Improving sustainability performance in emerging economies: The role of organisational culture and supply chain learning

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Abstract

This research examines the influence of organisational culture (OC) and supply chain learning (SCL) on sustainability performance (SP) drawing on a study in the manufacturing industry in Ghana. We employed the quantitative approach, and a survey was conducted where data was collected from 308 manufacturing firms. The results confirmed the positive influence of OC on SP. The study further confirmed the positive impact of internal, supplier and customer learning on SP and the positive influence of OC on SCL. The results further confirmed the mediation role of SCL on the relationship between OC-SP relationship.

Keywords: Organisational culture, Sustainability performance, Supply chain learning.

Introduction

Over the past decade, there has been continuous pressure on firms to adopt several sustainable processes for the purpose of increasing both environmental and social sustainability (Khan et al. 2021). This is evidenced by the enactment of sustainability policies and the punitive measures by the government in several countries and increased research on how firms can improve their sustainability performance (SP). Despite this effort, several manufacturing firms are still struggling in the implementation of sustainability practices (Osei et al., 2023). This might be partly due to the need for more research on critical factors for implementing sustainability practices. Osei et al. (2023) and Wijethilake et al. (2021) highlighted the need for firms to implement sustainability supportive organisational culture (OC) and strengthen supply chain integration (SCI) to achieve higher SP. Critical to achieving SCI in current supply chains is supply chain learning (SCL) (Gong et al. 2018). This reveals the need for more research on the

criticality of OC and SCL to achieving sustainability performance (SP) in manufacturing firms.

Cadden et al. (2020) highlighted that since OC regulates every strategy in firms, it could be critical to achieving higher SP in manufacturing firms. OC represents the heart of every firm, therefore, any strategy without any supportive culture is likely to be unsuccessful. Manville et al. (2019) highlighted that the breakdown in several OC can be a potential barrier to the implementation of supply chain strategies in manufacturing firms. This indicates that supportive cultural values should be in place for the purpose of strengthening SP. To date, very few research (e.g., Roscoe et al., 2019; Osei et al., 2023) have confirmed the relevance of OC to improving SP recognising the need for more studies on this area. In operationalising OC, supply chain researchers have embraced the flexibility-control dichotomy of the competing value framework (CVF) developed by Quinn and Rohrbaugh (1983). The CVF categorises OC into developmental (adhocracy), group (clan), rational (market) and hierarchical culture. Using the CVF, several extant studies such as (e.g., Wijethilake et al., 2021; Osei et al., 2023) have extensively examined the impact of OC on SP.

Currently, supply chain learning (SCL) manifesting in the form of knowledge sharing between supply chain partners has been found effective for improving supply chain performance (Huo et al., 2021) and strengthening SCI. Gong et al. (2018) suggested SCL as a source of building supply chain competency and a conduit for building knowledge. Huo et al. (2021) explained SCL as focal firms acquiring, exploring, and integrating knowledge from the internal functions and its major supply chain partners (customers and suppliers). This implies that SCL is effective in helping firms to obtain relevant supply chain information and enable close working relationships with their supply chain partners. SCL can foster a strong collaboration between supply chain partners as it brings them together to undertake joint developmental efforts to enhance the performance of the supply chain. Through SCL, firms can obtain the needed resources, information, knowledge, and skills from the supply chain partners to implement sustainability practices to achieve high SP even after implementing sustainability-supportive OC. Thus, SCL can influence SP and play a mediating role in the OC and SP relationship, nonetheless, studies expatiating on this is not forthcoming. In this research, SCL is categorised into internal, customer and supplier learning.

