

UNIVERSITY OF EDUCATION, WINNEBA

**INFLUENCE OF EMPLOYEES' MOTIVATIONAL FACTORS IN ACHIEVING
SUSTAINABLE SUPPLY CHAIN ANALYTICS FIRMS**

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MASTER OF BUSINESS ADMINISTRATION



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School of Business, submitted to the school of
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of the requirements for the award of the degree of
Master of Business Administration
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in the University of Education, Winneba

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DECLARATION

STUDENT'S DECLARATION

I, declare that except for the reference to other research books and websites which have been duly cited, this project work is the result of my own efforts and that it has neither in wholly nor partially been presented or produced elsewhere.

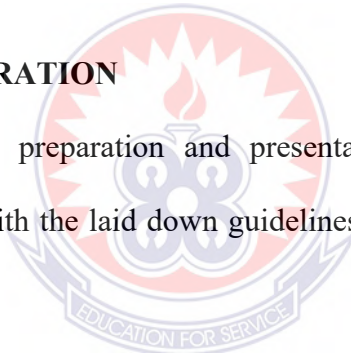
Name.....

Signature.....

Date.....

SUPERVISOR'S DECLARATION

I, hereby declare that the preparation and presentation of this project work was supervised in accordance with the laid down guidelines by the University of Education, Winneba.



Name.....

Signature.....

Date.....

DEDICATION

This dissertation is dedicated to my husband, Kwame Appiah Hayford, my Supervisor Dr. Frank Kissi, for the wonderful support he has giving me and to my father Samuel Bernard Boateng, to my siblings and the entire family of Boateng and Appiah Hayford.



ACKNOWLEDGEMENT

My special thanks and appreciation go to Dr. Frank Kissi for his guidance and special support he gave me throughout this journey for this work to be done successful. This dissertation would not have been complete without his kind support, I am forever grateful.

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LIST OF ABBREVIATION

Abbreviation	Meaning
ESW	Employee Subjective well-being
ES	Employee Silence
WE	Working Environment
MSCA	Motivation for Supply Chain Analytics
ECI	Employee Computer Interaction
KS	Knowledge Sharing
SCAS	Supply Chain Analytics Sustainability



ABSTRACT

Although Supply Chain Analytics (SCA) has advanced, human factors are still not considered as important and are often overlooked and undervalued in several aspects of supply chain management. This research examines the significance of human (employee) motivational factors in achieving sustainable SCA in firms. Data was collected from 277 supply chain professionals in selected firms through a survey questionnaire. The proposed research model with the hypothesis was examined using Structural Equation Modelling (SEM). The study findings reveal that employee knowledge of computer interaction affects motivation for SCA. Furthermore, firms' activities that foster employees' knowledge sharing and subjective wellbeing positively affect the motivation for SCA.

Similarly, employee working environment has a relationship with motivation for SCA. However, employee silence has a negative effect on motivation for SCA. This study has very positive implications for the implementation and sustainability of SCA for firms. Detailed theoretical contributions and managerial implications were discussed.

Keywords: Firms; employees; motivational factors; supply chain analytics; sustainability; stakeholder theory



CHAPTER ONE

INTRODUCTION

1.0 Introduction

The chapter presents the background of the study, the problem statement, the aim of the study and the research objectives. It further highlights research questions that guide the study scope and the rest of the organisation of the research.

1.1 Background to the Study

An element of Supply Chain Analytics (SCA) focuses on the collection, analysis, and synthesis of large amounts of data to provide real-time insights (relationships and patterns) and inform business policies (Ülkü & Engau, 2021). SCA aims to develop methodologies and technologies to formulate strategies to solve supply chain problems and provide timely information to various industry stakeholders. As a result of applying SCAs, real-time decisions can be made to enhance firms' operational performance (Mubarik et al., 2019) and support supply chain innovation (Shamout, 2019; Zhu et al., 2018). SCA market revenues are expected to grow by 3.5 billion dollars by 2020, reaching \$8.5 billion by 2025 (PRNewswire, 2020). Although SCA has advanced, human factors are still not considered significant (Jäger et al., 2014). They are often overlooked and undervalued in several aspects of supply chain management (D'Aleo & Sergi, 2017), particularly SCA.

1.2 Statement of the Problem

Human factors (employees) are regarded as the only internal stakeholders playing a significant role in the organization's strategic planning, operations and policy implementation (Mondal & Samaddar, 2023). Employees are an essential component of an SCA; therefore, any organisation

that fails to invest in and create value and motivate its employees is likely to fail. Thus, employee motivation can lead to achieving the firm's collective goals (Gottschalg & Zollo, 2006). Employee motivation reduces the adverse effects and increases the efficiency of the employees (Cantor, Morrow & Montabon, 2012; Nejati, Rabiei & Jabbour, 2017). Some previous studies focused on SCA, as indicated in Table 2.1. In particular, some examined the SCA impact on agility, adaptability, performance and competitive advantage, innovation, operational and supply chain transparency (Chae, Olson & Sheu, 2014; Khan, Piprani & Yu, 2023; Kalaitzi, & Tsolakis, 2022; Shamout, 2019; Zhu et al., 2018). Others also investigated the role of culture and analytics skills on SCA (de Oliveira & Handfield, 2022), SCA barriers (Herden, Nitsche & Gerlach, 2020), SCA complement and customer pressure (Shafiq, Ahmed & Mahmoodi, 2020; Srinivasan & Swink, 2018) and issues relating BI systems and SCA (Sahay & Ranjan, 2008). However, studies examining the role of motivational factors in keeping employees engaged in SCA are limited. Considering this research gap, this study made a unique effort to explore the human motivational factors in ensuring sustainable SCA on firm performance.

1.3 Aim of the Study

Considering this research gap, this research made a unique effort to examine the human motivational factors in ensuring sustainable SCA on firm performance.

1.4 Objectives of the Study

The following research objectives were formulated to guide the research. To examine the influence of:

1. Extrinsic motivation factors (Employee computer interaction, knowledge sharing and working environment) on motivation for supply chain analytics

2. Intrinsic motivation factors (employee subjective wellbeing and employee silence) on motivation for supply chain analytics
3. Motivation for supply chain analytics on supply chain analytics sustainability

1.5 Research Questions of the Study

The following research questions are formulated to guide the study:

1. What is the influence of extrinsic motivation factors (Employee computer interaction, knowledge sharing and working environment) on motivation for supply chain analytics
2. What is the influence of intrinsic motivation factors (employee subjective wellbeing and employee silence) on motivation for supply chain analytics
3. What is the impact of motivation for supply chain analytics on supply chain analytics sustainability?

1.5.1 Research Hypotheses

The following research hypotheses were framed based on the research questions to guide the study



Research question one

H1: Employee computer interaction positively influences motivation for supply chain analytics

H2: Knowledge sharing positively influences motivation for supply chain analytics

H3: Working environment positively influences motivation for supply chain analytics

Research question two

H4: Employee subjective wellbeing positively impacts motivation for supply chain analytics

H5: Employee silence negatively influences motivation for supply chain analytics

Research Question three

H6: Employee motivation for supply chain analytics positively influences supply chain analytics sustainability

1.6 Significance of the Study

The research fills a significant gap in supply chain management research by estimating the importance of various human motivational factors on SCA. In addition, the study proposed a conceptual framework that empirically establishes human motivational factors as essential contributors to the sustainability of SCA. More so, the study contributes to the literature by testing whether there is a robust association between employees' intrinsic and extrinsic motivation and SCA sustainability using representative data from supply chain professionals responsible for implementing various SCA practices in firms.

