavioral Scientist* 56(6) 774– 788

Terjesen, S., O'Gorman, C., and Acs, Z. J. (2008) "Intermediate mode of internationalisation: New software ventures in Ireland and India". *Entrepreneurship and Regional Development*, 20, 89-109

Thach V. S., Fan C. Gonzalez L. M. E. and Garcia R. A. (2011) "SME's and the Problems of Development: An Innovative Costa Rican Approach" *Journal of Marketing Development and Competitiveness* vol. 5(2) 2011 P59-69

The New Legon Observer (2008) Our *Perspective: The Private Sector in Ghana: Contributing to Employment, Growth and Social Responsibility, GSDD,* Vol 2 No. 10, 12 June, 2008. http://www.csr-weltweit.de/uploads/tx_jpdownloads/Christine_Dowuona-Hammond_Raymond_A_Atuguba_Ghana__01.pdf

Thomas G. (2011) "A Typology for the Case Study in Social Science Following a Review of Definition, Discourse, and Structure" *Qualitative Inquiry* 17(6) 511–521

The Economist. 2 January 2013 "The fastest-growing economies of 2013, speed is not everything", 16:07 by J.A.http://www.economist.com/blogs/theworldin2013/2013/01/fastest-growing-economies-2013 (Accessed on the 12/7/2013)

The Economist. 25 April 2002 "Good, but not election time.". http://www.economist.com/displaystory. cfm?story_id=1103646.(Accessed:5th December 2012

Todd P. R. and Javalgi R. G. (2007) "Internationalization of SMEs in India Fostering entrepreneurship by leveraging information technology" *International Journal of Emerging Markets* Vol. 2 No. 2, 2007 pp. 166-180

Todtling, F. (2001) Industrial Clusters and Cluster Policies in Australian Regions in Mariussen A. (2001) Cluster Policies – Cluster Development? : *A contribution to the analysis of the new learning economy. Nordregio 2001:2*, Stockholm, Sweden.

Todtling, F., Asheim, B., Boschma, R., (2013). "Knowledge sourcing, innovation and constructing advantage in regions of Europe". European *Urban and Regional Studies*, 20(2), 161-169. doi:10.1177/0969776412457173

Todtling, F. and Kaufmann, A. (2001) "The Role of Region for Innovation activities of SMEs". *European Urban and Regional Studies*. 8 (3): 203-215

Torre, A. (2008). "On the role played by temporary geographical proximity in knowledge transmission". *Regional Studies*, *42*(6), 869-889.

Tortoriello, M. (2015). "The social underpinnings of absorptive capacity: The moderating effects of structural holes on innovation generation based on external knowledge". *Strategic Management Journal*, *36*(4), 586-597.

Trippl, M., Grillitsch, M., Isaksen, A., & Sinozic, T. (2015). "Perspectives on Cluster Evolution: Critical Review and Future Research Issues". *European Planning Studies*, (ahead-of-print), 1-17.

Trond-Arne Borgersen (2005) A Note on Developing Countries' Export Supply Response. The Financial Supervisory Authority of Norway, Østensjøveien 43, Postboks 100 Bryn, 0611 Oslo.

Trotter R. T. (2012) "Qualitative research sample design and sample size: Resolving and unresolved issues and inferential imperatives", *Preventive Medicine* vol 55 issue 5 (2012) 398–400

Tsakalerou, M. M. (2015). "Dimensions Of Proximity: Clusters, Intellectual Capital And Knowledge Spillovers". *European Scientific Journal*, *11*(4).

Uctu, R., & Pillay, N. S. (2012). "The emergence of bio-clusters in Egypt and South Africa". *Journal of Commercial Biotechnology, 18*(1), 30. doi:10.5912/jcb.477

UNIDO (2009) Industrial Development Report Breaking In and Moving Up: *New Industrial Challenges for the Bottom Billion and the Middle-Income Countries.* ID No.: 438ISBN: 978-92-1-106445-2

Uner M., Kocak, A., Cavusgil, E. Salih Tamer Cavusgil, (2013) "Do barriers to export vary for born globals and across stages of internationalization? An empirical inquiry in the emerging market of Turkey", *International Business Review*, Vol 22,(5), P.800-813

USAID (2007) *BOOKLET OF STANDARDIZED SMALL AND MEDIUM ENTERPRISES DEFINITION-2007*, Sustainable Achievement of Business Expansion and Quality (Sabeq)

Vahlne and Johanson (2013) "The Uppsala model on evolution of the multinational business enterprise – from internalization to coordination of networks" *International Marketing Review* Vol. 30 No. 3, pp. 189-210

Visser, E. J., Távara, J. I., & Villaran, F. (2015). "Growing but not Developing: Long-Term Effects of Clustering in the Peruvian Clothing Industry". *Tijdschrift voor economische en sociale geografie*, *106*(1), 78-93

Warwick, K. (2013), "Beyond Industrial Policy: Emerging Issues and New Trends", OECD Science, Technology and Industry Policy Papers, No. 2, OECD Publishing

Watch, K. (2015). Incremental versus Rapid Internationalisation of Firms: Results of Exploratory Investigation from Poland. Entrepreneurial Business and Economics Review, 3(4), 37-48

Waxell, A., Kulturgeografiska institutionen, Humanistisk-samhällsvetenskapliga vetenskapsområdet, Samhällsvetenskapliga fakulteten, & Uppsala universitet. (2009). *Guilty by association: A cross-industrial approach to sourcing complementary knowledge in the uppsala biotechnology cluster. European Planning Studies, 17*(11), 1605-1624. doi:10.1080/09654310903230533

Weijand, H. (1999) "Microenterprise Cluster in Rural Indonesia: Industrial Seedbed and Policy Target", World Development Vol. 27, No.9, pp. 1515-1530 in Schmitz, H. and Nadvi, K. (eds) (1999) The multi-disciplinary international journal devoted to the study and promotion of world development. Volume 27, Number 9, pp. 1503-1734

Welch C.L., and Welch L.S. (2009) "re-internationalisation: exploration and conceptualisation" *international business review* 18 (2009) 567–577

Welter, F. & Smallbone, D. (2006). "Exploring the role of trust in entrepreneurial activity". *Entrepreneurship Theory & Practice*, *30*(4), 465–475

Welter, F. and Smallbone, D. (2011). "Institutional Perspectives on Entrepreneurial Behavior in

Challenging Environments". *Journal of Small Business Management*, 49: 107–125. doi: 10.1111/j.1540-627X.2010.00317.x

Wilson K. (2007) Encouraging the internationalisation of SMEs. In: Potter J, Proto A (eds) *Promoting entrepreneurship in South East Europe: Policies and tools*. OECD – LEED Programme. URL: http://www.oecd.org/dataoecd/42/25/39872944.pdf

World Bank (2015) *Ghana Overview, World Bank group*, April, 22 2015 http://www.worldbank.org/en/country/ghana/overview (assessed 24/05/2015)

Wright, R., Westhead P. & Ucbasaran D. (2007): "Internationalization of small and medium-sized Enterprises (SMEs) and International Entrepreneurship: A Critique and Policy Implications", *Regional Studies*, 41:7,1013-1030

Xu D. and Mayer K. E. (2012) "Linking Theory and Context: 'Strategy Research in Emerging Economies' after Wright et al. (2005)" *Journal of Management Studies* 50:7

Yeaple, S. R. (2009) "Firm heterogeneity and the structure of U.S. multinational activity", *Journal of International Economics*, Volume 78, Issue 2, July 2009, Pages 206-215

Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Thousand Oaks, CA: SAGE.

Yin R (2012) *Application of case study research*, 3Ed, Sage publication. London

Yong, A. G., & Pearce, S. (2013). A beginner's guide to factor analysis: Focusing on exploratory factor analysis. *Tutorials in Quantitative Methods for Psychology*, *9*(2), 79-94

Youngblood, C. E. and Franklin, D. L. (2008) "Persistent Public Sector Deficit & Macroeconomic Instability in Ghana", in Aryeetey, E. and Kanbur, R. (eds) *The Economy of Ghana; Analytical Perspectives on Stability*, Growth & Poverty. Woeli Publishing Services, Accra

Yu, X. and Si S.(2012) "Innovation, internationalization and entrepreneurship: A new venture research perspective" *Management, policy & practice*, 14(4): 524–539

Zarei, B., Nasseri, H. and Tajeddin, M. (2011) "Best Practise Network business model for internationalisation of small and medium enterprise", *J Int. Entrep*. 9: 299-315

Zell, D., McGrath, C., & Vance, C. M. (2014). "Examining the Interaction of Extroversion and Network Structure in the Formation of Effective Informal Support Networks". *Journal of Behavioural and Applied Management,* 15(2), 59.