Over the past decade, most of the sustainability research have focused on how manufacturing firms in developed economies could elevate their sustainability performance with little focus on emerging economies (EE) (Sardana et al., 2020). Several firms in emerging economies (EE) are still struggling to implement sustainability practices to achieve a good environmental and social performance (Khan et al., 2019; Sardana et al., 2020). Therefore, more studies are needed to determine the critical factors which can improve the sustainability performance of the firms in EEs. Since the culture in several EEs are rigid and exert a strong influence on the OC in the firms, it prevents the firms from easily implementing strategies such as sustainability. The strict culture mostly adopted by firms in EE have been found to restrict employee creativity and innovation (Naranjo-Valencia et al., 2016) which limit the adoption of environmental and social enhancement practices (SP). Wijethilake et al. (2021) found that adopting sustainability-supportive OC could help to achieve high SP in the manufacturing firms in EEs. However, research on what constitutes sustainability-supportive OC are not forthcoming. In this research, we propose that adopting a supportive OC could enable firms in EEs to easily obtain the information needed to implement the practices necessary for attaining high SP. We also propose that SCL could play a mediating role in the

implementation of sustainability practices to achieve good SP after implementing sustainability-supportive cultures. However, studies on the extent to which SCL plays mediating relationship between OC and SP in manufacturing firms in EEs have not been forthcoming.

Against these backdrops, our study seeks to address the following research questions; *(1) To what extent does OC influence SP? (2) Does SCL mediate the relationship between OC and SP?* To answer these questions, this study seeks to examine the relationship between OC and SP and further reveals the mediating role of SCL in their relationship drawing from a study in the Ghanaian manufacturing industry due to the low SP in firms in the industry. It is expected the output of our research would contribute enormously to the literature on critical factors to enhancing SP and especially discourse on SP in EEs.

The next section reviews the literature on OC, SCL and SP and establishes the hypotheses to be tested. The subsequent section presents the methodology and the results of the study. The section afterwards discusses the findings and reveals the main theoretical and practical contributions. Lastly, the conclusion which comprises the limitations and suggestions for future research is outlined.

Theoretical Review and the Development of Hypothesis

Sustainability Performance

According to Rhadari et al. (2016), the infusion of the environmental, social, and economic issues with the definition constitutes the triple bottom line. Explicitly, instilling the environmental, economic, and social consciousness into the supply chain entails sustainable supply chain management (SSCM). SSCM ensures that a supply chain is socially just, eco-efficient and ethical. In other words, a sustainable supply chain takes reasonable steps to mitigate the environmental impact, implement measures to ensure the safety of the relevant stakeholders while at the same time remaining economically viable. Currently, sustainability in the supply chain has become a crucial element for competing in the global market (Marshall et al., 2015; Laosirihongthong et al., 2020), appealing to customers and even survival of the firms. It has been projected that failure to fully embrace sustainability may cost a lot of manufacturing firms and their supply chains (Fung et al., 2020). As a result, sustainability has been incorporated into the overall corporate strategies of firms. SP, therefore, involves improving the environmental, economic, and social performance of supply chains. In this study, higher SP is considered as firms achieving higher environmental, social, and economic performance. Though research on sustainability has expanded over the past two decades, more research is needed to examine the critical factors relevant for achieving higher SP especially in manufacturing firms in EEs.

Organisational Culture

OC has long been considered as the bedrock and the life of every firm. OC is generally considered as the way of life of the people in every organisation, however, within the context of operations management, the most widely accepted definition was provided by Schein (1988, p.7) who defined OC "a pattern of basic assumptions; invented, discovered, or developed by a given group; as it learns to cope with its problems of external adaptation and internal integration; that has worked well enough to be considered valid and therefore, is to be taught to new members as the correct way to perceive, think and feel in relation to those problems". The definition is well-suited to the aim of this research as it stresses the importance of integration through learning and further reveals the relevance of

organisational values and beliefs to the implementation of strategies and survival of the firm (firm performance). The CVF is currently considered as the suitable tool for comprehensively analysing the OC of every firm (Dubey et al., 2019). The CVF utilises the flexibility and control dichotomy to reveal the underlying values of every firm and make room for value comparisons and orientations (Dubey et al., 2019). The dimensions of CVF (see Fig. 1) are effective for assessing the developmental and external orientation, authority structure of firms, interdepartmental collaborations, reward systems and human resource development and therefore, have been considered as eligible for examining supply chain related issues such as SP (Cao et al., 2015; Dubey et al., 2019). The model operationalises OC into four main dimensions; developmental, rational, hierarchical and group culture (see Figure 1).