1.7 Scope of the Study

The current research examines the human motivational factors in ensuring sustainable SCA on firm performance. Therefore, the research was limited to employees in organisations using supply chain analytics for decision making.

1.8 Rest of the Organisation of the Study

The rest of the research was scientifically organised into different chapters. Chapter two carefully presents a literature review, including the research's theoretical position and the hypotheses that form the study's underpinnings. Chapter three describes the general research design and methodology and further discusses the blueprint that answers the research hypothesis. Chapter four included data analysis, results, and discussion. Chapter Five, which was chapter five, entailed

the summary of the main findings, the conclusion of the study and its managerial implication, recommendations, and suggested areas for further research.



CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The literature review includes two theoretical frameworks: the stakeholder theory and the Herzberg's Motivation Theory. The chapter on research hypothesis development also proposes a conceptual framework based on the two theoretical frameworks.

2.1 Theoretical Framework

The study was based on two theoretical frameworks. The first one is stakeholder theory, which postulates that organisations should provide value to all stakeholders, including employees. As internal stakeholders (employees) receive value, the working environment transforms and changes. Only one internal stakeholder plays a significant role in policy implementation: employees (Mondal & Samaddar, 2023). According to the theory, employee engagement and involvement contribute to discovering and reducing operational risks. The second one is Herzberg's Motivation Theory (Herzberg et al., 1959), one of the more renowned employee motivation theories which emphasise the individual's (employee) work environment and motivation factors. A theory holds that the work environment, relationships, and motivation factors drive employees to work towards a particular goal. In support, Bartol and Martin (1998) defined motivation as the force that drives an employee toward achieving common objectives.

As a result of combining the two theories, the researcher believes that organisations relying solely on SCA will eventually fail. However, those who add value creation and motivate their employees will succeed. Thus, a firm's performance can be enhanced if it provides value to employees and considers their motivation factors.

2.2 Other theories related to motivation

Extrinsic motivation can be effective in the short term but may not sustain long-term commitment. Maslow's Hierarchy of Needs: Abraham Maslow's theory suggests that individuals are motivated by a hierarchy of needs, with basic physiological conditions (such as food and shelter) at the base and higher-level needs (such as self-actualization and self-esteem) at the top. People strive to fulfill lower-level needs before progressing to higher ones.

Self-Determination Theory theory posits that individuals are motivated when they have a sense of autonomy, competence, and relatedness. Autonomy refers to the feeling of control over one's actions, competence relates to the belief in one's abilities, and relatedness pertains to the need for social connections. Expectancy Theory proposes that motivation is influenced by the expectation that a specific action or effort will lead to a desired outcome. It involves the belief that one's efforts will lead to good performance, leading to desired results. Goal-Setting Theory can be a powerful motivator. This theory suggests setting specific, challenging, and achievable goals can enhance motivation and performance. Setting, pursuing, and achieving goals helps individuals focus their efforts. Cognitive Dissonance Theory indicated that when individuals experience conflicting thoughts or beliefs can lead to discomfort or dissonance. They may be motivated to change their attitudes or behaviors to reduce this discomfort. This theory is often used to explain how people justify their actions.

Achievement motivation is the desire to excel, accomplish goals, and demonstrate competence. Some individuals are highly motivated by success, achievement, and recognition. Social factors like peer pressure, cultural norms, and social expectations also influence motivation. Emotions, including fear, desire, and passion, play a significant role in driving behavior. In conclusion,

Motivation can vary from person to person and situation to situation. It's essential to recognize that people have different motives and that effective motivation strategies must be tailored to individual preferences and needs. Motivation is crucial in various aspects of life, including education, work, personal development, and behavioral change.

Table 2.1: Studies on Supply Chain Analytics.

Authors	Study Contribution	Stakeholders	Theoretical Position
Khan, Piprani and Yu (2023)	Supply chain data analytics effect on agility, adaptability and alignment	Supply chain analytics professionals	dynamic capability view (DCV)
de Oliveira and Handfield (2022)	The role of analytics skills and culture in accepting supply chain analytics	Supply chain executives	Information processing view
Kalaitzi, and Tsolakakis (2022)	Supply chain analytics effect on performance and competitive advantage in organisations	Manufacturing sector employees	TOE framework
Herden, Nitsche, and Gerlach (2020)	Supply chain analytics barriers in an organisation	Supply chain analytics professionals	Grounded Theory and Q-Methodology
Shafiq, Ahmed and Mahmoodi (2020)	Investigating pressure of customers' role and SCA capability (SCAC)	customers	Stakeholder theory and resource-based view
Fosso Wamba and Akter (2019)	Developing and validating SCAC model and examining its effects on firm performance	supply chain analytics professionals, managers and mid-level manager	the resource-based view (RBV) and dynamic capability theory (DCT)
Shamout (2019)	Supply Chain Analytics influence on Robustness Capability and Supply Chain Innovation	Line managers	knowledge-based view

Srinivasan and Swink (2018)	Complements of supply chain analytics:	Senior supply chain managers	Information processing theory
Zhu et al. (2018)	Effect of supply chain analytics on supply chain transparency and operations	People with working experience in supply chain activities	Information processing theory perspective
Chae, Olson and Sheu (2014)	Supply chain analytics effect on operational performance	Manufacturing Director	Resource-based view
Sahay and Ranjan (2008)	Issues relating to the use of BI systems in supply chain analytics	None	None

2.3 Development of Hypothesis

2.3.1 Human extrinsic motivational factors

Employee Computer Interaction

For this study, employee computer interaction is defined as an employee's capabilities, expertise, and knowledge of technology. Today, technology is recognised as a source of drivers that enhance SCA (Oh, Ryun & Yang, 2019). Today, technology is recognised as a source of drivers that enhance SCA (Oh, Ryun & Yang, 2019). Employees' perceived level of digital literacy contributes to their performance at work. (Cetindamar Kozanoglu, & Abedin, 2021). Further, frequent interaction with technology encourages the adoption of digital technology (Naimn & Lenkla, 2016). Similarly, a lack of workplace capabilities, expertise, and knowledge of technology slows down employee-related technological activities (Valk, & Planojevic, 2021). Employees' utilisation of modern technology is needed to facilitate the process of SCA (Lyulyaeva & Shapiro, 2018). There is a relationship between computer interactions and employee productivity (Webster, 1990). Per these discussions, it can be argued that motivation to

perform supply chain related activities may depend on employee computer interaction. Therefore, the following hypothesis was formulated:

H1: Employee knowledge of computer Interaction affects motivation for SCA.