Zyglidopoulos, S. C., DeMartino, R. and Reid D. M. Cluster (2006) "Reputation as a Facilitator in the Internationalization of Small and Medium-Sized Enterprises" *journal of Corporate Reputation Review*, Vol. 9, No. 1, pp. 79-87

APPENDICES

9.1 Appendix 1: Business sizes, importance of relationship, and ownership type

Appendix 1a: Size of business based on full-time workers employed annually

Size of business	Palm	Pineapple	Total	x^2	p
Small(<29)	95.1%	47.0%	86.9%	30.02	0.00**
Medium (30-99)	2.4%	11.8%	4.0%		
Large (100 and above)	2.5%	41.2%	9.1%		
Total	**100.0%**	**100.0%**	**100.0%**		

Appendix 1b: Importance of relationship with actors

	Palm		Pineapple		Total	Total
Actors	*Mean*	*Rank*	*Mean*	*Rank*	*Mean*	*Rank*
Farmers	4.99	1	4.93	2	4.98	1
Processors	4.84	2	5	1	4.85	2
Distributors/buyers/exporters	4.76	3			4.76	3

Appendix 1c: Type of Business Ownership

Ownership	Palm	Pineapple	Total	x^2	p	Fishers Exact p
Sole proprietorship	92.7%	70.6%	88.9%			
Partnership	7.3%	29.4%	11.1%	6.96	0.01**	0.02*
Total	**100.0%**	**100.0%**	**100.0%**			

Note: **p significant at 0.01 level of significance; *p significant at 0.05 level of significance

9.2   Appendix 2: Perceived levels of innovation within and between processing businesses

Appendix 2a: How innovative do you think your business is?

	Palm	Citrus	Total
■ Not Innovative	2.4%	11.8%	4.0%
■ Slightly Innovative	54.9%	47.1%	53.5%
■ Innovative	37.8%	29.4%	36.4%
■ Very Innovative	4.9%	11.8%	6.1%
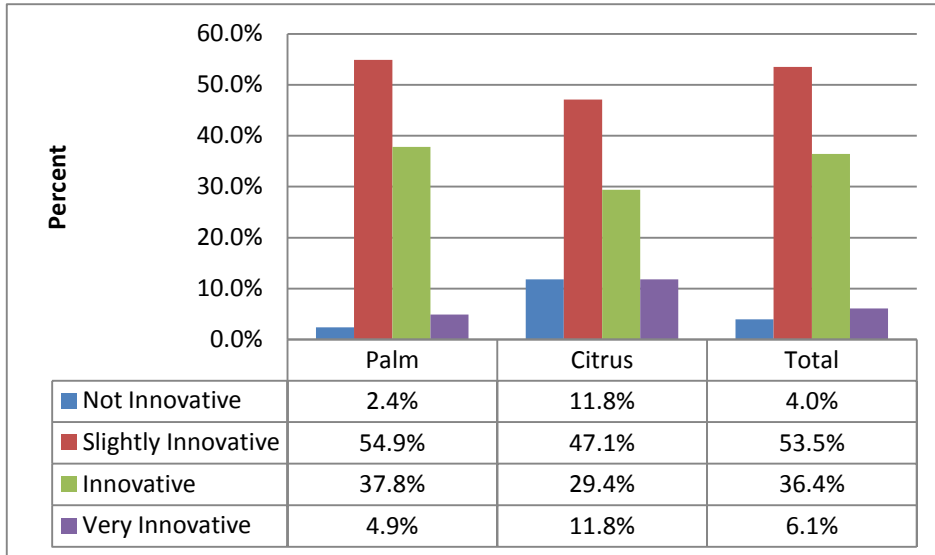
Appendix 2b: How innovative do you think your business is in relation to your competitors in the district/municipality?

	Not Innovative	Slightly Innovative	Innovative	Very Innovative
■ Palm	22.0%	42.7%	29.3%	6.1%
■ Citrus	5.9%	41.2%	41.2%	11.8%
■ Total	19.2%	42.4%	31.3%	7.1%
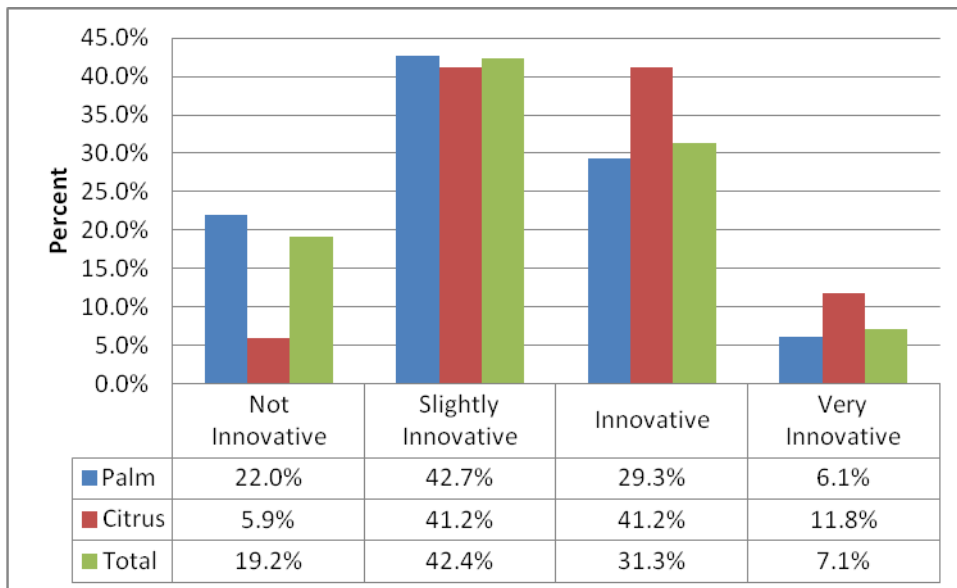
9.3 Appendix 3: Exporting processing businesses' activities and relationships with supporting institutions

Appendix 3a: When was your company established?

Establishment	Palm	Citrus	Total	x^2	p
< = years ago	1.2%	17.6%	4.0%		
6-10 years ago	3.7%	23.5%	7.1%	19.53	0.00**
10-15 years ago	30.5%	23.5%	29.3%		
>= 15 years ago	64.6%	35.4%	59.6%		
Total	100.0%	100.0%	100.0%		

Appendix 3b: Length of time in Export Business

Export duration	Palm	Citrus	Total	x^2	p
1-5 years	8.9%	42.9%	13.4%		
6-10 years	62.2%	14.2%	55.8%	9.20	0.03*
11-15 years	22.2%	42.9%	25.0%		
above 15 years	6.7%	0.0%	5.8%		
Total	100.0%	100.0%	100.0%		

Note: *p significant at 0.05 level of significance

Appendix 3c: Frequency of Export Business

Export Frequency	Palm	Citrus	Total	x^2	p
Daily	0.0%	28.6%	3.8%		
Weekly	84.5%	57.1%	80.8%	16.60	0.00**
Monthly	13.3%	0.0%	11.6%		
Quarterly	2.2%	14.3%	3.8%		
Total	**100.0%**	**100.0%**	**100.0%**		

Note: **p significant at 0.01 level of significance

Appendix 3d: Proportion of Total Production that is Exported

Export Proportion	Palm	Citrus	Total	x^2	p
1-20%	4.4%	0.0%	3.8%		
41-60%	11.1%	0.0%	9.7%	2.75	0.43
61-80%	55.6%	42.9%	53.8%		
Above 80%	28.9%	57.1%	32.7%		
Total	**100.0%**	**100.0%**	**100.0%**		

Appendix 3e: Business Relationship with Supporting Organisations

Business Relationship	Palm		Pineapple		Total	Total
	Percent	Rank	Percent	Rank	Total (%)	
Ass Gp	91.5%	1	5.9%	9	76.8%	1
NBSSI	81.7%	2	11.8%	8	69.7%	2
FI	45.1%	5	94.1%	1	53.5%	3
FDA	50.0%	4	64.7%	3	52.5%	4
URC	51.2%	3	17.6%	6	45.5%	5
GSA	13.4%	8	88.2%	2	26.3%	6
GRATIS	22.0%	7	17.6%	6	21.2%	7
MOFA	23.2%	6	0.0%	10	19.2%	8
GEPA	7.3%	9	47.1%	4	14.1%	9
GFZB	1.2%	10	47.1%	4	9.1%	10