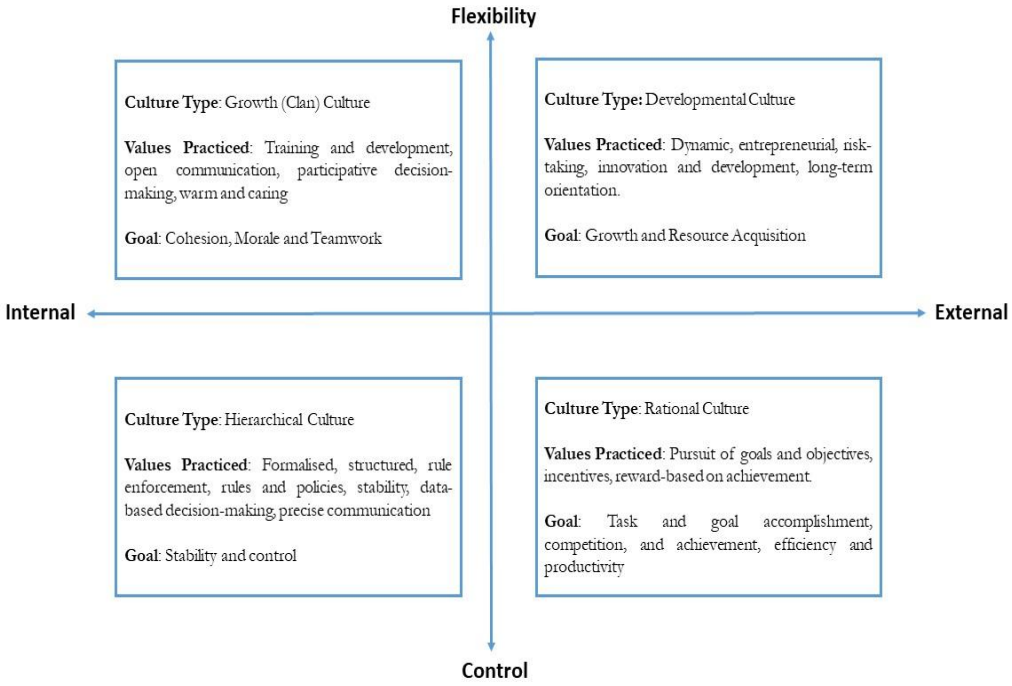

Figure 1. Competing Value Framework

Developmental and group culture are characterised by flexibility; however, developmental culture focuses on external control whilst group culture emphasises internal control. Rational and hierarchical cultures represent the control aspect of the model. Rational culture uses incentives and focuses on external control whilst hierarchical culture uses stringent measures to maintain internal control (see Fig. 1). We argue that the values inherent in each dimension is suitable for instilling sustainability practices, however, research on this is still limited. In this study, we propose that manufacturing firms in EEs can improve their SP after implementing sustainable-supportive culture. More research is needed on what constitutes sustainable-supportive culture in EEs.

Supply Chain Learning

SCL has gained enough attention in the current literature of supply chain management and encapsulates the learning that takes places between the focal firm, its customers, and suppliers (Huo et al., 2021; Ojha et al., 2018). Huo et al. (2021, p. 1413) defined SCL as the "the process of focal firms acquiring, assimilating, and exploiting knowledge across

its internal functions as well as the from its major suppliers and customers". SCL typically begins internally in the focal firms, and it is extended to include the customers and suppliers. Internal learning emphasises on building, accumulation, and dissemination of knowledge within the internal boundaries of a firm. Customer learning examines the various ways through which focal firms acquire, assimilate, and utilise data and information pertaining to the market, demand, preferences, and taste from customers (Huo et al., 2019; Huo et al., 2021). Supplier learning comprises the acquisition, absorption, and utilisation of information pertaining to materials and other supply-based ideas/information from suppliers (Huo et al., 2019; Huo et al., 2021). In this study, SCL is categorised into internal, customer and supplier learning.