Knowledge Sharing

This study defined knowledge sharing as a firm activity through which knowledge of SCA is exchanged among employees. Employees' engagement in sharing knowledge could develop more efficient and effective organizational procedures and processes. Furthermore, it fosters a culture of learning and better collaboration among employees. Generally, knowledge sharing encourages creativity and innovation, creates a more positive work environment and increases productivity in organisations (Al Yami & Ajmal, 2019; Le & Le, 2023; Le & Lei, 2017; AlShamsi & Ajmal, 2018; Than & Le, 2022). Sharing knowledge in an organisation increases productivity and motivates employees to perform their jobs effectively and efficiently (Le & Lei, 2019; Swanson et al., 2020; Stachova et al., 2020). Knowledge sharing motivates employees to sustain operations (Khodadadi & Feizi, 2015; Tang, Chau & Ip, 2023). Therefore, an activity that encourages the sharing of knowledge among employees is likely to motivate them to perform assigned tasks. Moreover, a positive relationship exists between knowledge or information sharing and supply chain activities (Kankam et al., 2023). For these reasons, the following hypothesis was stated:

H2: Firms activity that fosters employees' knowledge sharing has a positive effect on the motivation for SCA

Working Environment

From this study's perspective, it provides necessary facilities or resources for employees to support SCA. The working environment has several effects on employees' motivation and ability to get work done (Akinwale, & George, 2020; Girdwichai & Sriviboon, 2020). Firms that fail to understand the importance of their working environments often lack internal strength and find it difficult to introduce innovation to stay competitive. (Aiken, Clarke, & Sloane, 2002). Thus, an organisation that ignores its working environment decreases the motivation of its employees. To increase employees' efficiency, effectiveness, competency, and commitment, organisations must satisfy the needs of employees by providing comfortable working environments (Hurtienne & Hurtienne, 2023; Sutermeister, 1971). Employees' ability to develop and display adaptive capabilities is motivated by the availability of appropriate organisational resources (Bardoel et al., 2014; Pipe et al., 2012). The provision of needed resources for employees in working environments continues to be critical to the long-term sustainability and performance of the field (Maloni et al., 2017). Locke (1976) indicated that when a firm satisfies an individual's values, it creates employee feelings of attraction to the firm. This translates into job satisfaction and commitment (Lauver & Kristof-Brown, 2001). From these discussions, it may be argued that the working environment has an association with employee motivation:

H3: Working Environment has a relationship with motivation for SCA

2.3.2 Human intrinsic motivational factors

Employee Subjective Well-being

This study explained employee subjective wellbeing as employees' physical, mental, and emotional health at work. An employee's wellbeing promotes the development of soft skills such as teamwork, communication, conflict management and resilience (Revina, Kalabina & Belyak, 2022), all of which are essential for productivity, creativity, and efficiency. Increasing an

individual's subjective wellbeing has a causal impact on their level of creativity and engagement at work (Lyubomirsky et al., 2005). Enhanced subjective wellbeing can enable employees to work harder or be more competent and is causally linked to productivity (Oswald et al., 2015). Thus, activities that meet employees' basic needs motivate them toward higher organisational goals. Based on these discussions, the following hypothesis was developed:

H4: Firms' activity that fosters employee subjective wellbeing has a positive effect on the motivation for SCA

Employee Silence

An employee's silence is defined as their intention to withhold work-related information, ideas, and opinions in a deliberate manner (Al-Hawari et al., 2020). Many employees stay silent because they assume their working environment will not be affected by disclosing information. Silence can be costly, especially when employees discover problems and refuse to share alternative solutions (Al-Hawari et al., 2020). Previous studies revealed that employee silence is associated with intentions to leave the organisation (Burriss et al., 2008; Elçi et al., 2014), decreased commitment levels (Vakola & Bouradas, 2005) and weakened employee work engagement (Tsai, 2018; Pirzada et al., 2020) at the workplace. Furthermore, at the individual level in organizations, silent employees experience negative emotions such as dissatisfaction, demotivation, and stress (Paillé, 2015). This can negatively affect the motivation of employees to perform activities. As a result, it can be posited:

H5. Employee silence has a negative influence on motivation for SCA

The concept of motivation related to SCA Sustainability

Employees' intrinsic and extrinsic motivations drive effort and action towards work-related activities. According to Lorincová et al. (2019), motivation helps employees commit to business

sustainability. Thus, extrinsic and intrinsic motivation work to counteract the working environment's negative impact to promote sustainable revolution and innovation in organisations (Delmas & Pekovic, 2018). The concept of motivation is grouped into two: intrinsic and extrinsic motivation. In comparison, intrinsic motivation is an inner drive that pushes an individual to pursue an activity for its own sake and not for obvious external prizes or rewards. Motivation from within is critical for task persistence work, solution exploration and employee creativity (Shafi et al., 2020). According to Miao, Rhee and Jun (2020), intrinsic motivation is the key to employee engagement in work activities.

In comparison, extrinsic motivation focuses on employee commitment to an action grounded on the perceived significance of achieving an assigned task and can result in short-term modification of behaviour (Ifinedo, 2017). Extrinsic motivation encourages employees to perform complex or less stimulating tasks, which helps them to stay determined and productive at work (Good et al., 2022). The effectiveness of extrinsic motivation often relies on situational factors (Fong & Schallert, 2023).

Moreover, it was confirmed that the two motivational factors (intrinsic and extrinsic motivation) contribute to the contentment and satisfaction of employees at work (Walker, 2002). Sustainability and motivation are commonly found together, particularly when motivating employees. According to Lorincová et al. (2019), employee motivation is essential to achieve sustainable business processes. Therefore, based on the discussion above, it can be argued that motivating employees for supply chain analytics as part of business activities will likely affect SCA sustainability.

H6: Motivation for applying SCA has a positive effect on SCA sustainability

2.4 Overview of the proposed motivational model

Considering the associated literature, human motivational factors are generally grouped into two parts, namely intrinsic and extrinsic motivation. These types of motivation influence employee commitment to SCA activities. Extrinsic motivation factors, such as employee interactions with technology, employee knowledge sharing and the employee working environment, may be significant motivators for SCA. On the other hand, intrinsic factors, such as employee subjective wellbeing and silence, are likely the most motivating factors for SCA. Figure 2.1 presents the human motivation model. Table 2.2 shows a summary explanation of the constructs.

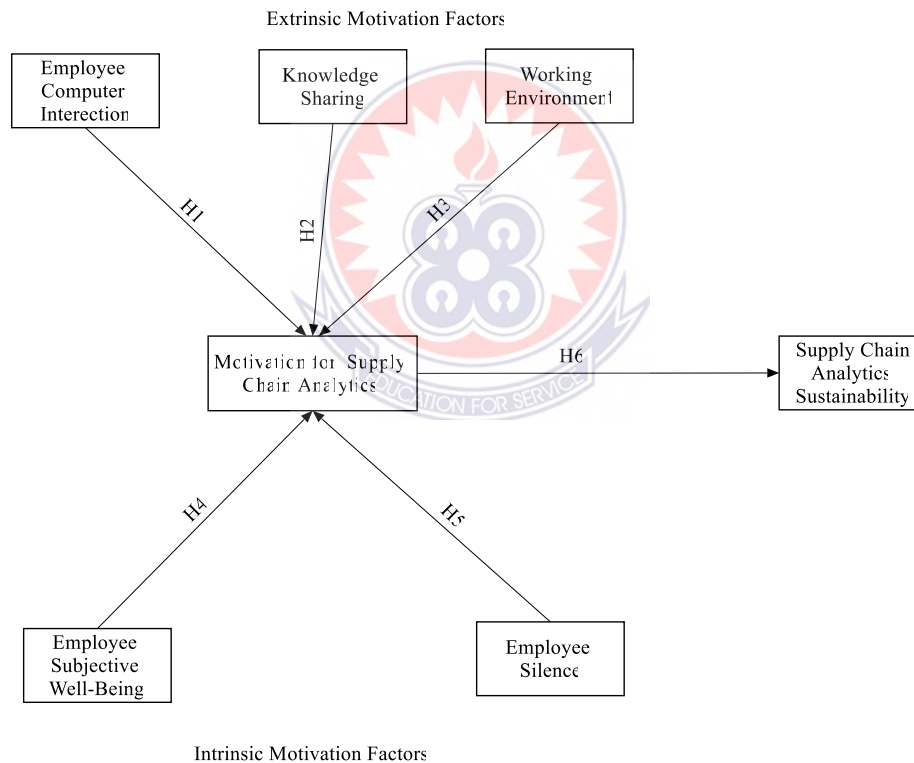


Figure 2.1: Proposed motivational model with Hypotheses

Table 2.2 Summary explanation of research model constructs

Constructs	Description
Employee Computer Interaction	Employee's capabilities, expertise, and knowledge in technology

Knowledge Sharing	Activity through which knowledge of SCA is exchanged among the employees
Working Environment	Providing necessary facilities or resources for employees to support SCA
Employee Subjective wellbeing	Physical, mental, and emotional health at work
Employee Silence	An employee withholds information that would be valuable to the organisation
Motivation for Applying SCA	Employee satisfaction with factors that aid SCA application
SCA Sustainability	End-point where employees continue the use of SCA

2.5 Concept of Motivation

Motivation is a complex psychological concept that refers to the driving force or reasons behind an individual's actions, behaviors, and choices. The internal or external stimulus energizes and directs a person's efforts toward achieving a particular goal, completing a task, or satisfying a need. Motivation is crucial in various fields, including psychology, management, education, and self-improvement. Intrinsic motivation involves engaging in an activity or task because it is inherently rewarding or enjoyable. People are intrinsically motivated when they find personal satisfaction, interest, or fulfillment in their actions. Examples include pursuing a hobby, solving puzzles, or exploring creativity.