Appendix 3f: Importance of Business Relationship with Supporting Organisations

Supporting Institution	Palm		Pineapple		Total Mean	Total Rank
	Mean	Rank	Mean	Rank		
GFZB	5.00	1	4.44	3	4.50	1
GSA	3.75	2	4.40	4	4.11	2
GEPA	3.33	6	4.13	6	3.79	3
FDA	3.36	4	4.55	2	3.60	4
GRATIS	3.61	3	3.00	9	3.52	5
URC	3.36	4	4.33	5	3.42	6
NBSSI	3.06	7	5.00	1	3.12	7
MOFA	3.05	8	0.00	10	3.05	8
Ass Gp	3.01	9	4.00	7	3.03	9
FI	2.78	10	3.50	8	3.00	10

9.4 Appendix 4: The background of cases in the palm cluster

In this table I provide information to describe the key characteristics of the palm processing businesses, distributors, farmers and supporting institutions within the palm cluster. The information on the start-up period, size and capacity of operation, location of the business and the demographic features of the interviewee in the processing, farming and distributing were considered. In the case of the supporting public institutions, the responsibilities of the institutions, the location and demographic features were considered	
Cases	Background
Palm case 1	This is a large multinational company established in 1975 and located in Kwae in the Kwaebibirem district in the Eastern Region of Ghana. The organisation farm, process, and export palm fruit to Europe and African markets and have Unilever as their major local buyer. The company employs over 700 workers and has an estimated production capacity of 120,000 tonnes. Mr Agyeman Duah was the interviewee. He is an Akan and a 52 year old. Mr. Agyeman Duah, manager in charge of production and has been working with the organisation for over 20 years now.
Palm case 2	This is a large scale family based processing business established in 1973. Initially was into cultivation of several crops including maize, cassava among others but started processing palm in 1976. Palm case 2 is located in the Kwaebibirem district and employs about 185 workers in the farming and processing activities. Palm case 2, do not export directly. It relies on local businesses to buy directly from them and there are distributors who also buy to sell in the neighbouring countries such as Togo, Nigeria, Ivory Coast and Benin. Kwamena, a 40 year old a Polytechnic graduate who was in charge of operations was the interviewee. Kwamena is a Fanti and has been with the organisation for the past 10 years
Palm case 3	This business is a medium scale partnership company established in 2010 that has foreign and local ownership owners. The business engages in farming, processing and indirect exporting. Palm case 3 is located in the Kwaebibirem district of the eastern region and has a staff work force of 90. Though they sometimes export directly to Europe specifically to Italy, Palm case 3 extensively rely on distributors and buyers to dispose of their output in the West African sub-region. The operations

	managers Mr. Agyemang was the interviewee is 30 years of age and used to work for GOPDC. Agyemang is an Akan and an indigene of Kade. He has tertiary education and has been with the company since its inception.
Palm case 4	This is a medium scale processing business, established in 2009 through partnership between a private investor and Ghanaian counterparts. Palm case 4, is located in Kwaebibirem and actively engage in farming and processing of palm. They rely of buyers and distributors to sell their outputs in the domestic economy and west African countries such as Togo, Nigeria, Ivory Coast and Benin. Palm case 4 employs 80 workers and have out-grower scheme with farmers to supply fruits to feed their plants. Mr. Obeng, the manager of palm case 4, is the interviewee. Mr. Obeng who is 50 years old, use to work for GOPDC (for over 20 years) before moving to join palm case 4 as the manager. He is an Akan and indigene of Kwaebibirem with 30 years experience in palm processing activities.
Palm case 5	This is a locally owned small scale processing business established in 1998. The owner (Mr. Adjei), who the interviewee, was initially residing in Europe, London to be precise, before moving to Ghana to commence his operations. The business is located in Kade in the Kwaebibirem district of the eastern region of Ghana and employs about 11 workers depending on the season. Palm case 5, also farm and process palm fruits but rely on eternal distributors to sell the output in West African countries such as Togo, Nigeria, Ivory Coast and Benin. Mr Adjei cultivates and processes the palm fruit from his own automated processing plant.
Palm case 6	Palm case 6 is a small scale processing business established in 1988 by a women association group, 31st December Women Movement, under the leadership of the Ghana's former first lady. The palm case 6 is a processing centre with links to several farmers supplying fresh fruit bunches for processing and employs about 12 workers. The processing business is located in Kwaebibirem district of the eastern region. The local market is their focus even though distributors buy for West African markets. Madam Ama Maggie a 66 year old woman is the manager of palm case 6 was the interviewee and has

	been with the business for 20 years.
Palm case 7	Mr Adjei, the interviewee, is the association secretary for the small scale processing businesses and has been coordinating their activities for the past five years prior to the data collection. Palm case 7 has been operating for about 10 years now and is made up of processors and farmers. The association based in Kade in the Kwaebibirem district and has about 148 members.
Palm case 8	The interviewee Alhaji Imorro a 63 year old Ghanaian and the owner of a distribution business which was set up in 1999. The business is situated in the central part of Kade in the Kwaebibirem district of the eastern region. Palm case 8 works with over 40 processing businesses supplying which constantly supply CPO for distribution to the neighbouring countries such as Burkina Faso, Togo, Nigeria, Ivory Coast and Benin. Mr. Imorro explains that products are collected directly from the processing sites of mostly small scale process businesses. There is financial incentive offered such as advance payment and so they are able to get regular supply of fruits.
Palm case 9	The second distribution business interviewed is based in Togo but sends vehicle to buy CPO from processing businesses in Kwaebibirem. Francois a 45 year old agent is the interviewee. The business takes advantage of the proximity Ghana and Togo to do business within processing businesses in the Kwaebibirem district. Unlike the Palm case 8, this business is more mobile in the cluster. They equally offer advance payment in order to secure the fruits they need for businesses in Togo.
Palm case 10	The business has been operating since 1995 and the owner Mr. Frimpong, a 52 year old man was the interviewee. This is a relatively small scale farm of 22 acre of palm cultivated. The farm is located in Boadua in the Kwaebibirem district. The farming activity, according to Mr. Frimpong, has been the source of the family's livelihood for two decades now. The business started as an out-grower with palm case 1, but after paying off the initial investment they produce and supply fruits to any processor who will offer a good price. Also palm case 10 has equally been processing some of the palm fruits and has every intension of going into full time processing. The business currently employs 5

	workers who are mostly family members.
Palm case 11	The National Board for Small Scale Industry is the public sector organisation set up to support the operations small business' operation in Ghana. NBSSI was established in 1985 by an Act of parliament (Act 434) and passed in 1981 with the aim to effectively promote the overall development of the small and micro enterprises in the country to ensure efficiency and competitiveness in the production and distribution of goods and services. Their operations are spread across all districts of Ghana and coordinated at the regional level. Eunice Ampofo, the interviewee, is the head of the NBSSI in the Eastern Region of Ghana and has been with the organisation for over 10 years. The small palm processing and pineapple processing businesses have been closely working with their directorates in the Kwaebibirem District and Nsawam Municipality.
Palm case 12	Machine artisans are key features of the palm clusters and are actively developing and repairing new machinery for processing businesses to adopt. The artisan interviewed is Mr Asiedu who has been creating and repairing machinery in the palm cluster since 1999. The palm case 12 operates in Kade and therefore has a closer link to processors within the cluster. Mr Asiedu is 55 year old indigene of Kade who speaks Akan. The workshop has 5 apprentices and one full-time worker. The machines produced include manually small scale palm extractors, automated medium scale extractors and industrial size extractors.
Palm case 13	The directorate of the Ministry of Food and Agriculture (MoFA) district branch in Kade provided valuable information on the farmer groups and support provided for their operation. The head of the extension service unit, Mr Banda was the interviewee.

Palm case 14	The Oil Palm Research Institute is a research institutions situated in the Kwae in the Kwaebibirem district. Palm case 14 was set up in the early 1960s under West African Institute for Oil Palm Research (WACRI) based in Ibadan, Nigeria. The institute has oversight responsibility for three countries - Ghana, Sierra Leone and Nigeria. The basic objective of that time was to provide improved oil palm material for farmers. The institute provides material for farmers, technologies that will help the farmer to get the optimum yields for his crop and agronomic practices such as the control of pests and diseases. Dr. Sakara the interviewee is the director of the institute. He is 58 years and has been with the institute for about 10 years now.