In an SCL, manufacturing firms identify, acquire and through various processes and procedures analyse, understand, and interpret the knowledge obtained from the various supply chain partners (Zhang et al., 2018; Huo et al., 2016; Huo et al., 2019; Huo et al., 2021). The knowledge obtained is used for improving the production process and operations for the acquisition of competitive advantage in the market. Thus, manufacturing firms with a strong SCL are likely to acquire the needed information, resources, knowledge, training, and skills to implement sustainability practices to achieve higher SP. In this research, we propose that through SCL manufacturing firms in EEs could enhance their SP.

Development of Hypothesis

Organisational Culture and Sustainability Performance

Firms with a dominant developmental and group culture are characterised with flexibility and change with the focus of achieving high levels of control (Hartnell et al., 2011). The main goal of adopting such cultures is geared towards maintaining high levels of growth, resource acquisition, innovation, creativity, adaptation, change, responsiveness, and teamwork. Though, Linnenluecke and Griffiths (2010) argued that the inclusion of sustainability in the supply chain would divert the profit maximization objective, thereby, leading to low economic performance, the stimulation of employee satisfaction, continuous training and development and high levels of teamwork increases productivity, enabling the firm to obtain creative ideas, knowledge, and skills through strong integration for the attainment of higher environmental and social performance practices while at the same time maximizing profit.

Firms with strong levels of hierarchical culture have strict authority procedures and structures (Zu et al., 2010). Though several authors such as (Linnenluecke et al., 2010) highlighted that such culture mars creativity, we proposed that organisations keen on hierarchical culture can use controls to ensure members both in the organisation and across the supply chain implement the sustainability policies and practices. Formentini and Taticchi (2016) indicated that firms with strict sustainability certification policies are better able to achieve good sustainability performance. Rational culture encapsulates organisations embracing the use of incentives to influence the behaviour of employees to achieve organisational objectives (Cameron and Quinn, 2011; Cao et al. 2015). Merriman et al. (2016) highlighted the crucial role incentives play in influencing the sustainability performance of firms. Wijethilake et al. (2021) also indicated that incentives encourage and motivate organisational members to easily adopt sustainability practices of the firm. We argue that firms with high levels of developmental, group, rational and hierarchical cultural values can easily implement sustainability practices leading to high levels of SSCP. Therefore, we hypothesize that

H1: Organisational culture has a positive relationship with sustainability performance.

H1a: Developmental culture has positive impact on sustainability performance.

H1b: Group culture has a positive impact on sustainability performance.

H1c: Rational culture has a positive impact on sustainability performance.

H1d: Hierarchical culture has positive impact on sustainability performance.

Organisational culture, Supply Chain Learning and Sustainability Performance

Currently, several organisations have sought to develop an approach for integrating sustainability into their supply chains (Cormack et al., 2021). Whereas several firms have been advised to establish keen strategic actions and leadership, others are also being encouraged to adopt environmentally friendly ways of developing their products and processes (Formentini and Taticchi, 2016; Huq et al., 2016; Cormack et al., 2021). All these approaches are deeply rooted in SCL, suggesting that regardless of the OC an organisation implements, SCL is still needed to achieve good sustainability performance. SCL integrates knowledge from supply chain partners and internally and incorporates this into an organisation's decision-making process and mechanisms to achieve a better sustainability performance (Silvestre et al. 2020; Cormack et al. 2021). Thus, intensive SCL can exert a positive influence on SP of firms and an organisation with a sustainability-supportive culture still needs well-established SCL to achieve an improved SP. In this research, we hypothesise that;

H2: SCL has a positive relationship with sustainability performance.

H2a: Internal learning has a positive impact on sustainability performance.

H2b: Customer learning has a positive impact on sustainability performance.

H3c: Supplier learning has a positive impact on sustainability performance.

H3: SCL mediates the relationship between organisational culture and sustainability performance.

H3a: SCL mediates the relationship between developmental culture and sustainability performance.