On the other hand, extrinsic motivation involves engaging in an activity to attain an external reward or avoid punishment. This can include earning money, gaining recognition, or avoiding negative consequences.

2.6 Important of Motivation in an organisation

Motivation plays a crucial role in an organization for several reasons. It can significantly impact employees' performance, satisfaction, and overall well-being, affecting the organization's success and productivity. Motivated employees are more likely to put in their best effort, be more productive, and consistently meet or exceed performance expectations. They are willing to go the extra mile to achieve organizational goals. When employees are motivated, they tend to be more satisfied with their jobs. This satisfaction can lead to higher retention rates, as motivated employees are less likely to seek employment elsewhere. Motivation fosters a positive work environment where employees are engaged and enthusiastic. This, in turn, can improve morale and teamwork, leading to better collaboration and a more harmonious workplace. Motivated employees are less likely to be absent from work or leave the organization. A motivated workforce reduces the costs associated with recruiting, hiring, and training new employees. Also, motivated employees tend to produce higher-quality work because they are more committed to their tasks and take pride in their achievements. This can lead to better products and services, benefiting the organization and its customers. They are generally more open to change and innovation. They are willing to embrace new ideas and methods, which can be crucial in a rapidly evolving business environment. A culture of motivation and recognition can be contagious and lead to an overall positive and innovative organizational culture. Employees are more likely to be engaged in the company's mission and values.

All of the above factors contribute to the organisation's overall success and profitability. Motivated employees can lead to increased revenue, reduced costs, and improved financial performance. To foster motivation in an organization, leaders and managers must understand their employees' diverse needs and aspirations. They can employ various strategies, such as

setting clear and achievable goals, providing regular feedback, offering rewards and recognition, and creating a positive and inclusive work culture. A well-designed compensation and benefits package can also be a powerful motivator. Motivation is essential for individual job satisfaction and a key driver of an organisation's success and competitiveness in the marketplace.

2.7 Motivation for supply chain analytics

Motivation for implementing supply chain analytics can profoundly impact an organization's efficiency, profitability, and competitiveness. Supply chain analytics provides real-time, data-driven insights that help organizations make more informed and strategic decisions. This leads to better allocation of resources, improved demand forecasting, and optimized inventory management. Organizations can identify cost-saving opportunities by analyzing supply chain data, such as optimizing transportation routes, reducing inventory carrying costs, and minimizing supply chain bottlenecks. Supply chain analytics can help streamline processes, identify inefficiencies, and reduce lead times. This leads to faster order fulfillment, reduced cycle times, and improved customer satisfaction.

Accurate demand forecasting and inventory optimization through analytics can reduce excess stock, minimize stockouts, and improve cash flow. Analytics can help assess and monitor the performance of suppliers, enabling organizations to make informed decisions about supplier relationships and contracts. Supply chain analytics allows organizations to identify and mitigate potential risks, such as disruptions due to natural disasters, political instability, or supply chain dependencies. This helps in developing risk mitigation strategies. Supply chain analytics can enhance customer satisfaction and loyalty by delivering products more efficiently and accurately.

Organizations that leverage analytics gain a competitive edge in the marketplace by being more responsive to changing market conditions and customer demands. Supply chain analytics can help organizations reduce their carbon footprint by optimizing transportation routes and making environmentally responsible decisions. Analytics can help organizations ensure compliance with industry regulations and standards, avoiding penalties and reputational damage. Supply chain analytics can support expansion plans by identifying growth opportunities and the most efficient ways to enter new markets. With real-time data and analytics, organisations can gain end-to-end visibility into their supply chain, essential for proactive issue resolution. Implementing supply chain analytics fosters a data-driven culture within an organization, encouraging employees to use data for decision-making and continuous improvement.

To effectively motivate an organization to invest in supply chain analytics, it's crucial to demonstrate the potential return on investment (ROI), highlight successful case studies, and emphasize the long-term benefits of data-driven decision-making. Additionally, creating a clear roadmap for the implementation of supply chain analytics and emphasizing the competitive advantages it can provide is essential to gaining buy-in from key stakeholders and decision-makers

2.8 Employee Working Environment

The working environment refers to the physical, social, and psychological conditions in which employees perform their job tasks. A positive and supportive working environment is essential for promoting employee wellbeing, productivity, job satisfaction, and overall organisational success. Creating and maintaining a positive working environment requires a commitment from both employers and employees. When organizations prioritize the well-being of their workforce and take steps to improve the working environment, they can expect to see increased job

satisfaction, higher productivity, and lower turnover rates, ultimately contributing to the organization's success. A good working environment is where employees feel comfortable, engaged, and motivated to perform their best. It promotes well-being, job satisfaction, and overall productivity. A good working environment benefits employees and contributes to an organization's success. It leads to higher productivity, lower turnover rates, and improved morale, positively impacting the bottom line. Organizations prioritising creating a positive working environment tend to attract and retain top talent and enjoy a more harmonious and prosperous workplace.



CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter discusses the research methodology, including the research design, population, sample and sampling procedure, and research instruments. It also considers data collection techniques and analysis procedures.

3.1 Research Design

The study used a cross-sectional survey questionnaire research design with a quantitative data collection approach. The cross-sectional survey method emphasises collecting information at a specific period from a collected sample from a population by administering to test a single participant with similar characteristics (Nardi, 2018; Singleton Jr et al., 1988). This type of research design focuses on collecting data from many diverse people at a particular time (Kassaw & Pandey, 2022). In the design, the researcher, without influences, uniquely observes the variables (Showell et al., 2022). This is the best research design for applied details (Weldesebet, Worku & Shumbej, 2019). For example, data from a cross-sectional design survey finds the answer to the research question with data collected from one source. More so, cross-sectional surveys are well-suited for hypothesis testing and exploring relationships between variables. Without a longitudinal design, researchers can assess correlations, associations, and differences among variables. In summary, cross-sectional surveys are a valuable tool for gathering information about a population at a specific time, making them essential for various research, policy, and decision-making purposes.

3.1.1 Rationale for the Design

Theoretical frameworks are not the only determinants of research. The importance of such research approaches cannot be overstated (Thomas, 2003). The study examined the human motivational factors in ensuring sustainable SCA on firm performance. To achieve this, it was imperative to collect data from selected participants to explore the degree to which these factors influence the usage of the system. Therefore, it is significant to employ a suitable design for the study. This is because self-developed questionnaires are used to gather data in a cross-sectional survey and aim generally to analyze the sample group with similar characteristics. In line with this study, the survey questionnaire was used to collect data from participants to measure the proposed variable of the research.

