INVESTIGATING THE PATH FROM ORGANIZATIONAL CULTURE TO SUPPLY CHAIN INTEGRATION IN A SUB-SAHARAN ECONOMY: MODERATING ROLE OF FIRM SIZE

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Abstract

The increasing prominence on integration among supply chain members has led to a mechanism to help firms coordinate the flow of products and services through the chain. This study aims to bridge the gap in understanding the path from organizational culture to supply chain integration (SCI) in the sub-Saharan economy by examining the relationship between organizational culture and SCI. It also examines the moderating effect of firm size on the organizational culture-SCI relationship. The study places organizational culture within the Denison model framework using the four dimension on supply chain integration. The study uses structural equation modeling approach to examine the path from organizational culture to supply chain integration by using data collected from employees (manufacturing industries) in the sub-Saharan economy in Ghana, specifically Greater Accra. Also hierarchical multiple regression analysis is used to address the nexus of firm size as a moderator in assessing the path between organizational culture and SCI. The study investigated the individual effect of four dimensions of organizational culture (involvement, consistency, adaptability and mission) on SCI. The study found that all the organizational cultural traits except consistency are beneficial to SCI. These

results mean that the more an organization motivates its employees by getting them involved in the pursuit of the mission and work in a collaborative manner to fulfill organizational objectives, the better supply chain integration will improve inextricably. The study revealed that while firm size is a predictor of the relationship between organizational culture and SCI, it does not have a moderating effect on the organizational culture-SCI relationship.

Keywords: Organizational culture, Supply Chain Integration, Firm size, Manufacturing sector, Sub-Saharan Economy

INTRODUCTION

For the past years, numerous firms have reengineered their operations, involving a major departure from a functional (departmental) mode of operation towards a more cross-functional business process (supply chain) orientation. This reengineering process has resulted in a major change in organizational culture and mind-set within firms. The era of supply chain integration has necessitated the need for firm to address issues pertaining to organizational culture in order to identify culture types that are most appropriate for supply chain integration functioning. Studies (Schein and Jossey-bass, 2010; Tereza and Fleury, 2009) have shown that organizational culture gives rise to a set of organizational practices of activities. Denison (1990) explained that culture is the underlying values, beliefs, and principles that serve as a foundation for an organizations management system as well as the set of management practices and behaviors that exemplify and reinforce those basic principles. Maiga et al. (2010) defined supply chain integration as the level or intensity of information sharing and collaboration among internal functions and between value chain partners including customers and suppliers. The definition collaborates with the definition of Lee (2000), meaning that the compressive definition of supply chain integration includes the upstream suppliers, midstream (company) and downstream (distributor, retailer). Organizational culture is seen as a potential determinant of supply chain integration effectiveness (Yunus and Tadisina, 2010). Past studies show an additional connection that culture matters with respect to both internal and external integration proposing therefore that if effort to fully integrate within an organization and with other firms are not successful the organizational culture may be a factor (Braunscheidel et. al. 2010;Yunus and Tadisina, 2010).

Supply chain integration represents one of the major trends currently happening in both manufacturing and service industries. Notwithstanding enhancing individual firm's performance, it has now turned out for firm in supply chain to adjust their operations with one another to

decrease the general expenses for firms in the chain. This alignment would enhance cost, delivery and service levels for end customers. In the past, numerous firms have reengineered their operations involving a major take-off from functional (departmental) mode of operation towards a more cross-functional business process (supply chain) orientation. This has resulted in a major change in organizational culture and mind set within the firm. The era of supply chain integration has necessitated the need for firms to address issues relating to organizational culture in order to distinguish culture types that are most proper for supply chain integration functioning. Thus, in the context of the current major industry initiative in supply chain management, stands to reason that the prevailing organizational culture may significantly influence supply chain integration practices in the firm (Denison and Young, 1999). Based on theworks of (Quinn and Cameron, 2011; Yunus and Tadisina, 2010) they hypothesized that organizations with externally focused culture and a flexible coordination have a higher degree of supply chain integration than those with other organizational traits. In their study, they investigated the effect of organizational culture to determine the type of culture characteristics that are strongly associated with effort to integrate the supply chain and delivery performance. Their study investigated the effect of organizational culture, using the competing framework (CVF) on two types of supply chain efforts: (1) internal integration (2) external integration with key suppliers and key customers. Their findings provided evidence that a firms' adhocracy culture score is positively associated with external integration, whiles a firm's hierarchical culture score is negatively associated with both internal and external integration practices. Yunus and Tadisina (2010) conducted a research in the Indonesian manufacturing industry on organizational culture setting and supply chain integration and performance and found organizational culture to be a potential determinant of supply chain integration effectiveness. Precisely, their study considered the impact of different types of organizational culture on supply chain integration.

With respect to the link between organizational culture and supply chain integration, most researchers have utilized the competing value framework (CVF) to suggest that organizational culture directly impacts supply chain integration (Yunus and Tadisina, 2010; Braunscheidel et. al., 2010; Marcaine, 2007). However, there are other models of organizational culture that have been under-utilized to assess the relationship between organizational culture and SCI. One of such model is the Denison model of culture (Denison, 1996; Denison and Mishra, 1995; Denison and Young, 1999; Denison, 1990). The Denison model of culture and effectiveness (Denison, 1990) presents the interrelations of an organizational culture, its management practices, performance and effectiveness, highlights the importance of linking management practices with underlying assumptions and beliefs when studying organizational

culture and effectiveness. This study, therefore, employs the Denison culture model to analyze the impact of organizational culture on SCI. Again, we observed that most of the extant literatures also ignored firm level factors and processes in their discourse. This study addresses this gap by proposing that failure by past researchers to examine the moderating role of firm level factors and processes may explain the inconsistencies in previous empirical research. This study, therefore, aims to determine the moderating role of firm size on the relationship between organizational culture and supply chain integration. In addition, the few studies conducted to assess the impact of organizational culture on supply chain integration were done in developed countries thereby creating scarcity of research in developing countries like Sub-Saharan African economies. Organizations in these Sub-Saharan economies lack in-depth research and it is therefore the motivation of this study to have a broader research done in a Sub-Saharan economy like Ghana.