H3b: SCL mediates the relationship between group culture and sustainability performance.

H3c: SCL mediates the relationship between hierarchical culture and sustainability performance.

H3d: SCL mediates the relationship between rational culture and sustainability performance.

Research Methodology

This research adopts the quantitative approach as the constructs of the variables have been rigorously developed and tested in extant literature. A survey was therefore conducted. The research context is the manufacturing industry in Ghana. The list of the firms was obtained from the Ghana Chamber of Commerce. A 7-point Likert-scale type of questionnaire from 7-strongly disagree to 1-Strongly agree for each of the variables was developed on Qualtrics and physically printed as most of the respondents either had incorrect email addresses or declined our invitation to respond to the online survey. A total of 450 printed questionnaires were subsequently administered to the rest of the

respondents who did not respond to the online survey. A total of 308 usable responses from both online and physical distributions were collected and analysed.

Results

This section presents the findings in this study and encapsulates the measurement and structural models. The section begins with the measurement model which reveals the results from the confirmatory and exploratory factor analyses. The structural model reveals the relationship between each of the variables together with their p-values.

Measurement Model

The confirmatory and exploratory factor analyses were performed with PLS-SEM due to normality issues in the data and its ability to handle complex issues without any assumptions in the data (Hair et al., 2020). The reliability (composite reliability and Cronbach Alpha) coefficients met or exceeded the threshold (see Table 1). Convergent validity was not an issue as the AVE, factor scores and T-values all met and exceeded the thresholds (see Table 1). The discriminant validity also proved to be of no issue as the square root of the AVE was larger than the correlations between the variables.

Table 1-Reliability, Convergent Validity and Factor Analysis

Constructs	**Factor Loadings**	**Cronbach´s Alpha**	**Composite reliability**	**Average Variance Extracted (AVE)**
Customer Learning		**.891**	**.920**	**.698**
CSL1-5	.780-.874			
Internal Learning		**.917**	**.937**	**.748**
INL1-5	.846-.884			
Supplier Learning		**0.895**	**0.923**	**0.704**
SPL1-5	.814-.886			
Development Culture		**0.889**	**0.915**	**0.643**
DC1-6	.750-.804			
Group Culture		**0.873**	**0.908**	**0.664**
GC1-5	0.773-.848			
Hierarchy Culture		**0.789**	**0.822**	**0.538**
HC1-5	.708-.828			
Rational Culture		**0.880**	**0.912**	**0.675**
RC1-5	.784-0.858			

Sustainability Performance		**0.874**	**0.881**	**0.530**
SP1-8	.700-.806			

Harman single factor analyses revealed more than 1 construct with eigenvalue of more than 1 explaining the total variance.

Structural Model

The correlation matrix table (see Table 2) highlights the relationship between each of the variables at different levels of p-values and significance levels. Same table was used in examining the hypotheses of the study. The R^2 and R^2 adjusted for each of the correlation ranged between .59-.67.

Table 2- Correlation Matrix

Correlation matrix

		1	2	3	4	5	6	7	8
Customer Learning	[1]								
Development Culture	[2]	0.607							
Economic Performance	[3]	0.370	0.456						
Environmental Performance	[4]	0.195	0.278	0.403					
Group Culture	[5]	0.634	0.787	0.455	0.191				
Hierarchy Culture	[6]	0.345	0.353	0.272	0.203	0.42			
Internal Learning	[7]	0.662	0.64	0.492	0.321	0.666	0.318		
Rational Culture	[8]	0.453	0.601	0.453	0.152	0.543	0.415	0.43	
Social Performance	[9]	0.514	0.582	0.582	0.443	0.485	0.269	0.576	0
Supplier Learning	[10]	0.623	0.623	0.484	0.328	0.643	0.342	0.727	0

All Correlations are significant at 0.01 level (2-tailed)

Table 3-Mediating effect

Path **(H3)**	Ind. Effect	*t*-stats	*p*-value
DC-> SCL->SP	0.312	5.541	P<0.05
GC-> SCL->SP	0.409	6.520	P<0.05
RC-> SCL->SP	0.255	5.655	P<0.05
HC-> SCL->SP	0.232	5.750	P<0.05

H1 was confirmed as developmental, group, rational and hierarchical culture had a positive and a supported relationship with environmental, social, and economic

performance, thereby also supporting **H1a-H1d**. Again, the dimensions of SCL, that is, internal, customer, and supplier learning were found to have a positive and supportive relationship with SP, thereby supporting **H2 (H2a-H2c)**.