3.2 Population of the Study

The participants were employees selected from manufacturing, telecommunication retail stores, and financial institutions in Ghana. This research population was limited to customers in the Greater Accra Region. The scope of this area was chosen because Greater Region has a higher number of manufacturing companies, financial institutions and other organisations.

3.3 Sample Size Determination, Sampling Procedure and Sample

Alreck and Settle (1985) recommended that a sample size between 200 to 1000 participants in a particular study applies to a population of 10,000 or above. In support, Gorsuch (1983) and Kline (1979) recommended that the sample size should be at least 100 while Guilford (1954) argued that at least the sample size should be 200. Moreover, Cattell (1978) called for a desirable minimum sample size of 250 for factor analysis. Therefore, purposive sampling was used to select 277 supply chain professionals with not less than two years of experience in SCA.

3.4 Measures

There were two sections of the survey questionnaire. The first section involved questions about participants' demographics. The second section included seven latent variables with thirty-two (32) observed variables modified from previous literature. Thus, employee computer interaction (Ifinedo, 2011); knowledge sharing (Lin, 2007); working environment (Razak, Ma'amor, & Hassan, 2016); subjective well-being (Ko, 2022); employee silence (Aboramadan et al., 2020); motivation for SCA (Kalaitzi & Tsolakis, 2022) and SCA sustainability (Chae et al., 2014; Shamout, 2019; Wamba & Akter, 2019). Five-point Likert scale was employed for the measurement of all items with a rating scale from a strongly disagree (value of 1) to a strongly agree (value of 5)

3.5 Research Instrument and Reliability

A survey questionnaire was employed as the research instrument for the study. The selected firms permitted the researcher to distribute the survey questionnaire instrument to their employees. To test the hypotheses and framework proposed, a questionnaire was designed. A survey instrument was pre-tested with 15 supply chain professionals in firms. The pretest participants were not included in the main survey. As a result, the survey instrument's reliability and completion time were evaluated (Brandon-Jones & Kauppi, 2018). Further, the internal consistency of the primary survey data was examined using Cronbach's Alpha. From Table 3.1, the reliability of the latent variable of this study ranged from 0.860 to 0.964, indicating excellent or high internal consistency of the Study (Hair et al., 2010; Nunnally, 1978).

Table 3.1. Result of Reliability Analysis

Construct	Number of Items	Cronbach alpha(α)
Employee subjective-Well Being	4	0.899
Employee Silence	4	0.860
Working Environment	5	0.940
Motivation for Supply Chain Analytics	4	0.920
Employee Computer Interaction	6	0.951
Knowledge sharing	6	0.964
Supply Chain Analytics Sustainability	3	0.868

3.6 Validity of the Instrument

Even though the research instrument was adopted from previous studies with a confirmed validity test, the research instrument was given to colleague lectures to review spelling mistakes to improve the face validity as suggested by (Mostert, 2022). Furthermore, experts in the field of the study examined the instrument using varying methodologies to provide constructive feedback about the measurement instrument (Souza et al., 2017). Concerning this study construct validity, such as convergent and discriminant validity were also tested.

3.6.1 Convergent Validity

The convergent validity was tested using three measurement scale acceptance guidelines: factor loadings, composite reliabilities (CR) and average variance extracted (AVE). The value of factor loading ranged from 0.696 to 0.926, CR ranged from 0.819 to 0.969 and AVE ranged from 0.604 to 0.839. For the acceptance of the three measurements, the factor loading must exceed 0.6 (Bagozzi, 1981), CR must be greater than 0.7 (Henseler et al., 2009) and AVE should be greater than 0.5 (Chin, 1988; Hair et al. (2014)). The values of the factor loading, the AVE and CR of all

the constructs exceeded the recommended threshold values as reported in Table 3.2. In general, all the constructs measured what they were supposed to measure.

Table 3.2: Exploratory Factor Analysis (EFA)

Factors	Measurement	Factor loading	Skewness	Kurtosis
Employee Subjective Wellbeing	CR = 0.922, AVE = 0.748, E = 2.613 and CVE = 67.321			
ESW1		0.822	-1.385	1.221
ESW2		0.871	-1.703	1.705
ESW3		0.890	-1.660	1.634
ESW4		0.875	-1.760	1.850
Employee Silence	CR = 0.899, AVE = 0.691, E = 2.223 and CVE = 76.261			
ES1		0.856	-1.962	1.375
ES2		0.824	-1.736	1.618
ES3		0.844	-2.056	1.204
ES4		0.800	-1.956	1.494
Working Environment	CR = 0.925, AVE = 0.713, E = 3.091 and CVE = 47.167			
WE1		0.817	-1.300	0.817
WE2		0.817	-1.265	0.939
WE3		0.830	-1.308	1.008
WE4		0.866	-1.414	1.287
WE5		0.889	-1.455	1.166
Motivation for Supply Chain Analytics	CR = 0.940, AVE = 0.796, E = 2.795 and CVE = 57.524			
MSCA1		0.894	-1.518	1.992
MSCA2		0.889	-1.531	1.459

MSCA3		0.909	-1.586	1.972
MSCA4		0.876	-1.599	1.914
Employee Computer	CR = 0.904, AVE = 0.658, E = 1.019 and CVE = 81.656			
Interaction				
ECI1		0.704	-0.850	0.043
ECI2		0.913	-1.191	0.496
ECI3		0.848	-1.089	0.031
ECI4		0.638	-0.880	0.116
ECI5		0.914	-1.186	0.387
Knowledge sharing	CR = 0.969 , AVE = 0.839, E = 4.970 and CVE = 33.912			
KS1		0.898	-1.104	0.491
KS2		0.925	-1.232	0.733
KS3		0.924	-1.210	0.675
KS4		0.897	-1.158	0.646
KS5		0.924	-1.280	0.868
KS6		0.926	-1.255	0.828
Supply Chain Analytics	CR = 0.819, AVE = 0.604, E = 9.418 and CVE=17.907			
Sustainability				
SCAS1		0.862	-1.220	0.426
SCAS2		0.764	-1.005	0.432
SCAS3		0.696	-1.283	0.846

E: Eigenvalue, AVE: Average Variance Extracted = $\sum \rho^2/n$, CR: Composite Reliability = $(\sum(\rho)^2)/(\sum(\rho)^2 +$

$(\sum a)$, $a = 1 - \rho^2$, Factor Loadings < .500 were omitted Varimax with Kaiser Normalization

3.6.2 Discriminant Validity

The discriminant validity was tested using the approach introduced by Fornell and Larcker (1981). Several empirical studies have frequently applied this approach (Amankwa & Asiedu, 2022; Bossman & Agyei, 2022; Hanaysha & Al-Shaikh, 2022; Oluwajana & Adeshola, 2021).

The discriminant validity criterion recommends that the square root of the AVEs of the latent variable should be more than the correlated value between the latent variable and any other latent variable for the discriminant validity condition to be established. From Table 3.3, the values in diagonal (in parenthesis) indicate AVEs square root is more than the value of the correlation between the variables, indicating the satisfaction of discriminant validity.

Table 3.3: Discriminant Analysis of Factors

Construct	ESW	ES	WE	ECI	KS	MSCA	ASCA
ESW	(0.865)						
ES	0.228	(0.831)					
WE	0.073	0.106	(0.844)				
ECI	0.210	0.157	0.066	(0.811)			
KS	0.186	0.208	0.134	0.387	(0.917)		
MSCA	0.145	0.235	0.179	0.382	0.736	(0.892)	
SCAS	0.145	0.040	0.085	0.149	0.182	0.153	(0.778)

Note: The diagonal scores (parenthesis) indicate the square root of AVEs.