This study will, therefore, help companies by providing clues on how SCI can be accelerated from the perspective of organizational culture and firm size. The key questions this study tries to address are as follows:

(1) How can organizational culture and supply chain integration widen and aid manufacturing firms in developing countries?

(2) How and to what extents can the size of the firm serve as a moderator on organizational culture and supply chain integration of manufacturing firms?

This study contributes to literature on supply chain integration practices, and adds to the limited body of research works dealing with cultural antecedent in operations management. As the study utilizes the Denison model, it will empower researchers to compare culture systematically across organizations. This study will enable managers in the manufacturing industry to process information, rationalize and exercise discretion in their supply chain integration decision-making processes by considering the culture and size of their firms.

LITERATURE REVIEW AND RESEARCH HYPOTHESIS

Organizational Culture

Numerous definitions on organizational culture have been proposed by various scholars. Schein (2010) defines organizational culture as "the implicit shape over how the world is and organization as a group of individuals who share opinions, thoughts, feelings and plain behaviors" and as a "pattern of basic norms invented, learned or established by a given group as it learns to cope with its problems of external adaption and internal integration that has worked well enough to be considered valid and therefore to be taught to new members as the

correct way to perceive, think and feel in relation to those problems. Martin and Martin (2003) identified organizational culture as "a system of shared meaning held by members which distinguishes one organization from another". Arnolds (2005) adds "organizational culture are the distinguishing norms, beliefs, principles and ways of acting to give each organization its unique character".

The principal role of organizational culture is to define ways of doing things in order to give meaning to organizational life (Bakker and Demerouti, 2007). Organizational culture also determines organizational behavior, by identifying principal goals, work methods and how members should interact and address each other as well as conducting personal relationship (Trice, 1993). Organizational culture might influence the efficiency and effectiveness of firms' goal (Denison and Mishra, 1995). For example, Brown (1998) identifies five (5) elements through which organizational culture could help improve the efficiency and or effectiveness of a firm. The five elements are:

- ❖ Conflict reduction: where a common culture promotes consistency of perception, problem definition, evolution of issues and opinion, and preference for action.
- ❖ Coordination and control: It is a type of culture that promotes consistency of outlook and also facilitates organizational processes of co-ordination and control.
- ❖ Reduction of uncertainty: Enables adoption of the culture mind frame which serves as an anxiety reduction device and simplifies the world of work, making easier choices and rational action possible.
- ❖ Motivation: it is an appropriate and unified culture, which can offer employees a focus of identification and loyalty, foster beliefs and values to encourage employees' performance.
- ❖ Competitive advantage. It serves as a strong culture which improves the organizations' chances of being successful in the marketplace.

Organizational culture is divided into internal and external focus in the decision making of a firm (McDermott and Stock, 1999; Deshpandé and Farley, 2004). An internally focused culture emphasizes the development of people and system within the firm, whiles an external focused culture stresses on external positioning and interaction with the environment (Liu et al., 2010; Oliver, 1990). Organizational culture impacts managers ability to process information, rationalize and exercise discretion in their decision making processes (Liu et al., 2010; Oliver, 1990). Hartmann (2006) proposed that organizational culture stimulates innovative behavior among members of an organization since it can lead them to accept innovation on a basic value of the organizational culture models.

Organizational culture was perceived to be offering a non-mechanistic, flexible and imaginative approach to understand how organizations operate (Brown, 1998). Consequently, organizational culture is considered as the great "cure" for most organizational problems (Wilson, 2001). There are diverse descriptive models that attempts to analyze organizational culture in the field of organizational development. These studies concentrate on the description and understanding of concept on organizational culture using taxonomies' which include the following:

- ❖ Deal and Kennedy (1997) presented four generic types of culture to describe organizational culture, namely the tough or macho culture, work-hard or play-hard culture, bet your company and process culture.
- ❖ Handy (1999) defined organizational culture by using four types of classifications namely; power, role, task and person culture.
- ❖ Schein (1990) also used three levels to explain organizational culture, namely artifact, values and basic underlying assumptions.
- ❖ Hofstede (2011) emphasized that culture differs based on five dimensions namely, power distance, individualism or collectivism, uncertainty avoidance, masculinity/feminity and confusion dynamism.
- ❖ O'Reilly et al. (2017) offered seven primary characteristics to describe organizational culture, namely innovation and risk-taking, attention to detail, outcome orientation, people orientation, team orientation aggressiveness and stability.

Maracine (2007) studied organizational model to evaluate some available for firms' viability. Maracine distinguished the following cultural framework that can be utilized to break down the cultural climate in an organization. These are focus model (also known as competing value model), human synergistic model and the Denison model. Quinn and Cameron (2011) proposed the model of competing value framework (CVF) which was later modified by Cameron and Quinn (2006) emphasizing the complex nature of organizational culture into internal/external focus/stable and flexible structure. These two dimensions created four quadrants representing four sets of value that guide the organization in achieving its objectives using the internal integration and external environment (Gray et. al. 2003). These sub-dimensional values include: collaboration (clan), creativity (adhocracy), control (hierarchy) and competition (market). The Human Synergistic Model which is also called Circumflex Model was developed by an American Professor Robert A. Cook and a psychologist specialist J. Clayton Lafferty. This Model describes twelve (12) styles and attitudes of Leaders and the organization as a whole, these

can be grouped into three categories: constructive culture, passive-defensive culture and aggressive culture (Maracine, 2007).

Amidst the above models, numerous scholars have developed more integrative framework of organizational culture (Parker, 2000; Schein, 2010) and this study employs the Denison model (Denison, 1996; Denison and Mishra, 1995; Denison and Young, 1999) to assess the role of organizational culture plays in supply chain integration practices. The Denison model of culture and effectiveness (Denison, 1990) presents the interrelations of an organizational culture, its management practices, performance and effectiveness, highlights the importance of linking management practices with underlying assumptions and belief when studying organizational culture and effectiveness. The value and belief of an organization gives rise to a set of management practices, which are concrete activities usually rooted in the value of the organization. These activities reinforce the dominant value and beliefs of the organization. The model posits that there are four key cultural traits: Involvement, Consistency, Adaptability and Mission. The Denison model of culture and effectiveness has been expanded by Fraser (1997) andDenison and Mishra (1999) to include three sub-dimensions for each trait, totaling twelve (12) dimension. The following are the four main cultural traits with their sub-dimensions:

Traits	*Attributes*
Involvement	capability development, team orientation, and empowerment
Consistency	core values, agreement, and coordination and integration
Adaptability	creating change, customer focus, and organizational learning
Mission	vision, strategic direction and intent, and goals and objectives

Involvement and Adaptability are indicators of flexibility, openness and responsiveness, and the strong predictors of growth whiles consistency and mission are indicators of integration, direction and vision and are better predictors of profitability. Each of the four traits plays significant role in service quality, employee satisfaction and overall performance. Mission and consistency are linked to financial performance, whiles involvement and adaptability can be linked to customer satisfaction and innovation.