THE BACKGROUND OF CASES IN THE PINEAPPLE CLUSTER In this table, I provide information to describe the key characteristics of the pineapple processing businesses, farmers and supporting institutions within the palm cluster. The information on the start up period, size and capacity of operation, location of the business and the demographic features of the interviewee in the processing and farming were considered. In the case of the supporting public institutions, the responsibilities of the institutions, the location and demographic features were considered	
Cases	Background
Pineapple case 1	This is a large scale processing business situated in Dobro in the Nsawam municipality of the Eastern Region of Ghana. The business was established in 1997 by a Ghanaian expatriate with foreign investors under the Free-zones scheme. Pineapple case 1 farm, process, and export processed pineapple (fresh cuts) to European countries such as UK, Holland, France, Italy, Switzerland, Belgium & Denmark. The company employs over 700 workers and has an estimated production capacity of over 5000 tonnes per annum. Mr Dotse, the productions manager was the interviewee. He belongs to the Ewe ethnic group, 42 years of age and has been working with the company for over 10 years now.
Pineapple case 2	The large scale business was established in 1985 and situated in Dobro in the Nsawam municipality of the Eastern Region of Ghana. Pineapple case 2 farm, process, and export directly processed and unprocessed pineapple to European and African countries such as Switzerland and Nigeria, Germany and Spain. The business is a partnership with Ghanaian owners with foreign investors. The business employs over 200 workers and has a yearly production capacity of about 2000 tonnes. The interviewee, Mr. Bonfe, is the operations manager and has been with the organisation for the past 5 years. He is 38 years of age and belongs to the GA ethnic group of Ghana.

Pineapple case 3	The pineapple case 3 stated as a pawpaw farm the management Paradise farms but was bought in 2003 by Exotic fruits, multinational company, which faced out the pawpaw and began the pineapple cultivation in 2003. The business is located in Nsawam municipality, employs over 400 people and has an annual estimated annual production capacity of 8000 tonnes. Pineapple case 3 exports directly through their multinational cooperation's vessel to their main market in Europe, specifically France, Germany and the United Kingdom. Mr. Asamoah, the farm productions manager and the interviewee, has been working with pineapple case 3 for over 8 years now. He is a 37 years old university graduate and belongs to the Akan ethnic group.
Pineapple case 4	Mr. Gyamfi was working in Italy when he discovers the MD2 pineapple variety from Costa Rica. The manager of pineapple case 4 was a pioneer in bringing the MD2 pineapple into the country since the year 2000. The business is partnership of Ghanaian and international investors. The business is located in the Nsawam municipality and employs over 400 workers in the farming, packaging and direct distribution of pineapple to European countries such as Italy, Spain and Germany. Kwaku Aryeetey, the interviewee, is the farm manager of the pineapple case 4 and has been working with the business for 6 years. He belongs to the Ga ethnic group and 34 years old.
Pineapple case 5	This is a small pineapple process business located in Adoagyire in the Nsawam municipality of the Eastern Region. The pineapple case 5 farm, process and directly distribute its products to market in Nsawam and Accra. This is a sole proprietary business which employs 15 workers and has annual output capacity of 700 tonnes of bottled juice. The interviewee, Mr. Nii Lamptey, is 49 years old and belongs to the Ga ethnic group. He is the manager and owner of pineapple case 5 and has been operating the business for the past 8 years.
Pineapple case 6	The company is a large-scale processing fruit juice company established in Ghana in the year 2005 to process fruits, that is, orange and pineapple into concentrates and single stench juice. The business is a partnership with Ghanaian and international investors. Pineapple case 6 export's to mostly the European markets but have a quota for the

	domestic and West African markets. The business employs over 400 workers and has an annual average production capacity of 12000 tonnes. Michael Djan is head of operations and the interviewee. He is an Akan, age 26 and has been with the company for over 7 years
Pineapple case 7	This is a small family-based pineapple process business located in Dobro in the Nsawam municipality of the Eastern Region. The business was established in 2003 as a home processing enterprise after the owner's 12 working experience in Nsawam Cannery. Initially run by me and my family The pineapple case 7 farm, process and directly distribute its products to market in Nsawam and Accra. The business employs 15 workers and has annual output capacity of 1010 tonnes of bottled juice. The interviewee, Mr. Adjei, is 49 years old and belongs to the Ga ethnic group. He is the manager and owner of pineapple case 7 and has been operating the business for the past 7 years.
Pineapple case 8	The pineapple farmer operates a large scale farm in the cluster on an out-grower plantation scheme with pineapple case 1since the year 2000. The farm has been in operation since 1990 and is family owned. Though in terms of variety of pineapple, pineapple case 8 normally produce three varieties of pineapples - MD2, Smooth Cayenne and Sugarloaf – however majority of the pineapples have been Smooth Cayenne. They employ on average 20 workers and supply up to 25000 suckers per week during harvesting periods. The interviewee, an Akan, is a family member and a temporary farm manager who is 28 years old and studies at KNUST.
Pineapple case 9	The Ministry of Food and Agriculture in the district has a core mandate is to transfer technology and other relevant information that will help the farmers to increase their production. The Ministry is decentralised and departments and agencies that organise fora and activities to transmit government policy and programmes through field extension officers in most towns and villages. The interviewee, Mr Damoah is the head of the agronomy department
Pineapple case 10	The Food and Drugs Board now known as the Food and drugs Authority was established in 1997 with the objective of ensuring public safety in conformity with the required standards to meet consumer needs. The FDA has been

	given the power of implementation of regulatory standard on products such as food, drugs, household chemicals, medical devices. The FDA is an implementing body of the Ghana Standards Authority (GSA). The Authority relating with the pineapple and palm cluster is located in the Eastern Regional capital, Koforidua. The director of research and the interviewee is Mr. Boateng is a graduate from University of Ghana and has been with the authority for the past 11 years.

9.5 Appendix 5: Data collection tools

1st April 2014

To Whom It May Concern,

This letter is to certify that **Mr Anthony Ayakwah** is enrolled as a full-time student pursuing a Ph.D. degree in the Business School at the University of Middlesex, London, UK. He is conducting research on Small and Medium-sized Enterprise clusterings and exporting activities in Ghana, particularly in Kwaebirem district and Nsawam municipality.

Mr Ayakwah is currently in good standing and is in the data collection stage of his studies. He will be travelling to Ghana for research field work purposes between April and November 2014 and will be conducting interviews with entrepreneurs (farmers, processors and exporters), sector experts, public and private support agencies, business associations, bank managers, research & technology institutes, policy makers and local government officials. Your support is greatly appreciated.

For additional information, please contact Centre for Enterprise and Economic Development Research (CEEDR) at Middlesex University, UK (see contact details below).

Yours sincerely,

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Appendix 5b: <u>SURVEY QUESTIONNAIRE</u>

Hello, my name is Anthony Ayakwah. I am a doctorial student from Middlesex University, UK. I am conducting research on SME clusterings and their exporting activities in Ghana. Your phone number was acquired from your Association Secretary and NBSSI. Please may I have ten minutes of your time to ask you some questions about your business? Please, I assure you that the information provided will be treated confidentially and used only for the purpose of this research. I would be happy to answer any queries you have.

<u>SUPPLY CHAIN IN THE SME CLUSTERING</u>

1. What does your enterprise do?
   □ Processing only   □ Processing and exporting
   □ Processing and farming   □ Processing, farming and exporting
   □ Other..