3.7 Common Method Bias

This study may have been affected by common method bias (CMB) since all the data were self-reported. Therefore, the risk of CMA was mitigated by following recommendations from Podsakoff et al. (2003) such as the guarantee of anonymity and confidentiality. More so, the study used tolerance and variance inflation factor (VIF) to ensure there is no common bias in the study. Studies have recommended threshold for tolerance and VIF. Thus, Tolerance should exceed 0.1 (O'Brien, 2007) and VIF less than 3.3 (Kock, 2015) or the value of VIF value should not be more than 10 (Hair et al., 1998). Table 6 reports the values tolerance and variance inflation factor (VIF). Tolerance values ranged from 0.832 to 0.997, which are greater than 0.1.

Likewise, VIF values ranged from 1.003 to 1.240, significantly less than 10. This indicates no perfect multicollinearity among the predictor factors. As a result, there is no multicollinearity problem and consequence, common bias does not exist in the study (see Table 3.4).

Table 3.4 Collinearity Statistics

Dependent Variable	Independent Variable	Tolerance	VIF
MSCS	ESW	0.991	1.009
	ES	0.991	1.009
	WE	0.857	1.167
	ECI	0.832	1.204
	KS	0.967	1.034

3.8 Testing for Normality of the Data

To assess the normality of the collected data from the study participants, Kaiser–Meyer–Olkin (KMO), skewness, and kurtosis were employed. The sampling adequacy was tested using Bartlett's test of Sphericity and Kaiser–Meyer–Olkin (KMO). The results reported statistical significant of $\chi^2(496) = 14224.494$ ($p = 0.000 < 0.05$) and the measurement of KMO = 0.725 > 0.500. Also, the result indicated that indices of skewness and kurtosis ranged from -2.056 to -0.850 and 0.031 to 1.850 respectively (see Table 4). As suggested by Lei and Lomax (2005), the kurtosis and skewness indices must be $|2.3|$ or less to suggest normality. Therefore, the result con that the collected data from the participants were normally distributed.

3.9 Data Collection Procedure and Analysis

Informed consent is one of the founding principles of research ethics. Its intent is the participants were purposively selected as indicated in another section. However, the purpose of the research

was explained to the participants and they were told to freely (voluntarily) take part in the research or opt out without any explanations. The data were collected from the participants using the Kobo Toolbox with the assistance of some colleagues in the firms to improve the response rate. The participants were selected from firms with different positions, thus supply chain manager (13.7%), operations manager (12.6%), supply chain analytics (11.6%), head of IT (10.8%), digitalisation of supply chain (7.6%), supply chain and logistics (11.6%), supply chain administrator (4.3%), supply chain project manager (8.7%), procurement manager (6.5%), and marketing manager (12.6%). Thus, of the 390 potential participants, 217 were able to fill out all the questionnaire items, representing a 71% response rate. The link to the survey on Kobo Toolbox was available for four months on the various WhatsApp platforms of the participants, from January 2023 to April 2023. The SPSS version 23.0 and linear structural relation (LISREL) 9.30 version were employed to analyse the participant's response data. LISREL is a statistical software package frequently employed in structural equation modelling (SEM) to examine the aptness, estimation of flexibility and predicting factors that influence each other in a specific model of research. A two-step method of analysis research model proposed by Anderson and Gerbing (1988) was used. The goodness of fitness of the model constructs was tested by examining the internal consistency, content, convergent and discriminant validity.

3.10 Measurement of the Model Fit

Kline (2015) suggested that for analysis of structural equation models (SEM), at a minimum the model chi-square, the RMSEA, the CFI and the SRMR should be reported. However, the current study reports ten measurements of absolute fit indices of the LISREL results. That is p-value, degree of freedom, Chi-square, Normed Fit Index (NFI), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Incremental Fit Index (IFI), Root Mean Square Error of

Approximation (RMSEA), Comparative Fit Index (CFI), Standardized Root Mean Square Residual (SRMR) and Standardized RMR provided an adequate model fit (p-value = 0.004, Chi-square/degree of freedom = 2.553, NFI = 0.940, GFI = 0.968, AGFI = 0.915, IFI = 0.963, Root Mean Square Error of Approximation (RMSEA) = 0.067, CFI = 0.962, RMR = 0.037 and SRMR = 0.050) as indicated in Table 3.5

Table 3.5: Structural Equation Model Indices of Goodness of Fit

Fit indices	Criteria	Research model
P-value	< 0.05	0.0004
Chi-square/degree of freedom ($\chi^2/d.f.$)	≤ 3.00	2.553
Normed Fit Index (NFI)	≥ 0.90	0.940
Goodness of Fit Index (GFI)	> 0.95	0.968
Adjusted Goodness of Fit Index (AGFI)	≥ 0.90	0.915
Incremental Fit Index (IFI)	≥ 0.90	0.963
Root Mean Square Error of Approximation (RMSEA)	≤ 0.08	0.067
Comparative Fit Index (CFI)	≥ 0.90	0.962
Root Mean Square Residual (RMR)	< 0.08	0.037
Standardized RMR	< 0.08	0.050

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

This chapter presents the study's results and discusses related research questions. The results of the study are discussed in two sections:

- participant demographic information
- results and discussion associated with the research hypotheses

4.1 Demography of the Participants

From the demographic analysis, out of 277 employees who participated in the study, 50.5% were male and 49.5% were female. The age of the participants ranged between 18 - 25 years (20.9%), 26 - 35 years (43.7%) and more than 36 years (35.4%). No participant was in High School/College. The rest were first-degree (62.1%) and postgraduate (37.9%) holders. Also, the participants have worked with the firm under 6 years (43.3%), between 6 - 10 (30.0%), 11 - 15 (15.2%), 16 - 20(6.1%) and over 20 years (5.4%). The participants were from the following firms: manufacturing (45.8%), telecommunication (17.7%), retail stores (10.5%) and financial institutions (26.0%) as reported in Table 4.1

Table 4.1: Respondents' Demographic Profile

	Demography Category	Frequency	Percentage (%)
Gender	Male	140	50.5
	Female	137	49.5
Age	18 – 25 years	58	20.9
	26 – 35 years	121	43.7
	>36 years	97	35.4
Education	High School/College	-	-
	Bachelor's degree	172	62.1
	Post Graduate degree	105	37.9
Job tenure (years)	<6 year	120	43.3
	6 – 10years	83	30.0
	11 – 15	42	15.2
	16 – 20	17	6.1
	20 years	15	5.4

Firms

Manufacturing	127	45.8
Telecommunication	49	17.7
Retail stores	29	10.5
Financial Institutions	72	26.0

Role in the Firm

Supply Chain Manager	38	13.7
Supply Chain Analytics	32	11.6
Operations Manager	35	12.6
Head of IT	30	10.8
Supply Chain Digitalization	21	7.6
Supply Chain and Logistics	32	11.6
Supply Chain Administrator	12	4.3
Supply Chain Project Manager	24	8.7
Procurement Manager	18	6.5
Marketing Manager	35	12.6

4.2 Hypotheses Testing

The results of path coefficients analysis from structural equation modelling are reported in Figure 4.1 and Table 4.2. All the hypotheses, thus, from H1 to H6 were supported. Thus, employee computer interaction ($\beta = 0.123$, $t = 3.393$, $p = 0.021$), knowledge sharing ($\beta = 0.171$, $t = 3.827$, $p = 0.000$) and working environment ($\beta = 0.129$, $t = 2.312$, $p = 0.000$) have a significant effect on motivation for supply chain analytics. Similarly, employee subjective well-being ($\beta = 0.150$, $t = 4.780$, $p = 0.000$) significantly influences the motivation for applying supply chain analytics. However, motivation for using supply chain analytics is negatively impacted by employee silence ($\beta = 0.644$, $t = 17.070$, $p = 0.000$). Lastly, motivation for applying supply chain analytics ($\beta = 0.150$, $t = 4.780$, $p = 0.000$) significantly affects supply chain analytics sustainability.