Supply chain integration

Supply chain integration (SCI) are activities that evolve from upstream (suppliers) to downstream (distributor and retailer) to fulfill customers request (Chopra et. al, 2007). It has always been about companies working together to attain a resolution. Westbrook et. al, (2001) stated that these interactions always intricate some degree of team work to solve holdups in the supply chain network and its outcome bumps in demand and supply. Supply chain integration is

the extent to which manufacturers strategically collaborates with its supply partners and collaboratively manages intra and inter-organizational processes (Cao, et. al., 2015). Supply chain integration has been extensively examined in various disciplines such as integration, corporate strategy, organizational theory, production integration and information systems. Experts believe that supply chain involves efficient management of information and closer organizational collaborations among supply chain partners (Krishnapriya and Rupashree, 2014). A closer integrated supply chain is effective only when it engages in information sharing activities and joint-firms-planning which can be associated with firms long term relationship orientation (Vanpoucke and Vereecke, 2010).

According to Barret (2004), supply chain collaboration means sharing joint objectives, intellectual agility, trust, respect and commitment, to get the best outcome for each member. An increase in supply chain level will provide rapid access to source of information, more sensitivity needs of customers and enabling faster response time creating a competitive edge among competitors (Sezen, 2008). Lee (2000) suggested that well-integrated supply chain create value for shareholders by decreasing cost and increasing market share. SCI requires close coordination and timing among the different members of the supply chain and that is a major problem for major companies (Fraser, 1997; Khumawala,et. al., 2005). In the work of Lee and Khumawala (2005), they found synchronization to be a problem and discovered five common causes of misalignment (i) functional organizations are managed independently; (ii) functional objectives often conflicts; (iii) information system do not provide effective supply chain information; (iv) customer focus is lacking in the interior of the supply chain and (v) the different needs of customers are not recognized within the supply chain. Fraser (1997) stated four major factors that depict supply chain synchronization operation in an organization: (i) a consistent set of shared data; (ii) a system-wide perspective; (iii) rapid communication to all relevant parties; and (iv) proactive response to events change or exceptions. Research and studies have examined factors that facilitate supply chain integration and the role it plays in an organizational culture. Frohlich and Westbrook (2001) gave a concept in the arc of supply chain integration which they studied in a different dimension like strategic integration, relationship integration, internal integration, external integration and information integration.

Many researchers have identified and defined various sources of supply chain integration. Internal integration refers to the degree to which a company can organize its practices, procedure, information, decision and conduct in a collaborative and synchronized way using different areas to be able to comply with customers requirement and effectively interact with its suppliers (Flynn, et. al., 2010;Zhao et. al., 2011). On the other hand, external integration refers to the degree to which a company understands the need of its customers or suppliers and

collaborates with them to develop inter-organizational strategies and shared practices and processes so that it manages and satisfies clients' needs (Cao et. al., 2015). External integration comprises integration with customers and suppliers (Tena and Bou-Llusar, 2005; Zhao et al., 2011; Cao et al., 2015). Prior works have concluded that there are close connection among the three component of integration (internal, clients and suppliers) (Chen et. al., 2007; Tena and Bou-Llusar, 2005).

Most firms try to link internal integration with external integration by synchronizing logistic and marketing. The integration of logistics and marketing functions may be defined as: a process of integration and collaboration in which logistics and marketing function co-operate with the objective to achieve results of the company (Topolsek, 2011). Extant researchers have also measured supply chain integration from three dimensions: information integration, knowledge integration and process integration.

Information integration is the collaboration and collective responsibility across function such as product, design, procurement, production, sales and distribution to meet customer requirement at the lowest total cost system (Wong et. al., 2011; Braunscheidel et. al., 2010; Oliver, 1990). The above definition is the midstream function of supply chain network and its medium of information sharing among the functional area of the firm. According to Lee (2000), information integration provides an easy access to firms' data from integrated database, matching information systems to internal department in the organization, accessing inventory information throughout the supply chain, retrieving inventory status in real time, utilizing computer based planning systems between marketing and production. However, (Yam et. al. 2010; Vickey et. al., 2003) also defined information integration as a precondition to external integration with suppliers and customers. Sharing information throughout the supply chain network will help firms connect and integrate value chain. Knowledge integration is another measurement of supply chain integration, Davenport and Prusak (1998) quotes Ebenisks (2006) that the impulsive, unstructured exchange of knowledge is a critical ingredient for creating and integrating knowledge in organization. With respect to the significance of socialization, the supply chain network should involve a substantial amount of communication and shared contextual experience among its suppliers, organization, distributors, retailers and customers to facilitate knowledge integration (Lee et. al., 2004). Bennitta (2009) argued that there should be collaborative exchange as the degree to which informal communication exits among participant in the supply chain process. This collaboration should provide the contextual specificity necessary to create and share supply chain members to enhance firm success. Process integration, which is the third dimension for measuring supply chain integration is the process which involves collaborative work between buyers and suppliers, joint-products, development,

common systems and shared information (Amu and Ozuru, 2014). (Lambert and Cooper, 2000); Dennis and Kampton, 2010) stated in their literature that operating an integrated supply chain requires uninterrupted information flow, which helps to achieve the best of product flow. According to Lee (2000), three dimensions constitute and determine the level of SCI – information sharing, coordination and resource sharing, and organizational relationship linkage. Simatupang et. al (2002) extended the above dimensions of Lee by describing different modes of coordination's needed to integrate the supply chain processes. The coordination modes are: logistic synchronization, information sharing, incentive alignment and collective learning. This study employs the framework of Simatupang et. al (2002) to measure supply chain integration. The variables used to measure SCI in the study are outlined below:

Logistics Synchronization: It implies mutually organizing and administration of stock, facility and transportation with participant of the supply chain (Simatupang et al., 2002). The typical coordination aims to match the variety of product reaching the marketplace with customers' needs and wants (Fisher and Gitelson, 1997). It designs and execute plan for product introduction, forecasting and replenishment. It defines what is to be done with the information that is shared since there is a mutual agreement among members based on the said information. Hence, members of chain may have their fulfillment plan coordinated so that replenishment is made to meet the same objective and ultimate customer demand.