2. When was your company established? ....

   □ 0-2 years ago   □ 3-5 years ago   □ 6- 8 years ago   □ 9 -11 years ago   □ > 12 years

3. Is your firm a sole proprietorship □   Partnership □   Community owned □

4. On average, how many workers do you employ annually?

   4a. <u>Full-time</u>   □1 -10   □11-20   □ 21 - 30   □31 – 40   □ above 40

   4b. <u>Part-time</u>   □1 -10   □11-20   □ 21 - 30   □31 – 40   □above 40

5. Using a scale of 1 to 5 where 1 is NOT IMPORTANT AT ALL and 5 is VERY IMPORTANT, how important is it for your company to be located in the district/municipality in terms of :

No		Not important to Very important				
		1	**2**	**3**	**4**	**5**
5.1	Access to buyers	□	□	□	□	□
5.2	Access to raw materials	□	□	□	□	□
5.3	Access to labour	□	□	□	□	□
5.4	Access to machinery & technology	□	□	□	□	□
5.5	Access to specialist business advice/info	□	□	□	□	□
5.6	Access to credit	□	□	□	□	□

(6) Which of the following do you do business with?				**(7)How many........ do you do business with?**			**(8) How often do you do business with (any of those mentioned in Q6)***					**(9) Using a scale of 1-5, 1 is NOT IMPORTANT and 5 is VERY IMPORTANT, how important is your relationship with (any of those mentioned in Q6)**				
	Yes	**No**	**Yes to an extent**													
Farmers	□	□	□				T1	T2	T3	T4	T5	1	2	3	4	5
Processors	□	□	□				T1	T2	T3	T4	T5	1	2	3	4	5
Exporters	□	□	□				T1	T2	T3	T4	T5	1	2	3	4	5

*Number of times: **T1** (Daily)   **T2** (Weekly)   **T3** (Monthly)   **T4** (Quarterly)   **T5** (Yearly)

	(10) Which of the following organisations are you aware of?			(11) Do you do business with (Relate to Q10)			(12) How often do you do business with (Relate to Q10)					(13)Using a scale of 1 to 5, 1 is NOT IMPORTANT and 5 is VERY IMPORTANT how important is your relationship (Relate to Q10)				
	Yes	No	Yes to an extent	Yes	No	Yes to an extent										
BAS	☐	☐	☐	☐	☐	☐	T1	T2	T3	T4	T5	1	2	3	4	5
NBSSI	☐	☐	☐	☐	☐	☐	T1	T2	T3	T4	T5	1	2	3	4	5
URC	☐	☐	☐	☐	☐	☐	T1	T2	T3	T4	T5	1	2	3	4	5
GSA	☐	☐	☐	☐	☐	☐	T1	T2	T3	T4	T5	1	2	3	4	5
Ass Gp	☐	☐	☐	☐	☐	☐	T1	T2	T3	T4	T5	1	2	3	4	5
GRATIS	☐	☐	☐	☐	☐	☐	T1	T2	T3	T4	T5	1	2	3	4	5
FI	☐	☐	☐	☐	☐	☐	T1	T2	T3	T4	T5	1	2	3	4	5
GEPA	☐	☐	☐	☐	☐	☐	T1	T2	T3	T4	T5	1	2	3	4	5
(14) Is there any other supporting organisations that operate at or operate in the district/municipality?																
a.							T1	T2	T3	T4	T5	1	2	3	4	5
b.							T1	T2	T3	T4	T5	1	2	3	4	5

Institutions: Business Advisory Services (BAS); National Board for Small Scale Industry (NBSSI); Universities Research and Centres (URC); Ghana Standards Authority (GSA); Association Groups (AG); Ghana Regional Appropriate Technology Industrial Service (GRATIS); Financial Institutions (FI); Ghana Export Promotion Authority (GEPA)

Frequency: **T1** (Daily)   **T2** (Weekly)   **T3** (Monthly)   **T4** (Quarterly)   **T5** (Yearly)

No	Using a scale of 1 to 5 where 1 is Not Innovative and 5 is Very Innovative	Not Innovative to Very Innovative				
		1	**2**	**3**	**4**	**5**
15	How innovative do you think your business is?	☐	☐	☐	☐	☐
16	How innovative do you think your business is in relation to your competitors in the district/municipality?	☐	☐	☐	☐	☐

17.   In order of importance, what are the most important innovative activities that your

business has undertaken in the last three years?

(a)..

(b)..

(c)..

(d)...

EXPORTING ACTIVITIES OF SME CLUSTERINGS AND THEIR INSTITUTIONS

18. Do you export?
   a.   Yes

    b. No

    c. Yes, to some extent. Please explain..

If Yes, skip to question (20) below.

19. If No, may I ask why are you are not exporting, please?

    ....

    ....

    ....

20. Where do you export to? ☐ Neighbouring Countries   ☐ Other Developing Countries

                             ☐ European Countries   ☐ Other Developed Countries

If Yes,

	(21) How long have you been exporting for?					**(22) How often do you export?**					**(23) What proportion of your production do you export?**				
Exports	Y1	Y2	Y3	Y4	Y5	T1	T2	T3	T4	T5	V1	V2	V3	V4	V5

Frequency: **T1** (Daily) **T2** (Weekly) **T3** (Monthly) **T4** (quarterly) **T5** (yearly)

Years: **Y1** (1-5 years);   **Y2** (6-10 years);   **Y3** (11- 15 years);   **Y5** (above 15 years)

Volume: **P1** (1 – 20%);   **P2** (21 – 40%);   **V3** (41 – 60%);   **V4** (61 – 80%)   **V5** (above 80%)

(24) In terms of your exports which of the following organisation(s) are you in partnership with?				**(25) How long have you been exporting with?**						**(26) How often do you export with?**						**(27) Using a scale of 1 to 5,** how **important is your relationship with?**				
	Yes	**No**	**Yes to an extent**																	
Is there any other means by which you export?				Y1	Y2	Y3	Y4	Y5		T1	T2	T3	T4	T5		1	2	3	4	5

Years of exporting: **Y1** (1-5);   **Y2** (6-10);   **Y3** (11- 15);   **Y5** (above 15 years)

 Frequency of exports: **T1** (Daily) **T2** (Weekly) **T3** (Monthly) **T4** (Quarterly) **T5**

      (Yearly)

28. Have you received export support in the last five years? ☐ Yes ☐No   ☐ Yes to some extent

(29) Which organisation(s) gave the support?	**(30) What export support did you receive?**	**(32) Using a scale of 1-5, how useful has it been?***				
a.		1	2	3	4	5
b.		1	2	3	4	5

		1	2	3	4	5
c.		1	2	3	4	5
d.		1	2	3	4	5
e.		1	2	3	4	5
f.		1	2	3	4	5

> ***Usefulness of the policy or programme:** Not Useful to Very Useful (**1, 2, 3, 4 & 5**)

32a. Considering all what you have said, from a scale 1 to 5 (where 1 is not important and 5 is very important), how important is it for your company to be located in the district?

1	2	3	4	5
☐	☐	☐	☐	☐

32b. Can you explain your main reason for this?

....
....
....
....
....
....

33. In relation to the last financial year, is the business
   ☐ Growing   ☐ Staying the same or ☐ Shrinking

34. Which of the following best describe your total output in the last financial year?
   ☐ < 500 tns   ☐ 500 – 999 tns   ☐ 1000 – 1499 tns   ☐ 1500 – 1,999 tns   ☐ > 2000 tns

GENERAL BACKGROUND OF ENTREPRENEURS

35. What is your highest formal educational?
   a. Basic/Primary school   ☐
   b. Secondary/Technical   ☐
   c. Tertiary/University   ☐
   d. No education   ☐

36. Male ☐   Female ☐

37. How old are you? ....

38. Which ethnic group do you belong to? ....

Thank you for your time. Would it be ok if, as part of the research, I could contact you again if I have further questions?

Appendix 5c: Semi-structured Interview Guide

Semi-Structured Topic Guide (Palm & Pineapple Processors)

Could you briefly summarise the history of your business, how it started and the main issues
  about the business since it began.

- What are your main markets
- Clients
- place

Where do you generally access resources including finance, information

- Have tried to develop and implement improvement in your processes and product?
- What type
- Where did it come from
- Who helped you

How did you begin your exporting activities
- Who helped
- Role of organisations/association

Have you ever received any support to start or grow your exports?
- Who provided the support
- Quality of support

What other source of support at the local, regional and national level do you know?
- Tell me something about these sources

What does it mean for you and your organisation to be located in this district
- Relationship
- Markets
- Contact

Semi- Structured Topic Guide (Palm and Pineapple farmers)

Background of the farming activity
- Can you tell me a bit about your business?
- What drove you to start?

Relationship in the clustering
Can you describe your relationship with other farmers and processors in your operations?
- How did you establish these relationships?
- What role does the association play?
- How important is the relationship to your operations
- Which processing firms do you supply?

Which organisations do you work with in your operations?
- Which are these organisations?
- How important are they?

Operational information
Where does information on the type of crop specification, market and finance come from?
- How often do you get such information?
- At what stage of operation do you get it?
- What challenges, if any, do you face in acquiring this information?
How important is information to your operation?
- Which part of your operation do you think information flow has been helpful?
- In what way has it help?

Semi- Structured Topic Guide (Supporting Organisations)

Could you please tell me a bit about the history of the organisation?
- Objective for establishing
- Structure of operation

What are some of the ways your activities have supported firms in their export.

- How do you ensure information on these services or products is available?
- Who determines the type of support services or products you offer?
- Which farmers or processors are currently being assisted?
- What role does the association play in all this?
- How useful do you think your support has been to farmers and processors?
- What challenges do you face in providing the services?

