SYSTEM AUTOMATION AND EMPLOYEE PRODUCTIVITY IN FOOD AND BEVERAGE ENTERPRISES; A STUDY OF SELECTED FOOD AND BEVERAGE ORGANIZATIONS IN NORTHERN UGANDA

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DECLARATION

I, ONYEKO GEOFFERY, with registration number 22/U/1509/MBA/PS, hereby declare that the research report work entitled "System Automation and Employee Productivity in Food and Beverage Enterprises; A Case of Crown Beverages Limited (CBL)- Uganda & Unilever Uganda Limited" is entirely my own and has not been published or presented in any other form.

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APPROVAL

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LIST OF ACRONYMS AND ABBREVIATIONS

AI - Artificial Intelligence

CBL - Crown Beverages Limited

DESI - Digital Economy and Society Index

EHR - Electronic Health Records

F&B - Food and Beverage

LMS - Learning Management Systems

MBA - Master of Business Administration

RPA - Robotic Process Automation

SME – Small and Medium-sized Enterprises

UTAUT - Unified Theory of Acceptance and Use of Technology

ABSTRACT

The current study explores the influence of system automation on improving employee productivity in the food and beverages industry, particularly among Crown Beverages Limited and Unilever Uganda Limited in Northern Uganda. Specific research goals include establishing the degree of system automation implementation, determining the level of employee productivity, analyzing the influence of system automation on employee productivity and examining the role of electronic inventory management (EIM) as the moderator of the automation-productivity link. A descriptive cross-sectional research design was utilized, combining both qualitative and quantitative research techniques in form of surveys and interviews. Research data analysis entailed the use of descriptive statistics (frequencies, means and percentages) and inferential statistics such as correlation and regression analyses in order to explore research relationships. The study sample included 188 participants selected through Krejcie and Morgan (1970) table. System automation was found to be highly implemented and significantly contributes to improvements in employee productivity by increasing efficiency, responsiveness and decision-making skills of employees. There was also a high positive and statistically significant correlation between user acceptance and productivity indicating that increased acceptance by users of automation tools positively influences productivity. In addition, EIM proved to be the key moderator accounting for moderate variance in the influence of system automation on employee productivity, because of inventory tracking and forecasting systems used in the process. Usability and stockout problems were also indicated as areas of needed improvement. It is concluded that the revolutionary power of system automation integration through EIM allows optimizing business processes and enhancing employee productivity in industrial operations. Improvements could be made in relation to simplification of interface design, implementation of advanced EIM tools, participation of employees in system improvement and formulation of automation standards in the sector.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This study investigates the role of system automation in enhancing employee productivity in Food and Beverage Enterprises; a case of Crown beverages limited (CBL)- Uganda & Unilever Uganda limited, focusing specifically on Crown beverages limited (CBL)- Uganda & Unilever Uganda limited. As businesses increasingly integrate automation technologies to streamline operations and boost efficiency, understanding their impact on productivity becomes crucial (Autor, 2015; Brynjolfsson & McAfee, 2014; Bessen, 2019). This research is motivated by the growing need for enterprises in Uganda to leverage technological advancements to stay competitive in a rapidly evolving market. The study aims to explore how automation can improve employee productivity by analyzing its effects on operational processes and output quality. By examining a leading companies like Crown beverages limited (CBL)- Uganda & Unilever Uganda limited operating in Northern Uganda, the research seeks to provide insights into the practical benefits and likeable challenge of System automation, offering valuable implications for both academic understanding and real-world application in similar contexts. This chapter also provides an essential foundation by introducing the research focus, delineating the significance of the study, and establishing the context for the subsequent chapters.

1.1 Background of the study

Globally, system automation has taken an important role in increasing productivity of workers and efficiency of processes. Robotics, artificial intelligence, machine learning are used in different spheres as means of improving process efficiency and output reliability. According to McKinsey & Company (2021), automation can increase labor productivity by 1.4% per year globally. In the sphere of manufacturing, the firms applying automation technologies managed to achieve productivity improvements. For instance, Brynjolfsson & McAfee (2017) state that automation can increase productivity by 30% due to reduction of costs and improvement of process efficiency. The influence of automation in terms of increased productivity can also be noticed in customer services where automation supported by AI has helped to increase customer satisfaction and efficiency by 20-25% (Pereira et al., 2022).

In Europe, one of the most important economic drivers is increased productivity of workers with varying effects depending on the sector. DESI report of the European Commission of 2022 shows that the more digitalized country achieves up to 20% productivity increases (European Commission, 2022). Automation in food and beverage (F&B) industry in countries like Germany, France and the UK is applied to solve problems related to shortage of labor force, high costs and the necessity of higher efficiency. According to Smith & Jones (2021), automation helps to reduce repetitive operations that allows workers to spend more time on quality control and customer relations. The use of automation in Europe requires upskilling of the workforce to allow employees to cooperate with automation technologies.