*Information sharing***:** This is usually the basis for organization in developing partnership. Firms share demand and inventory data with their supply chain in an attempt to efficiently and effectively manage their inventory along the chain. This include any type of data that could influence the action and performance of other members of the supply chain network. Some examples are: demand data, inventory status, capacity plan, production schedules, promotion plan and shipment schedules (Simatupang et al., 2002).

Incentive alignment: Involves creating and adjusting specific incentive schemes across the various individuals on the supply chain that link to worldwide performance (Simatupang et al., 2002). This alignment is important to decrease conflict of interest, which is likely to occur if the current impetuses prompts activities that boost individual gains but often reduce the total profitability (Simatupang et al., 2002).

Collective learning: A form of learning that deals and manages procuring information and dispersing it across organizations in the supply chain. In various industries, it is common to find that partners work to empower and exchange knowledge as well as transfer of technology among different organizations that include the supply chain network (Spekman et. al., 2002).

Linking Organizational Culture and Supply Chain

Literature conducted earlier on organizational culture and supply chain performance indicated that organizational culture affects performance (Deal and Kennedy, 1997; Denison, 1990; O'Reilly III, 2017). Strategically, culture values that are line up with organizations goals align the organization to achieve its full goal. Various literature elaborated that culture values must fit with the organizations strategic aims in order to achieve maximum performance (Goll and Sambharya, 1995; Denison and Mishra, 1995). There are additional connections that culture matters with respect to both internal and external integration proposing therefore that if efforts to integrate fully within the organization and with other firms are not successful the organizational culture may be a factor (Braunscheidel et. al., 2010). In the nut-shell culture change initiative may be essential to collaboratively align cultural value, integration practices and consequently performance(Cameron and Quinn., 2011; Cataldo et. al., 2009; Hesselbein, 2008).

Organizational culture is seen as a potential determinant of supply chain integration effectiveness (Yunus and Tadisina, 2010). Based on the works of (Quinn and Cameron, 2011; Yunus and Tadisina, 2010) hypothesized that organizations with externally focused culture and a flexible coordination have a higher degree of supply chain integration than those with other organizational traits. Braunscheidel et. al (2010), argued that supply chain integration constitutes the major thrust of supply chain initiative. In their study, they investigated the effect of organizational culture to determine the type of culture characteristics that are strongly associated with effort to integrate the supply chain and delivery performance. Braunscheidel et. al (2010) investigates the effect of organizational culture, measured by the competing value framework (CVF) on two types of supply chain efforts: (i) internal integration and (ii) external integration with key suppliers and key customers. Their findings provided evidence that a firms' adhocracy culture score is positively associated with external integration, whiles a firms' hierarchical culture score is negatively associated with both internal and external integration practices. Cao et. al (2015) wanted to bridge the gap in understanding the effect of organizational culture on SCI by examining the relationships between organizational culture and SCI by placing organizational culture within the CVF, they established a conceptual model for the relationships between organizational culture and SCI. the study used both a contingency approach and configuration approach in examining the proposed relationship using data collected from 317 manufacturers across 10 European countries. One consistent finding is that culture that value flexibility, particularly in environment where flexibility and adaptability are important, performed better. For example, Denison and Mishra (1995) found that organizational culture that value flexibility and adaptability were associated with growth and change, whereas the value of consistency and direction were associated with profitability. Gordon and DiTomaso

(1992) also revealed that organizational culture that valued adaptability performed better on measures of growth than those that did not. Gordon (1992) demonstrated that culture values that favored flexibility were associated with performance in dynamic and growing industries. Consistent with these past findings, this study posits that organizational culture that encourages flexibility and innovation will benefit delivery performance of supply chain integration. Based on the above literatures, the resource types of organizational culture have connection on supply chain integration. Therefore, the following hypotheses are tested to examine the connection between organizational culture and supply chain integration.

H$_1$:Organizational culture has a positive significant impact on supply chain integration practices.

From the above discussion, we expect organizational culture to be linked with SCI. Specifically, we posit that the four traits of organizational culture (involvement, consistency, adaptability and mission) can individually affect the supply chain integration of firms.

Involvement is the degree to which individuals at all levels of the organization are engaged in pursuit of the mission and work in a collaborative manner to fulfill organizational objectives. This trait consists of building human capability, ownership and responsibility. Organizations empower their employees, build organizations around teams and develop human capability at all level (Lawler, 1994). Involvement trait is essential for SCI because SCI requires that manufacturers, suppliers and customers work collaboratively to solve both internal and external problems (Flynn et al., 2010). Employees at all levels feel that they have at least some input into decision that will affect their work and that their work is directly connected to the goals of the organization (Spreitzer, 1995). Employees lacking a spirit of cooperation will find it difficult to closely work with their counterparts. Involvement motivates firms to improve shared understanding, reduce conflicts and strengthens mutual trust, with their customers and suppliers, which results in SCI improvement (Cao, et. al. 2015). Moreover, Naor et al (2008) defend that brainstorming which is a kind of team of activity is essential to the formation of a common language. Naor et al (2008) argued that this kind of common language formation is vital for information sharing and communication across functions within the firm. Involvement is related to group culture which Schilke and Cook (2014) found that it is positively related to trust, which is essential for SCI (Cai et al, 2010; Chen et al, 2013). Therefore, we propose the following hypothesis:

H$_2$:Involvement cultural trait has a positive significant impact on supply chain integration practices.

Consistency is the organizations core value and its internal system that support problem solving, efficiency and effectiveness at every level across organizational boundaries.