  Which of these support services you provide is linked to government export programmes?

- What are these programmes?
- How long have they been running?
- Are there any challenges in adopting these programmes?

How well do you think these information and support affects the exports of these firms

Pineapple case 1 (PC1) – 4:13pm

AA: Good afternoon sir and that thank you for granting the interview request

PC1: You are welcome

AA: **Can you tell me briefly the history behind the start ups and the main issue with respect to your company**

PC1: According to the chairman, he was working with one of the fruit producing companies in the UK and he suggested to the owner of the company that he will prefer, according to him there were some food challenges in the UK so he thought that the only way was to relocate the business to Africa. And the owner of the company just introduced him at the office and then they sacked him. That was in 1996 there about, he was sacked so as I mean just to make himself to get income he thought he needed to start something doing himself. So the idea of which he was sacked he wanted to prove to the owner, his former employers that the idea of sacking him was a good one and therefore he will like to implement.

So he came to Africa and settled in Ghana (1997) he got the permit and then started. He located the factory near where we are currently located. And then that was the whole idea. He wanted the factory to closer to where the fruit are produced and also for the customer to be able to eat it in 24hours after harvest. So that is the whole idea about how the company started so we started from Ghana and the first production was in 1998. So that was the main idea that he wanted the factory to be located to where the fruits are produced at source not that you export the fruits raw into Europe and before you process he wants the fruits to be processed where it is produced before it is flown in fresh to the consumer in Europe. So that is the whole secret about the whole business and fortunately that was the time the government of Ghana was investing through the free zone, you remember the Rawlings Regime then to the later part of the regime, they were also going around looking for investors and apparently he was one of the entrepreneurs who was an investor in the government's investment by then, who had taken the opportunity and gone to Ghana and had joined the free

zones. So it was helpful to him because he doesn't pay certain taxes. He enjoys tax incentives because we are a free zones company. We process and exported everything. Almost 99.9% of our fresh cuts are exported. So that is the reason why our company was located in Africa and not Europe.

AA: **so what are your main markets?**

PC1: The main market is purely in Europe. European market, we are in the UK about 60% of business is in the UK, 20% in Holland and the rest scattered in France and Germany Switzerland. And in the UK we have supermarkets like ASDA, Waitrose, Sainsbury, and just recently M&S. So the biggest supermarkets in the UK we supply them directly with fresh cuts apart from TESCO we fill the shelves of those big supermarkets like Sainsbury and Waitrose.

AA: With respect to the local market do you supply some to the local market.

PC1:   For that fresh cuts it is only, for now, Labadi Beach Hotel they take some, One airline Suvair is another company that buys fresh cuts from us and also there are some other people who for example when they have a party who wants fresh fruit to serve, we take the order and produce. So that is less than 2.1% of our total production.

But for the juice, we also produce juice and that one is not part of the free zone, it is located at another piece of land near 'Miedea'. That one is only local and we don't export it. We use to export the juice to M&S before we stopped and that business was about 6years ago. We exported for just 2years and we had to stop it was not viable any longer.

AA: **where do you generally access resources such as information, technical advice and even finance from to run your operations**

PC1:   For information in terms of customers, you know we use the internet a lot so all customers send all their request through the internet and there is mainly an hourly communication between us and our customers so in terms of information there is good communication between us and our customers. Even every year there is an audit by some of the customers so they audit some of the packages to be sure that everything that you are doing is so every year they come and audit us and any recommendations and advice they propose and we implement them. So in terms of

information there is a good communication between customers and the factories but in terms of finance we don't get much support from the government. We don't get apart from, as I said it's a free zone company. The free zone company is where we get the exemption so the government does not give us anymore exemption so when we need financial support we go to the open markets and also take loans. But most of our loans are i mean we take them from Europe because over there the interest rates are lower than that of Ghana. But we also have some bank accounts in Ghana for I mean internal transactions.

AA: Oh ok so what about technical advice

PC1: For technical advice you know because we have what we have is our agronomist department, you understand, you know him he is Mr. Abloh.

AA: Yes I will do

PC1: So he rather gives special advice to the out-growers or farmers to produce to our standard. So we don't get any advice from anybody apart from we rather train the farmers they can produce to our requirements and then to the quantities that we need. And even sometimes PC1 goes in for loan and gives it to some of our farmers at very low rate. For example if you go for a loan at a rate of 10% interest rate.

AA*:* You mean your out-growers?

PC1: Yes, both the large and the small and those who don't have the capital to prepare their farms. We give them soft loans they don't pay any interest the only pay the money back is by supplying the fruits. So there is that arrangement because we need the fruits to be processed and anyway that we can guarantee that we can have continuous flow of fruit or your raw material is that good relationship between the two. I mean the farmers and the company.

AA: Oh am glad. Do you see that there is a lot of trust between the two of you?

PC1: Yes that is the only way out. Yes because if there is somebody who wants to pay them by cash and then you said I will pay you about two weeks, they will prefer the one who has got the cash to pay them. But we have to sell before we can pay them.

AA: Exactly.

PC1: So we pay them after every two weeks as soon as we supply, after every two weeks then we pay you. So the only way out is that at least that is the small support for the trust is to give them some small loan.

AA: It's for commit them isn't it?

PC1: Yeah, some kind of commitment to us and they are happy. And then beside that we have a foundation in the communities that supply fruits. We build KVIPs for them, we build schools for them and boreholes. Yeah you can go to our website. Even this year we are doing ten projects in the communities that are supplying us the raw materials.

AA: How have you built that relationship with respect to your information flow and are you able to meet their needs?

PC1: Yeah this information flow is regular. And yeah if we are unable to deliver to their requirement you can explain why you couldn't deliver that and there is that trust between us.

AA: what have they done to demonstrate that trust?

PC1: That is why they rather increase, every year they rather add more business. If they don't believe us they wouldn't continue with us. And so far in the UK, I think PC1 is becoming the largest exporter of fruit to the UK market. Because if we are supplying the major supermarkets that tells you that there is trust. You know if you take mango for example it's a seasonal fruit and October to December there is no mangoes anywhere apart from Brazil. But we fly in the mango from Brazil to Ghana and then process it in Ghana and export it to Europe. In fact which company can do that? It's very expensive. In that period we don't make any profit but that's part of the comment and trust building. We don't want them to have their shelves empty. We are committed to them and they are committed to us. And I am sure that is the reason why more of them are coming because we are able to deliver fruits throughout the year to the market that has business with us.

AA: **Have you tried to develop and implement improvement in your processing in the last three years?**

PC1: The best we are doing now is, you see, the chairman believes in giving jobs to majority of Ghanaians so he prefers to have more manual labour than trying to alternate. But that notwithstanding we have tried to add some little bit of alternation for example our coconut processing we just bought a new machine so that we can improve upon the production. Because normally we do it by hand and sometimes it's not the best so we just bought a machine just to improve upon the coconut processing. Mango, in fact it's been difficult to get a machine to process mango automatically. If you look at the volume that we process everyday sometimes 40 tonnes of mango or 30 tonnes of mango. There is no machine that can easily produce that. You can only even do about 10 tonnes that is about a third of your total requirements. So in terms of processing that's apart from coconuts. We also have pineapple machine anyway that process pineapple... Initially everything was manual but gradually we are trying to add some little bit of automation to it ensuring that the poor people also have some jobs so we keep it at a minimal level and not to the level of developed companies or country. So it has supported our expansion in our outputs over the years particularly our pineapples even though we are introducing new products

AA: **How did you begin you exporting activities, how did you start?**

PC1: As I said, when the chairman got to Ghana, He knew that market was there, you understand? And he knew that only way to get to the European market or to UK especially was to fly the product. So when he got the first contact with one of the companies in the UK he needed to fly the product so he flew the first consignment. He had the idea that definitely before you could get to the market on time, for if you ship it, it will take you two weeks before it gets to Europe, that will defeat the purpose of coming to Africa. He wanted the product to be fresh, so the best way to get it fresh is to export it. It leaves this evening tomorrow morning it's at the depot. The next day it's in the shop. That's how everything started.

AA: Do you have challenges with respect to land acquisitions in the community?