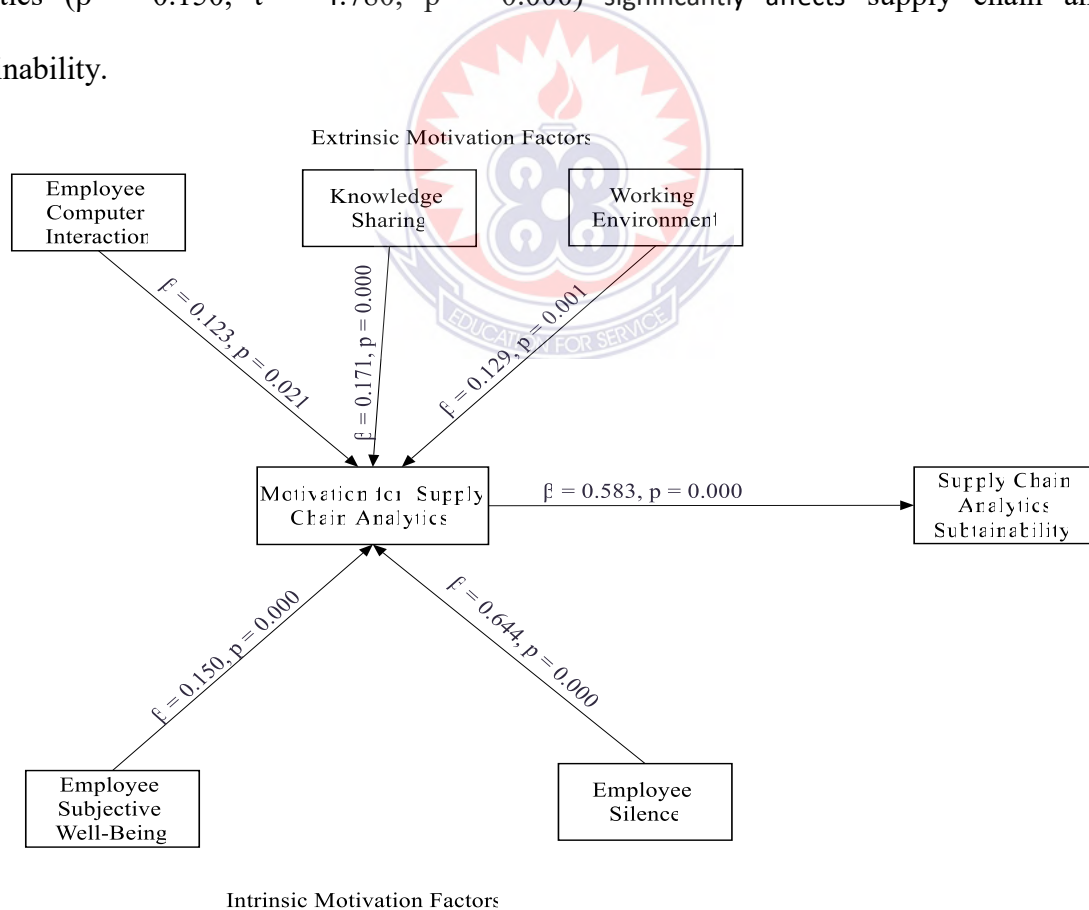


Figure 4.1: Path coefficients of the research model

Table 4.2: Effect of coefficient path

Hypothesis	Coefficient (β)	T-value	P-value	Decision
H1: ECI \rightarrow MSCA	0.123	3.393	0.021	Supported
H2: KS \rightarrow MSCA	0.171	3.827	0.000	Supported
H3: WE \rightarrow MSCA	0.129	2.312	0.001	Supported
H4: ESW \rightarrow MSCA	0.150	4.780	0.000	Supported
H5: ES \rightarrow MSCA	0.644	17.070	0.000	Supported
H6: MSCA \rightarrow ASCS	0.583	7.566	0.000	Supported

Significance at $p < 0.005^*$

4.3. Discussion

The first hypothesis was to establish the effect of employee computer interaction on SCA motivation. Thus, the impact of employees' capabilities, expertise, and knowledge in technology on motivation for SCA. The study revealed that SCA motivation is strongly influenced by employee computer interaction. This finding is supported by a study conducted by Peng (2017), where they reported that computer skills are required for managerial and professional jobs, which would influence employees' motivation to develop associated human capital. In support, some studies (Benbasat et al., 1980, Levina and Xin, 2007) indicated that modern workplaces require computer skills, which is an essential component for personnel employed in an organisation. The second hypothesis was to discover the effect of knowledge sharing on motivation for SCA. The finding showed that employees' knowledge sharing positively affects the motivation for SCA. In agreement, the result of the study conducted by Zeraati et al. (2020) depicted that knowledge sharing affects the success of SCM systems. In addition, Naim and Lenkla (2016) also indicated that knowledge sharing among employees in the organisation has considerable potential to

motivate competency development and promote a sense of belonging and affective commitment. The third hypothesis focuses on finding the effect of the working environment on SCA motivation. Thus, it examines the impact of providing necessary facilities or resources for employees on SCA motivation. The result of the study shows that the working environment affects the motivation for SCA. In agreement, Raziq and Maulabakhsh (2015) indicated that work environment conditions are related to employee functioning. On the other hand, employee working environments without adequate resources negatively affect efficiency and productivity in firms. The fourth hypothesis was to find out the effect of employee subjective wellbeing on the motivation for SCA. That is, to investigate the employee's physical, mental, and emotional health effects on motivation for SCA. The results of the study revealed that employee subjective wellbeing has an impact on motivation for SCA. In agreement with this finding, Zakharova, Saralieva and Leonova (2023) stated that subjective wellbeing affects personal involvement in work activities. In support, Latorre-Coscolluela et al. (2022) reported that subjective wellbeing, such as individual emotions predicts motivation. The finding also suggested that employee silence has a negative effect on motivation for SCA. Employees withholding valuable information negatively affects motivation for SCA in firms. In support, Ren (2021) asserted that employee silence breaks down communication effectiveness, which may result in conflicts and poor productivity in the firm at large. The other finding indicated that motivation for applying SCA positively affects SCA sustainability. In agreement, Lorincová (2019) affirmed that motivation is an instrument to attain sustainability of business processes.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter presents the summary of the study and the significant findings. It outlines the study's conclusion and recommendations for future studies. It also highlights managerial implications and theoretical contributions.

5.1 Summary of the Study

The study examines the human motivational factors in ensuring sustainable SCA on firm performance. Stakeholder theory and Herzberg's Motivation Theory were theoretical frameworks employed for the study.

The following research questions guided the study:

1. What is the influence of extrinsic motivation factors (Employee computer interaction, knowledge sharing and working environment) on motivation for supply chain analytics?
2. What is the influence of intrinsic motivation factors (employee subjective wellbeing and employee silence) on motivation for supply chain analytics?
3. What is the impact of motivation for supply chain analytics on supply chain analytics sustainability?