Organizations also tend to be effective because they have "strong" culture that is highly consistent, well-coordinated and well-integrated (Saffold, 1998). The fundamental concept is that implicit control systems, based upon internalized focus, are effective means of achieving coordination than external control system which rely on explicit rules and regulations (Pascale, 1985; Weick, 1987). Behavior is rooted in a set of core values and leaders and followers are skilled at reaching agreement even when there are diverse points of view. This type of consistency is a powerful source of stability and internal integration that results from a common mindset and a high degree of conformity (Senge, 1990). Firms with strong consistency culture motivate their employees to exert much time, resources and effort on SCI as a means to realize their defined goals. Thus, we propose the following hypothesis:

H$_3$: Consistency cultural trait has a positive significant impact on supply chain integration practices.

Adaptability is the ability of the company to scan the external environment and respond to the ever-changing needs of its customers and other stakeholders. Organizations hold a system of norms and beliefs that supports the organizations capacity to receive, interpret and translate signals from its environment into internal behavior changes that increase its chances for survival and growth (Denison, 1990). Ironically, organizations that are driven by their customers, take risks and learn from their mistakes, and have capabilities and experience at creating change (Senge, 1990; Nadler, 1998). Adaptability trait of culture is essential because it enables firms to pay more attention to new information and technology that may boost their dynamic abilities for adjusting to new opportunities. Scanning the external environment aids firms to acquire information on current situations and adjust accordingly. To achieve this, firms need to collaborate and integrate their internal functions with supply chain members through SCI (Cao, et. al. 2015). Product innovation has been proven to be a by-product of SCI (Koufteros et al, 2005, 2007). We therefore, expect that SCI is more likely to be implemented in a culture that emphasis on adaptability. Hence, we propose the following hypothesis:

H$_4$: Adaptability cultural trait has a positive significant impact on supply chain integration practices.

Mission is the degree to which the organization and its members know where they are going, how they intend to get there and how each individual can contribute to the organizations success. Successful organizations have a clear sense of purpose and direction that defines organizational goals and strategic objectives. They express the vision of how the organization will look like in future (Hamel and Prahalad, 1994), when organizations underlying mission changes, change also occur in other aspects of the organizations' culture and operations. The mission of SCI should be aligned with that of the organization. SCI is key to strategic success if

a firm is to achieve its mission in an adaptive and changing environment (McDermott, 1999). Therefore, we propose the following hypothesis:

H_5: **Mission cultural trait has a positive significant impact on supply chain integration practices.**

Firm Size

The performance of a firm is a function of many different factors from both internal and external of the firms' operation. Among the important factors are the size and age of the firm, which indicates the amount of resource available and experience possessed by the firm. The size of the firm has shown to have an impact on performance due to the advantages and disadvantages faced by the firm with a particular level of growth. According to Chandler (1982), the size of the firm has advantages on performance. Large firms can operate at low cost due to scale and scope of economic advantages. Due to their size of operations, large firms have the advantage of getting easy access to credit facilities and investment (Yang and Chen, 2009). Large firms also have a tendency to focus only on existing market unlike small firms which seek to capture new and potential market (Christensen et. al. 2005). Ramsay et. al (2005) posits that firm size enables the firm to raise the barrier of entry to potential entrants as well as gain leverage on the economies of scale to attain productivity. Among the key advantages of larger firms as compared to smaller firms includes, higher negotiation power with client and suppliers, easy access to finance and broader pool of qualified human capital (Serrasqueiro and Nunes, 2008; Yang and Chen, 2009). The size of the firm is not always of advantage as it can also result in declining performance due to some operational behavior of large firms. Tripsas et. al. (2000) state that in some cases large firms are slow to introduce and adopt new technologies due to bureaucracy and operational rigidities.

Cameron and Quinn (2006) suggest that there is an organizational life cycle for firms between the stages of organizational culture and lifecycle. Since the organization tend to grow as it proceeds through the lifecycle, it follows that culture is probably also related to size. In the early years of a company's existence, culture is dominated by entrepreneurial impulse of stakeholders who founded the company and therefore has adhocracy as the dominant culture. As the organization becomes more established the employees identify more with it and build more personal relationship in and around it, shifting adhocracy culture to clan culture. Inevitably the organization will encounter challenges and threats which require a more structured approach and if the organization continues to grow, more structure will also be required to hold it together causing a shift in hierarchy. The impact of organizational size on the relationship between culture and supply chain has been undervalued. There is scant literature showing the

impact of organizational size on any of the construct (organizational culture and organizational effectiveness) (Densten and Gray, 2007; Khan et. al., 2009; Fazli and Alishahi., 2012). Vadi et. al (2010) argued that the behavior pattern of any organization is molded by organizational size and area of operation. They further argued that there are some characteristics that create a certain organizational type and size which could be considered for organizational culture gene. From the discussion above it can be concluded that organizational culture depends on the size and industry. Another study conducted by Vadi et. al (2010) on 558 personnel of 60 secondary schools in Estonia finds that organizational culture and performance are related depending on the size of the school, implying that size has direct impact on organizational culture and the school and the size is also a significant predictor of organizational values. Gray et. al (2007) also studied 1,918 members of the institute of management in Australia and founded that smaller organizations are perceived to be more supportive, competitive, innovative and performance oriented than larger firms, arguing that smaller firms have a stronger organizational culture which consequently contribute to them being more effective and efficient. Based on these assertions, the study hypothesized that:

 H_6: The relationship between organizational culture and supply chain is moderated by firm's size.