PC1: Indeed, where the factory is located now, the land, one of the condition or one of the laws in the country is that before an investor comes to the country or to invest, he must have a partnership with any local entrepreneur. So one of the shareholders or

one of the Ghanaian shareholders in the company at that time, when the chairman started with the company, provided that piece of land. But beyond that we also decided to acquire some other land for do some small farming not all that big, because you cannot waste land so we decided to do some small farming. The company invested so much to acquire land but we loss them through land litigations and turner system. You buy the land and they say the papers are ok later on someone will come up and say the same land has been sold to a different person and the company do not have that power. So we loss about 400acers of land, we bought almost 800 and we loss 50%.

AA: And this has it affected your activities?

PC1: Yes. And this minister came to the factory and the Chairman complained about the situation. That is the challenge that he has faced he bought so much land to development it into more facility and because of the issues. He has complained to any minister who visits the factory or any dignitary who visit the factory but still nothing seems to be done about it. Now if he is investing i am not sure he will buy any land again apart from some lease for maybe for 5 years or 10 years.

AA: **Have you received any support to grow some part of your activities in terms of your exports or initiate any exporting activities into any market.**

PC1: Yes apart from the European market we tried the US market but that has not been successful because airline is also another issue. You know the distance from here to US is longer than that of Europe. The government tried to help us but they couldn't help us.

AA: Apart from that you have not received any support in terms of your exports?

PC1: No we haven't received any support apart from awards that we have won for our excellent activities. Just recently the company won the best local entrepreneur. Recently, I was even there with the chairman and the marketing manager. It was adjudged the best international entrepreneur in the country that was about two months ago and was sponsored by UT bank. ,

AA: How well does your institution liaise with other research institution in your

operations.

PC1: Well, unless you speak to Mr. Ablorh the head of agronomy about it.

AA: But respect to the support I am talking about, your relationship between the MoFA and MoTI in terms of support.

PC1: I will tell you. They will come and talk beautifully when iti come for implementation it's zero. I remember Clement Domado, the minister of agric, came to the factory we made some of our complaints to him, He agreed to start a committee that will look into our concerns. Ever since, that is the beginning of this year, up to now he has never called for any meeting , He just talk big. The last time even the chairman went to see the minister for trade and industry, Harruna iddrusu, about this land issues and he was rather telling the chairman to relocate to the central region. He wanted us to move the business because of the problem.

AA: When the key thing is about proximity to the airport?

PC1: Yes, He really didn't really know why the company was sited here. You understand, He doesn't know his idea will destroy the company. So its very sad, its very sad. May be i can only say the when it comes to fertiliser, that one I can, they help us sometimes because they give it to us at the subsidised price so we don't buy at the price.

AA: what if you are importing equipment?

PC1: those ones they are covered by the free zones so, anything we bought they are given the benefits.

AA: How do your activities influence these communities?

PC1: That is it the foundation that id the purpose of it. The community that provide us, some of them are in the remote areas and some of them do not have even good drinking water, they don't have good school, they don't have, we can't build roads for them but for schools, boreholes clinics, KVIP, those ones we can provide. Just recently the foundation had a board meeting with shareholder some communities that had benefited some of them point to the fact that since we provided them with KVIP cholera cases have almost been eliminated. So that tell s you that they appreciate the fact that we came in to give them the KVIP and they don't need to go to the bush but

they have access to good toilet, they access to good water. So in fact since the project started about 5 years ago we have provided almost 50 projects and the sky is the limit for PC1.

AA: It means your social responsibility is massive and you are making impact

PC1: Yes, for the communities that provides us with the fruits because without them we don't exist. So we have to acknowledge. Apart from we paying regularly for the fruits that they provide we also make sure that we return part of our profit to the community. The foundation is based upon, we every profit that we make, we set aside a percentage so at the end of the year if this money accrued to the foundation we just use some of the money to develop some of those facilities to the community.

AA: **what does it mean for you and your company to be located in this district?**

PC1: One, I mean job is one, we are reducing poverty in the community. Don't forget that for every head of family in Ghana you have about not less than 5 dependants. You understand? So if the company is growing, every year we grow not less than 10%, so if the company grows we employ more. Last year we were around 2200, this year the total number of employees is more than 2500, we are about 2600 if you add two factories. So you cannot underrate the presence of PC1 in Ghana. It bringing in more, even bringing in hard currency. Don't forget that Ghana needs hard currency. We export everything, and we bring foreign currency any transaction. Even our salaries, I mean, they send hard currency it's converted into Cedis so government is benefiting and don't forget that that PC1 alone we are the largest processor when it comes to fruits, we process the largest amount of fruits in the country there is no company that can compete with us. So without the PC1 the communities that produce fruits, they might not have the chance to be able to process them may just leave them in the farm because there is no market so the presence of PC1 in the county especially in the community in which the company is sited. I mean it's a great deal to those communities and the district that these communities are sited in. And when it comes to Ghana export duty fees PC1 alone contributes to not less than 1%, if you look at the whole country PC1 alone contribute not less than 1% of GDP of total export, not less than 1% . We are always around 1.1, 1.5 so it tells you that every year we doing well and we are not just bringing in local currency but hard currency and that is good. That

is what government want, government wants the companies to export, and how do you export? If you don't export you can't get the hard currencies, you want to buy fuel, want to buy some machinery.

AA: what will you say are the critical challenges you face in your operations within the district?

PC1: In fact, the difficult one I will tell you is the unreliability of electricity that is the first thing I will tell you. We need reliable supply of power. Apart from that we need the support to the community. Government should support the farmers. Government is not giving support. If PC1 is supporting the farmers, government should do more than that. They should not wait for PC1 to support the farmers and they want to take the credit that agric is doing well. Agric is doing well because companies that are a supporting the farmers. Government is not doing enough, government should support.

AA: But government is arguing that there are funds such as EDIAF fund is there for farmers to take advantage now.

PC1: It's a useless fund!! I wish you will go there and check. We have all tried to assess the loan, yeah we did

AA: But the ministry has mentioned it to be helping

PC1: You should go there, they are just sitting in the office they are not getting the facts. You ask them how much has been voted for EDIAF and how much have been loan out and to which companies? They should give you the fact. Go to the ... I mean how much!![27] PC1, we need so much money for so many things, you understand, raw material cost for PC1 is about 25% of our operations, so that is more than 10million pounds every year and how much money have they given us, they cannot even give us 1million pounds. So what are they talking about!!

AA: what about the MiDA funds?

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27 The interviewee became passionate

PC1: MiDA helped. It helped some of the farmers but most of these companies that benefited from the MiDA fund exported to the American markets. And I am not sure of the status of that MiDA funds. When they gage the loans out it benefited companies that were exporting to the American markets. But i think there are other advantages, the MiDA fund was able to construct some of the roads leading to some of the pineapple farms, that was done. Some of our too farms are also in those communities so we've seen that it's been done, it's not been bad. But it should have been a continuous thing I am not sure it's working any longer

AA: I am told its running but people are having repayment issues?

PC1: Ah**,** they should have given it to people like us so that we can bring returns.

AA: With your activities you do in terms of the farmers you deal with, is there any large farmer you deal with in supply the fruits you send abroad?

PC1: Yeah we have, when it comes to pineapple the largest smooth cayenne producer in the country he has been supported by PC1. The largest smooth cayenne producer in the country now is called Billy, you can go to the net and look for him. He is the largest smooth cayenne producer and the help that he got came from PC1.

AA: I am told that the smooth cayenne is very juicy?

PC1: it is juicier that MD2, MD2 is too dry. MD2 if you don't take time you cannot use it to make juice. You have to blend it with juice coming from smooth cayenne. And that business of MD2 came to destroy the smooth cayenne farm.

AA: Is it the indigenous one that's the smooth cayenne

PC1: yeah that is it. The Costa Rican pineapple is the MD2. And it's not good for our climate. It grows well in Costa Rica than Ghana. Costa Rica they are very big but in Ghana they are not like the Costa Rican ones.

AA: Generally how do you see your relationship with your farmers?

PC1: so far it's not bad, it is cordial because, if it has not been cordial am sure they wouldn't have continue to have come to us and we too we would have maybe probably stop giving them the soft loan. You know sometime when give them the soft loans some of

them default in payment, we don't do anything to them, we don't take them to court because they are poor farmers. We have lost so much money out of them because someone has failed so you would not support them.

AA: Is it that the farms failed or they sold it to other people

PC1: some of them they couldn't manage their farms well. They couldn't manage their farms well. Those of them who have continued to manage their farms well they are still coming for loans, they are still supplying us. Their farms are standing. They are the big man if you go to their farms you will be amazed. You will be amazed, yeah.

AA: What will you say is driving the success of PC1?