In Table 3, SCL was found to mediate the relationship between each dimensions of OC and SP, thereby supporting **H3 (H3a-H3c).**

Discussion of the findings

The results confirmed a positive relationship between the dimensions of OC and SP of manufacturing firms in Ghana. A culture characterised by developmental values, thus, creativity, innovativeness, long-term orientation, risk taking and focus on external resource increment can result in a high performance of the firms. Meaning manufacturing firms adopting this type of culture encourage employees to generate creative and innovative ideas and ways of implementing sustainability practices. In such a culture, firms are likely to obtain ideas and creative solutions to sustainability problems. The results further confirmed that the values inherent in a group culture characterised by teamwork is useful for implementing and enhancing SP. Thus, manufacturing firms adopting such a culture create sustainability teams to suggest the required sustainability practices and can extend such a teamwork to customers and suppliers in the supply chain. Rational culture which emphasises the usage of incentives can encourage employees to adopt the established sustainability practices in the firm. The results confirmed a positive relationship between rational culture and SP. This suggests the ability of manufacturing firms to use incentives to stimulate employees' behaviour towards using sustainable means to achieve desired firm objectives. Hierarchical culture which is characterised by strict control and measures was also expected to have a positive relationship with SP. The positive relationship between hierarchical culture and SP implies that, manufacturing firms with strict control measures can enforce employees to follow the established sustainability measures both in the firm and across their supply chains to enhance their SP. Wijethilake et al. (2023) highlighted the significance of the cultural values in instilling change towards sustainability adoption in firms.

The results also confirmed a positive relationship between SCL and SP. The consistent sharing of sustainability ideas, knowledge, skills, information, and collaborative learning efforts within the firms and with their customers and suppliers can enable firms acquire the requisite sustainability knowledge to enhance their SP. Finally, the study highlights that with the sustainability-supportive in place, firms still need joint learning programs on sustainability to enhance their SP.

Relevance and Contribution

The findings in this study makes significant contributions to the literature on OC (using CVF), SP and SCL and especially SP in EEs. Unlike research such as (Osei et al. 2023) which confirmed no relationship between rational culture and SP, this study revealed the relevance of rational culture in addition to enhancing SP in manufacturing firms. This study also takes the research of Wijethilake et al. (2023) further by revealing that the values inherent in the dimensions of each of the CVF, thus, developmental, group, rational, and heirarchical can directly influence the implementation of sustainability practices, thereby, enhancing SP in firms. With the limited research on SCL and SP, the findings in this study confirmed a positive relationship between the internal, customer and supplier learning and SP. With almost no research on the mediating role of SCL on the OC-SP, this study confirms that after adopting sustainability-supportive culture, SCL is needed to implement sustainability practices to enhance SP. This study also makes

significant contributions to the growing discourse on the SP in EEs. The research highlights that adopting sustainability-supportive OC and intensifying SCL is significant for implementing sustainability practices.

Practically, managers in manufacturing firms especially in EEs need to encourage employees to be creative, risk takers, innovative, seek growth and establish sustainability teams as a conduit for sharing ideas, knowledge, and resources on how firms can successfully embed sustainability into their supply chains. Manufacturing firms must always engage in sustainable learning programs by attending joint trainings on sustainability with their supply chain partners. Joint training programs can create an avenue for sharing the needed knowledge, information, skills, and ideas to overcome the current sustainability challenges. Managers are also encouraged to establish strict measures and then use incentives as a channel to encourage employees to adopt sustainable practices.

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