Figure 1. Research Framework
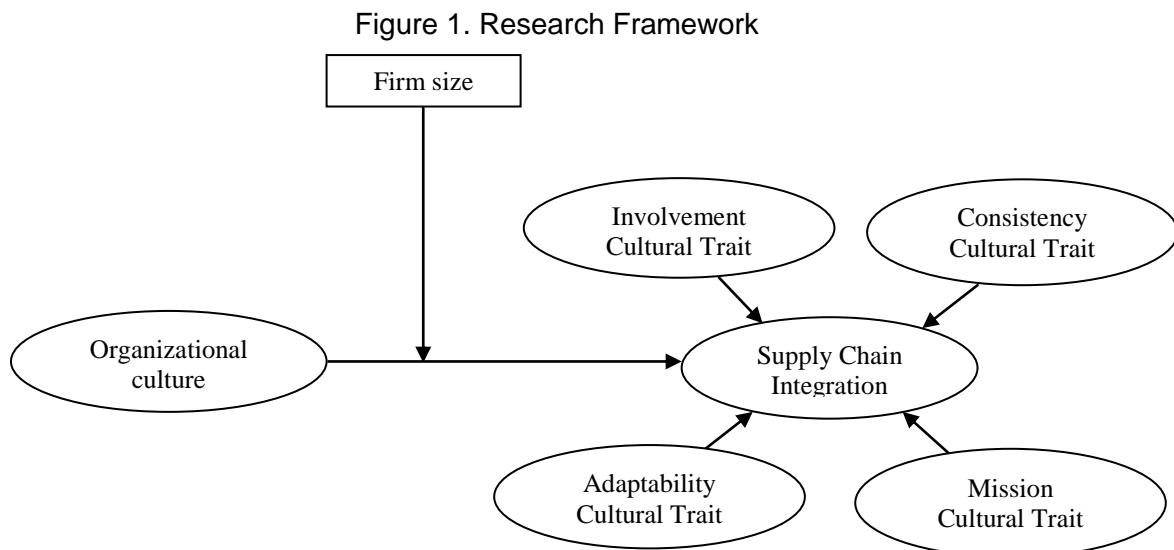
RESEARCH METHODOLOGY

This research used a survey design to examine the impact of different organizational traits on SCI. It also investigated the moderating effect of firm size on the relationship between organizational culture and SCI. The research methodology is based on empirical data collected through questionnaires. This study was conducted in two sub-industries in the manufacturing

industry of Ghana which is divided into four categories based on the firm size. The firm size is based on the number of employees which include micro-sized (< 10), small-sized (10-49), medium sized (50-99) and large-sized (> 100) organizations (Ghana Statistical Service 2003; United Nations Industrial Developmental Organizations, 2012). These sub-industries include the Food & Beverage and Pharmaceuticals & Chemicals. Based on the online database of Yellow Pages Ghana and Association of Ghana Industries (AGI), we were able to retrieve contacts information of the firms in these sub-industries. A letter of introduction and some questionnaires were sent to firms that we were able to get their email addresses. In all, 270 emails were sent and after some weeks, 170 filled questionnaires were returned. In order to get adequate sample size for the study, we spoke with friends and colleagues who have direct contact with these firms to help us reach them. Through the help offered by friends and colleagues, additional 30 questionnaires were retrieved from some firms. In all 200 respondents from different sized firms were sampled for this study. The sample firms and respondents represent a huge variety in terms of organizational size, and respondents' job type and job tenure, as showed in Table 1.

Table 1. Profile of Respondents and Companies (Total =200)

	Frequency	Percentage
(a) Gender		
Male	130	65
Female	70	35
(b) Job type		
Administrative/Support	20	10
Supervisory	32	16
Middle Management/Professional	87	43.5
Senior/Executive Management	61	30.5
(c) Job tenure		
<1 year	14	7
1-5 years	40	20
6-10 years	68	34
>10 years	78	39
(d) Firm size (number of employees)		
<10	9	4.5
10-49	19	9.5
50-99	52	26
>100	112	60

From Table 1, it can be observed that 4.5% of the respondents are from micro-firms, 9.5% from small firms, 26% from medium firms and 60% from large firms. For the respondents' job type, 10% were Administrative/Supporting staff, 16% were Supervisory staff, 43% were Middle managers and 30.5% were Senior/Executive Managers offering the confidence in their ability to give correct answers to the survey questions. Respondents comprising the final sample have work in their respective companies for the following number of years: below 1 year (7%), 1-5 years (20%), 6-10 years (34%) and above 10 years (39%) Among the 200 respondents, 65 % were male and 35% were female. Since most of the questions were answered by more than one respondent on different questionnaires, the issue of common method bias was reduced (Cao et al., 2015).

The construction of the questionnaire was done in a two-stage process. Firstly, based on deep analysis of previous literature, the various constructs for the variables measurement were ascertained. In the second stage, a pilot test was conducted among some few sampled companies in the beverage manufacturing industry in Ghana. The questionnaire was revised based on the results obtained from the pilot test. This process aided in constructing a reliable and unbiased questionnaire. In measuring organizational culture, four cultural traits (involvement, consistency, adaptability and mission) from the Denison model (Denison et al., 2007) were used. Each of these cultural traits also has three dimensional measures. For involvement, we used capability development, team orientation and employee empowerment. Consistency was measured using core values, agreement, and coordination and integration. Adaptability was also measured by creating change, customer focus and organizational learning. Furthermore, mission was measure with organizational vision, strategic direction and intent, and goals and objectives. To measure supply chain integration, we adopted Simatupang et al (2002) measure. This 4-item measure includes: logistic synchronization, information sharing, incentive alignment and collective bargaining. All the variables were measured using a five-point Likert scale ranging from "strongly disagree" to "strongly agree". Firm size was also measured using the number of employees. Unless otherwise stated, the dimensions were used as indicators for their constructs in structural equation modeling. Otherwise, they are averaged into an overall scale score.

ANALYSIS AND RESULTS

In this study, three statistical techniques were employed: (1) reliability analysis and confirmatory factor analysis (CFA) were used to test the validation of the variables; (2) structural equation modeling (SEM) was adopted to examine the relationship and impact of the organizational culture traits and SCI; and (3) hierarchical multiple regression analysis was used to examined

the moderating effect of firm size on the organizational culture-SCI relationship. All the above statistical techniques were conducted using IBM SPSS AMOS, version 21.

Measurement Model

In order to test reliability of the variables, Cronbach Alpha was utilized and the results showed the following: organizational culture (0.80), involvement culture trait (0.90), consistency culture trait (0.91), adaptability culture trait (0.83), mission culture trait (0.79) and SCI (0.70). The reliability coefficients for all the variables were above the cut off value of 0.7 (Bagozzi & Yi, 2012) indicating that all the variables are reliable and had good internal consistency (Field, 2009).

Furthermore, CFA was adopted to justify the measurement model. The model fit indices indicated the following: x^2(degree of freedom [df]=171.31(95); normed Chi square [x^2/(df)]=1.8; root mean square error of approximation [RMSEA]=0.06; comparative fit index [CFI]=0.96; goodness-of-fit index [GFI]=0.90 (Bagozzi & Yi, 2012; Hair et al., 2014). The measurement model results specified a good fit to the data. These results indicated that further examination of the structural model was justifiable.