PC1: I think cheap labour is one28, You cannot compare the labour in Ghana to that of UK. And then we are also close to the raw material, you understand, very close to the raw material. We have fresh cuts within two to three weeks you have the fruits in your home, you know. So those are added advantage. So basically those are the areas. Cheap labour, cheap raw materials especially mango when we are in the groundnut seasons we have cheap mango. And we make a lot of money by selling it. As for the problems I have already told you, unreliable electricity and so on

AA: To appreciate your operations can you run me by your supply chain activities from the farm till the final consumer abroad?

PC1: ok from the farm the fruit from the farm, then to the factory then they are processed, when they are processed we cool them down to below five degrees. We bring the temperature below five degrees. Between 1and five degrees. We load them into our trailers. We don't use any chemical for preservation we make sure the temperature is below 5 degrees not frozen. And then when its gets to the airport we have another chiller at the airport. When the airline arrives we dispatch the consignment to the airline by 10 o'clock the fruits are in the air, still in a cold environment. After 6-8hrs they are in Europe early in the morning they are discharged into our depot, we have

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28 laughter

one big depot at Heathrow airport in the UK. Early in the morning the trucks will come and come and take them to the various supermarkets. That is the chain that's the way the supply chain of our product is. It's a simple process.

AA: So in terms of your exports do you run the exporting yourself or it's contracted

PC1: Yeah all these processes we have our people, we have our people at the airport who are PC1 employees who process all the documentation, go through the customs officials, the security officials, the airlines official and make sure that the documents are well prepared and the products are flown to the various destinations in Europe. You have a big depot, Norbet, for example in the UK near Heathrow. I have been there before; they sent me on a course in the UK so that i get real experience. It's a big warehouse where they received all fresh cuts from all over the word. Then the supermarket will give them the direction when things get to the other depots in UK. They price and then bring it to the supermarket. We also have our head office in UK. And we also have our marketing team all over Europe. We have some in Holland, some in France some also in. Most of them are in the UK, anyway, because that's our largest market. They try to look for new markets and also interact with customers. We also have our fruit check personal manager in the UK. So it's easy if there is any complain from any customers about the state of our product he carries the message to us and sit down with them on how to solve the problem and we continue with our relationship.

AA: Before I end, these are other firms that process fresh pineapple and concentrates in your locality, how is your relationship with this individual firms, small medium and large firms in your operation.

PC1: Pause. In fact when it comes to fresh cuts processing there is no competition in the country, but the juice the competition is very keen. But I think we are now on our brand to always overtake some of them. But when it comes to relationship there is no direct relationship we are all focussed on our business. We are not competing for example when it comes to raw material we don't compete. There is only one company that dries or that is into drying of fruits. They buy mangos they buy pineapple but everyone has its own requirement so there is no problem about that.

AA: What is the name of the company?

PC1: they are called Hans Peter dry fruit processing it located at Adeisu.

AA: Oh HPW?

PC1:   Yeah HPW. But you will be surprised we even supply them fresh cut to export. It's a Swiss company. The owner is called Hans Peter and he has a big drying business in the country but when it comes to the fresh cuts he relies on PC1 to process for them to export. He visits our factory as if it's his own. So there is no competition, we are just doing our work and they are also doing their works.

AA: What about Bomart?

PC1: Bomart is also into some small drying. Bomart is into big time farming he even supply us with pineapple but he export raw pineapple and he is into drying at the same time

AA: So Bomart supplies you pineapple some times

PC1: yes even Bomart was our first supplier of pineapple before he decided to set up some small factory to process, just to do some small drying. And you know the customs officials who process us, we are all free zones company Bomart, Hans Peter and PC1 we are all free zones companies and they always come to our factory to see to all the documentation because customs officials will have to check before they export or import. We even built the office for the customs so they are located in our factory so if anything they will rather come to our factory to be able to certify their documents

AA: So in effect you are not in rivalry

PC1: oh no no we are not looking at anything like that. The most important thing is that we are all doing our work.

AA: You all have different niche markets?

PC1: Yes. We are not competing. In fact, we cannot compete because we are all into different areas so far us we are all getting our raw material I mean no body is worried.

AA: Sir I cannot thank you enough for your patient despite being a busy man.

9.6　Appendix 5: Qualitative analysis using NVivo

Nodes for Pineapple Processing Cluster

Node					
Business start up		4	16	16/01/2015 14:49	
	External factors to business clustering	2	3	16/01/2015 15:04	AA
	electricty and fuel supply	1	1	19/01/2015 12:57	AA
	Location and business operations	4	7	16/01/2015 15:02	AA
	favourable climate	1	1	19/01/2015 16:31	AA
	ownership	2	2	19/01/2015 14:53	AA
Innovative activities		4	12	16/01/2015 14:53	
	external driven	2	5	19/01/2015 15:05	AA
	research institutions	3	3	19/01/2015 15:06	AA
Markets for produce		4	21	16/01/2015 14:52	
	Exporting activities of business	4	9	16/01/2015 14:58	AA
	export routes	2	4	19/01/2015 16:17	AA
	export support	1	2	19/01/2015 20:30	AA
	sustaining trade relationship	3	7	19/01/2015 15:00	AA
	trade network and niche markets	3	5	19/01/2015 14:54	AA
	local market sales	3	4	19/01/2015 12:35	AA
Relationship within clustering		3	8	16/01/2015 14:54	
	farmers and processors	1	3	19/01/2015 13:01	AA
	relationship with community	3	3	19/01/2015 12:54	AA
	trust and commitment	1	2	19/01/2015 12:33	AA
Resources for production		4	16	16/01/2015 14:52	
	financial resources	3	3	19/01/2015 12:39	AA
	information flow	4	5	19/01/2015 12:40	AA
	knowledge on business operation	1	2	19/01/2015 12:46	AA
	raw material sources	1	1	19/01/2015 12:40	AA
	complementary role in raw material distrib	1	5	19/01/2015 12:44	AA
	informal finance arrangements	1	1	19/01/2015 14:02	AA
	land turnure system and ubanisation	4	5	19/01/2015 12:49	AA
	variation in raw materials	3	3	19/01/2015 12:42	AA
Support to businesses		4	5	16/01/2015 14:55	

Nodes for palm processing

Name	Sources	References	Created On	C
Business start up	4	14	16/01/2015 15:07	
External factors to business clustering	1	1	16/01/2015 15:07	AA
electricity supply	0	0	19/01/2015 10:39	AA
fuel prices	0	0	19/01/2015 10:39	AA
role of foreign entrepreneurs	0	0	19/01/2015 11:07	AA
Location and business operations	3	6	16/01/2015 15:07	AA
economic activities	0	0	19/01/2015 10:41	AA
environmental condition	0	0	19/01/2015 10:40	AA
Innovative activities	1	2	16/01/2015 15:07	
external driven innovation	0	0	19/01/2015 10:33	AA
localised innovation	0	0	19/01/2015 10:32	AA
Markets for produce	5	22	16/01/2015 15:07	
International distribution	4	12	16/01/2015 15:07	AA
relationship with distributors	0	0	19/01/2015 01:48	AA
Local distributors	0	0	19/01/2015 01:12	AA
local industries	0	0	19/01/2015 11:09	AA
market women	0	0	19/01/2015 11:09	AA
Relationship within clustering	4	6	16/01/2015 15:07	
artisans and processors	0	0	19/01/2015 01:04	AA
distributors and processors	0	0	19/01/2015 11:11	AA
farmers and processors	0	0	19/01/2015 01:04	AA
Resources for production	5	17	16/01/2015 15:07	
Financial resources for operation	0	0	18/01/2015 21:57	AA
financial institutions	0	0	19/01/2015 00:18	AA
foreign funds	0	0	19/01/2015 00:19	AA
informal financial schemes	0	0	19/01/2015 11:14	AA
Information flow	0	0	18/01/2015 21:51	AA
information from research centres	0	0	18/01/2015 22:49	AA
information sharing among businesses	0	0	18/01/2015 23:20	AA
Knowledge transfer and new businesses	0	0	18/01/2015 22:01	AA
adopting knowledge from other firms	0	0	18/01/2015 23:19	AA
external knowledge on production	0	0	18/01/2015 23:17	AA
Raw material provision	0	0	18/01/2015 21:50	AA
competition in palm fruit supply	0	0	18/01/2015 22:22	AA
fruit distribution	0	0	18/01/2015 22:15	AA
variation in production raw materials	0	0	18/01/2015 22:46	AA
women in palm processing	0	0	18/01/2015 23:03	AA
Support to businesses	5	9	16/01/2015 15:07	