The study employed a cross-sectional research design with a quantitative approach to analysing data. A survey questionnaire was the instrument used to collect data from the selected participants. This study's population was comprised of employees in selected organisations in Ghana. However, the accessible population was employees in the Greater Accra Region of

Ghana. Two hundred and seventy-seven (277) participants were selected for the study using the purposive sampling technique. An exploratory factor analysis was conducted using SPSS, while structural equation models (SEM) were estimated using linear structural relations.

5.2 Key Findings of the Study

- The finding from the study indicates that employee computer interaction, knowledge and working environment significantly affect motivation for supply chain analytics.
- The finding reveals that subjective employee well-being significantly influences the motivation to apply supply chain analytics.
- The findings reports that motivation for using supply chain analytics is negatively impacted by employee silence.
- The findings indicated that motivation for applying supply chain analytics significantly affects supply chain analytics sustainability.

5.3 Conclusions

The key findings and insights contribute to a better understanding of the complex interplay between human motivation and sustainable supply chain analytics within organisations. Intrinsic motivation, such as a sense of purpose, commitment to sustainability, and personal fulfillment, emerges as a powerful driver of sustained engagement in supply chain analytics. Fostering a work environment that nurtures intrinsic motivation can significantly enhance the effectiveness of sustainable initiatives. While intrinsic motivation is essential, extrinsic motivators, such as financial incentives, recognition, and career advancement opportunities, also play a significant role. They can provide tangible rewards for employees and reinforce their commitment to sustainable supply chain analytics. Ensuring employees have the necessary skills and knowledge

to engage in supply chain analytics is fundamental. Training opportunities and resources can enhance their motivation and effectiveness in contributing to sustainability initiatives.

5.3.1 Managerial Implication and Theoretical Contribution

The implications of this study are very supportive for firms using supply chain analytics, and it's sustainable in firms. The management should increase knowledge sharing and improve the working environment among employees to discourage employee silence which negatively affects the motivation for supply chain analytics in firms. In firms, knowledge sharing would increase productivity and motivate employees to be involved in supply chain analytics activities effectively and efficiently. More so, managers should provide necessary facilities or resources for employees to support supply chain analytics activities in firms. Management provision of resources would enable employees to perform supply change analytics activities as quickly as possible. Therefore, managers must motivate employees by providing the right resources to complete the job. On the other hand, holding back employees by absent or poor quality equipment negatively affects productivity and efficiency in the firm. To perform supply chain analytics activities efficiently, employees must have expertise, knowledge, and capabilities in networking, digital analysis, and enterprise software applications such as enterprise resource planning, transcranial magnetic stimulation, and warehouse management systems. Employees with knowledge of supply chain technology are better equipped to evaluate data, gain insights, and make decisions that directly and indirectly impact the supply chain. Therefore, firm managers should implement a policy to improve employees' capabilities, knowledge and expertise in technology. This would motivate them to perform supply chain analytics activities in firms. Measuring subjective well-being, including physical, mental, and emotional health, is essential to increase the employees' motivation for supply chain analytics activities in firms. This

is because it affects employee productivity and their willingness to perform tasks. As a result, implementing policies and practices that target improvements in employee subjective wellbeing may raise their motivation for supply chain analytics activities in the firms. Extrinsic motivation factors (employees' computer interaction, knowledge sharing, and working environment) and intrusive motivation factors (employee subjective wellbeing and silence) influence their motivation for supply chain analytics which in turn influences supply chain sustainability in firms. Therefore, stakeholders responsible for supply chain analytics in firms should implement policies and procedures focusing on improving extrinsic factors and employee subjective wellbeing. These factors are the pillars of sustainability supply chain analytics.

In general, the findings of this study revealed that creating value for employees significantly affects supply chain analytics sustainability. The study findings confirm stakeholder theory, which argues that a firm should create value for internal stakeholders (employees) in firms. The study has contributed to stakeholder theory by revealing that specific factors such as employee knowledge sharing, computer interaction, working environment, employee silence and subjective wellbeing are pillars and significant that add value to employees as a stakeholder in firms. The finding also affirms Herzberg's Motivation Theory which holds that motivation factors drive employees towards a particular goal. In support, Bartol and Martin (1998) defined motivation as the force that drives an employee toward achieving common objectives.

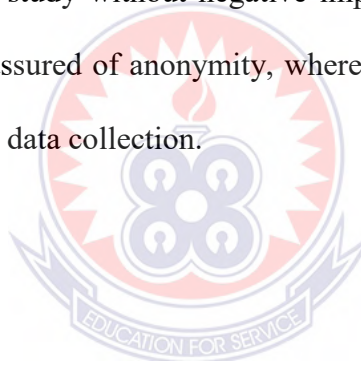
5.4. Limitations and Recommendation for Further Studies

Despite its contribution to SCA, this study has certain limitations. First, the sample in this study is limited to Ghanaian firms so the results may differ in other countries. Thus, this study must be applied to a range of national contexts to improve the generalizability of the results. The research model considered various employee motivation factors, but other factors, such as professional

skills and remuneration policy, might have a role to play in SCA sustainability. Future research may incorporate these factors.

5.5. Ethical Consideration

For ethical approval for the study, the research proposal was sent to the management of the firms for review and authorisation of data collection from the selected firm's employees at the beginning of the study. More so, this was done for the researcher to have access to the firm employees. Afterward, informed consent was sought carefully in the data collection process, where the study participants were given all the information needed to decide whether to participate or withdraw from the study without negative implications or consequences to their rejection. The participants were assured of anonymity, where personal detection of participants' information was avoided from the data collection.



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APPENDIX A

Instructions

Thank you for taking the time to complete this questionnaire. Please answer each question to the best of your knowledge. Your thoughtful and truthful responses will be greatly appreciated. Data will be used for research purposes only. Your responses will be kept completely **confidential**. Please read the following statements and kindly provide the information required. Please, tick [] the option that best reflects how you associate with each of the following statements.

PART 1 – Background Information

1. Gender [] Female [] Male
2. Age [] Below 25 [] 25-35 [] 36- 46 [] Above 46
3. Years of being a customer
[] Less than 1 year [] 1- 4 years [] 5-8 years [] 8-11 years [] 12-15 years
[] above 15 years
4. Have you used CRM systems before
[] Yes [] No
5. How many times have you used the CRM systems
[] 1 – 2 times [] 3 – 4 times [] 5 – 6 times [] above 6 times
6. Educational Background

[] Senior High School/O'level [] Diploma [] First degree [] Second degree [] Doctor degree [] Professional certificate

Rating Scale: Strongly Disagree (SD = 1), Disagree (D = 2), Undecided (U= 3), Agree (A = 4) and Strongly Agree (SA = 5)

Construct	Code	Item	Source
Employee	ESW1		Davis (1989)
Subjective	ESW2		Gu, Lee and Suh (2009)
Well-being	ESW3		Kim, Chun and Song (2009)
	ESW4		Kejela and Porath (2022)
Employee	ES1		Davis (1989)
Silence	ES2		Gu, Lee and Suh (2009)
	ES3		Kejela and Porath (2022)
	ES4		Kim, Chun and Song (2009)
Working	WE1		Kejela and Porath (2022)
Environment	WE2		

	WE3		Kim, Chun and Song (2009) Chaouali, Souiden and Ladhari (2017)
	WE4		
	EW5		
Motivation for Supply Chain Analytics	MSCA 1		Chaouali, Souiden and Ladhari (2017)
	MSCA 2		Gu, Lee and Suh (2009) Kejela and Porath (2022)
	MSCA 3		Kim, Chun and Song (2009)
	MSCA 4		
	MSCA 4		
Supply Chain Analytics Sustainability	SCAS1		Sweeney, Soutar and Mazzarol (2014)
	SCAS 2		
	SCAS 3		