Structural Model

SEM with the maximum likelihood estimation method was utilized to estimate the relationships between the four cultural traits and SCI. Eight iterations were conducted to achieve the model minimization. After necessary modifications, the structural modeling results indicated that the hypothesized model fit the data well: x^2(degree of freedom [df]=222.27(95); normed Chi square [x^2/(df)]=2.34; root mean square error of approximation [RMSEA]=0.08; comparative fit index [CFI]=0.93; goodness-of-fit index [GFI]=0.89 (Bagozzi & Yi, 2012; Hair et al., 2014). The detailed results of the SEM model (with significant standardized coefficient at the 0.05 significant level) are being presented in Figure 2.

The results showed that Hypothesis 2, which postulates that involvement culture trait has a significant positive relationship with SCI is supported. Moreover, Hypothesis 3, which states that consistency culture trait is positively related to SCI is not supported. Similarly, Hypothesis 4, which affirms that adaptability culture trait is positively related to SCI also received support. Finally, Hypothesis 5 contends that mission culture trait has a positive significant relationship with SCI. The results affirmed this hypothesis. This concludes that with the exception of consistency trait of culture, all the other three cultural traits have a positive significant relationship with SCI.

Figure 2. Structural Equation Modeling with Moderation Results[a]
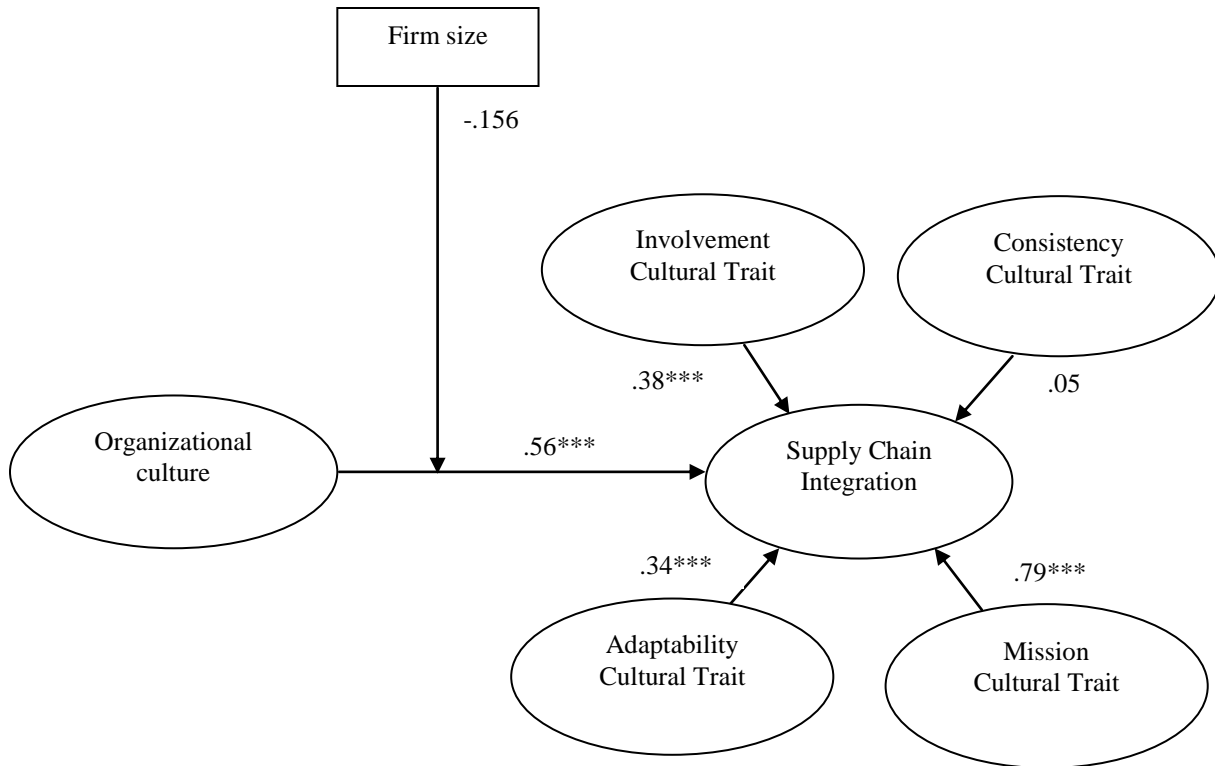
[a] n=200. All paths in the structural model analysis are significant at p < .001. *** p ≤ .001

Hierarchical Multiple Regression Analysis

Under this section, a hierarchical regression analysis was run to test whether firm size moderates the relationship between organizational culture and supply chain integration. For the analysis, SCI was the dependent variable and three hierarchical models were tested. Model one in each situation was predicted by three control variables and organizational culture. In the second and third model, firm size and the interaction term were included as predictors. The results are presented in Table 2.

Table 2. Results of Hierarchical Regression Analysis[a]

(a) Moderating Effects of Firm Size on the Organizational Culture-Supply Chain Integration Relationship[c]

Variables	Model 1		Model 2		Model 3	
Gender	.060	(.084)	.043	(.085)	.036	(.085)
Job type	.051	(.044)	.054	(.044)	.060	(.044)
Job tenure	.084	(.044)	.058	(.045)	.060	(.045)
Organizational culture	.544***	(.053)	.549***	(.053)	.555***	(.053)
Firm size			.103*	(.049)	.231**	(.083)
Organizational culture x Firm size					-.156	(.017)

ΔR^2		.010	.008
F for ΔR^2		2.887*	2.383
R^2	.331	.341	.349
F	24.100***	20.044***	17.220***

[a] n = 200. Values are standardized coefficients, with standard errors in parenthesis

[b] Supply Chain Integration is the dependent variable

* $p \le .10$,　　** $p \le .05$,　　*** $p \le .01$

It is evident from Table 2 that all the three models were statistically significant (p-value=.000, p-value=.000 and p-value=.000 respectively). In keeping to Hypothesis 1, it can be concluded that there is a significant positive relationship between organizational culture and supply chain integration. The coefficient of determination (R^2) for the first model was .331 meaning that organizational culture and the other control variables contributed 33.1% to the change in supply chain integration of the manufacturing firms. However, upon the introduction of firm size (model 2) as a predictor, the relationship between organizational culture and supply chain integration changed significantly. The (R^2) changed from .331 to .341 and was still significant. This connotes that organizational culture with firm size and the control variables can explain up to 34.1% of the supply chain integration of Ghanaian manufacturing firms. With the inclusion of the interaction term (organizational culture*firm size) into model 3, the model continued to improve to an (R^2) value of .349. However, the model became insignificant (p-value=0.124).

With respect to Hypothesis 6, the results showed that all the three models were found to be significant. The F Change for organizational culture was significant (F Change=24.100, p-value=0.000) indicating that organizational culture significantly influences SCI. When the moderator, firm size, was included in the model as a predictor, the F Change reduced drastically; however, the predictor remained significant at 10% level (F Change=2.887, p-value=.091). With the introduction of the interaction term (organizational culture*firm size) to the model, the model condensed and became insignificant, showing (F Change=2.383, p-value=0.124). This indicates that firm size has some predictive value, but negatively moderates the relationship between organizational culture and SCI. Thus, one unit of organizational culture decreases SCI by 0.156.

DISCUSSION

This study investigated role of organizational culture on supply chain integration. Specifically, the study conceptualized organizational culture as a construct of four dimensions, i.e., involvement, consistency, adaptability and mission. It assessed how the cultural traits of an

organization affect SCI. In addition, the study examined the moderating effect of firm size on organizational culture and supply chain integration. The research model was largely supported by the empirical data. The study drew a correlation between the assertions that organizational culture has a positive significant impact on supply chain integration practices. This is consistent with the findings of Braunscheidel et al., (2010). In their work, they concluded that if efforts to integrate more fully within an organization and with other firms have not been successful, the organization's culture may be a factor.

Furthermore, we investigated the individual effect of four dimensions of organizational culture (involvement, consistency, adaptability and mission) on SCI. We found that all the organizational cultural traits except consistency are beneficial to SCI. These results mean that the more an organization motivates its employees by getting them involved in the pursuit of the mission and work in a collaborative manner to fulfill organizational objectives; supply chain integration will improve inextricably. When the organization is able to adapt to environmental changes by receiving, interpreting and translating signals from its supply chain members for survival and growth, the objective of supply chain integration both internally and externally will be achieved (Liu et al., 2012). Such well-designed culture could lead to an effective synchronization of logistics, and the benefit sprouts to incentives, information sharing and collective learning.

In addition, the study examined the moderating effect of firm size on the relationship between organizational culture and supply chain integration. The results of the analysis revealed that while firm size is a predictor of the relationship between organizational culture and SCI, it does not have a moderating effect on the organizational culture-SCI relationship.

THEORETICAL IMPLICATIONS

The study contributes to the literatures on organizational culture and supply chain integration. First, in order to expand the literature on organizational culture and supply chain integration, the study adopted a new approach to measuring organizational culture and SCI which is different from the previous literatures. These help us to understand organizational culture from different perspectives and their effect on SCI. The various findings suggest that for SCI to succeed the culture of the organization should be an underlying value. These empirical findings help us to comprehend the dimensions of organizational cultures and their impact on SCI in a more holistic way, hence expanding our understanding of the relationship between organizational culture and SCI.

Again, the study has extended and enriched the literature by empirically examining the moderating effect of firm size on the relationship between organizational culture and SCI which

was lacking in literature. By incorporating firm size in the model, this study adds greater richness and comprehensiveness to both organizational and SCI literature and has enhanced our understanding of the effect of organizational culture on SCI.

MANAGERIAL IMPLICATIONS

As supply chain integration has been extensively accepted as the basic unit of competition, many firms are under pressure to better integrate with their supply chain partners and to realize competitive advantages. The findings of this study present clues for managers on how to speed up SCI from the viewpoint of organizational culture. The study found that the execution of SCI requires the support of a suitable organizational culture. Hence, managers who have difficulties with SCI or want to accelerate SCI must consider organizational culture traits and adjust their organizational culture traits when necessary. Moreover, the use of the Denison culture model provides an important tool for companies to evaluate their organizational culture. We found that all the organizational cultural traits (adaptability, involvement, consistency and mission) have positive relationship with SCI, providing directions for organizational culture change. Company managers should understand that the organizational cultural traits (adaptability, involvement, consistency and mission) and supply chain integration are two complementary concepts in any manufacturing industry which shouldn't be isolated from one another. However, managers should recognize that firm size as a predictor and not a moderator also has a critical role to play in the organizational culture-SCI relationship. Because of resources differences between small and large firms, SCI is likely to accelerate in large firms than small firms (Cao & Zhang, 2011). This revelation provides insight for managers to adjust their resources proportionally to achieve SCI.

CONCLUSION AND FUTURE RESEARCH

Organizational culture has been seen as an important element in the synchronization of supply chain management practices (McCarter et al., 2005; Fawcett et al., 2008). However, previous studies have neglected the effect of institutional factors on the relationship between organizational culture and SCI. To find solution to this limitation of extant studies, this study investigated the effect of organizational culture on SCI by using the Denison model and also examined the moderating effect of firm size on this relationship. The study collected data from 200 employees of micro, small, medium and large firms in the beverage manufacturing industry in Ghana. The study found out that organizational culture has a significant positive effect on SCI. Specifically, it was revealed that all the cultural traits with the exception of consistency trait were significantly related to SCI. In addition, the study also brings to light the possible role of

firm size in strengthening or weakening the positive significant relationship between organizational culture and SCI. Unfortunately, the study results indicated that the hypothesized moderating effect of firm size on the path between organizational culture and SCI was not significant.

` Upon all these interesting revelations from the study, it cannot not be devoid of certain limitations. The data employed in this study are cross-sectional and therefore cannot properly provide casual explanations for the observed impact of organizational culture and SCI. Future studies could use longitudinal data to examine the relationship between organizational culture and SCI. Again, the sample size used in this study may have affected the results for the moderating effect of firm size on the organizational culture-SCI relationship. Comparatively, most extant empirical studies relied on greater sample size which was more dependable in identifying significant links among variables. In future studies, it is recommended that this proposed path be re-examined by utilizing larger sample size. Also future studies could empirically test how organizational culture in different phases of firm growth affects SCI.

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