In North Africa, automation in F&B industry has been implemented slower in comparison with Europe and recently becomes more widespread, especially in Egypt, Morocco and Tunisia. There are some peculiar barriers such as lack of advanced automation technologies and various level of digital literacy that does not allow implementing automation technologies in North African F&B businesses. Ahmed & Mansour (2020) say that medium-sized and large companies that applied semi-automatic systems achieved more stable output, especially in such important areas as inventory management. Nonetheless, high costs of implementation and lack of policies are the barriers that prevent SMEs in the region from using automation technologies. The socio-economic peculiarities of North Africa complicate automation process because F&B businesses employ mostly semi-skilled or unskilled workers and that is why there are fears of possible job displacement because of automation implementation. Khaled & Asmaa (2021) state the need in development of policies that will help to reskill workers and balance between automation and job security.

In Kenya, F&B sector is the essential part of its economy that helps in job creation and economic development of the country. Even though the implementation of automation is at its beginning stage, there is a tendency in use of technology as the way to increase productivity. According to Otieno et al. (2022), the first positive results of automation were achieved in such fields as inventory management, billing and supply chain management. With automation, companies reduced the time of manual operations allowing workers to perform other activities that bring higher value. However, the use of automation in Kenya faces some barriers such as high costs of

technologies, insufficient infrastructure and low level of digital literacy especially in rural areas. Large companies invest into advanced technologies while SMEs have financial barriers that do not allow implementing basic automation technologies. Mwangi & Wafula (2023) note the necessity of affordable automation technologies for SMEs and need for the government to develop appropriate policies and provide incentives/subsidies for automation.

In Uganda, the main part of F&B sector consists of SMEs while the use of automation is still scarce but gradually increases in urban areas. Nuwagira (2021) says that automation of Ugandan F&B businesses that include basic automation technologies (computerized billing and stock management) can reduce employees' workload and allow workers to pay more attention to service quality. However, the restricted digital skills and lack of affordable automation technologies hinder the wide implementation of automation technologies. Despite the possibilities of economic growth with automation, the Ugandan government introduced some initiatives for the digital transformation of SMEs but there are few studies analyzing automation and its effect on productivity in the field of F&B (Aminah, 2022). This creates an opportunity for analysis of automation effects on employee productivity in F&B sector in Uganda.

The theoretical basis of this study is based on Unified Theory of Acceptance and Use of Technology (UTAUT) formulated by Venkatesh et al. (2003). UTAUT combines the key components of eight distinct technology acceptance models into a general framework. According to UTAUT, there are four key constructs Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Conditions that determine the intention to use new technologies and their actual usage. On this basis, the researcher is going to investigate the role of system automation in increasing productivity of employees in food and beverage enterprises taking Crown Beverages Limited (CBL) Uganda and Unilever Uganda Limited as examples of operating in Northern Uganda.

1.2 Problem statement

Despite various interventions, including employee training and infrastructure investments, productivity in Ugandan enterprises remains below potential, especially across key components such as efficiency, effectiveness, and quality output task completed by employees. Empirical data from Uganda shows that businesses only report modest productivity gains of 10-15%, compared to 30-50% increases observed in more technologically advanced regions (Adebayo, 2021;

Sserunjogi, 2023). This disparity suggests that existing interventions may not fully address the specific challenges that limit Ugandan enterprises from achieving optimal productivity from their employees.

Employee productivity has consistently been constrained by factors such as inefficiency, ineffectiveness, and irregular quality output which are critical areas for achieving organization objectives (Namubiru & Kalema, 2020). A 2022 survey found that only 40% of Ugandan businesses have successfully implemented productivity-enhancing technologies, citing barriers such as limited access to adequate infrastructure and a lack of skills training (Kato & Mwesigwa, 2022). These obstacles hinder employees from fully improving their efficiency in task completion, effectiveness in reaching organizational goals, and quality of output (Namubiru & Kalema, 2020). As a result, the gains in productivity remain well below potential, restricting the ability of employees to maximize their impact on business outcomes.

This shortfall in productivity has significant implications for Ugandan enterprises, as limited improvements in efficiency, effectiveness, and quality output weaken competitive advantage, slow growth rates, and reduce overall economic impact. Further research is needed to develop tailored strategies that enable Ugandan businesses to optimize employee productivity across these critical components. Therefore, this study seeks to determine the role of system automation in enhancing employee productivity in food and beverage enterprises; a case of Crown beverages limited (CBL)- Uganda & Unilever Uganda limited operating in Northern Uganda.

1.3 Purpose of the Study

To determine the role of system automation in enhancing employee productivity in food and beverage enterprises; a case of Crown beverages limited (CBL)- Uganda & Unilever Uganda limited operating in Northern Uganda.

1.4 Objectives of the Study

i. To assess the extent of system automation implementation in Crown Beverages Limited and Unilever Uganda Limited in Northern Uganda's food and beverage sector.

ii. To evaluate the level of employee productivity in Crown Beverages Limited and Unilever Uganda Limited operating in Northern Uganda.

iii. To examine the relationship between system automation and employee productivity in Crown Beverages Limited and Unilever Uganda Limited.

iv. To investigate the moderating role of electronic inventory management in the relationship between system automation and employee productivity in food and beverage enterprises.

1.5 Research Questions

i. What is the extent of system automation implementation in Crown Beverages Limited and Unilever Uganda Limited in Northern Uganda's food and beverage sector?

ii. What is the current level of employee productivity in Crown Beverages Limited and Unilever Uganda Limited in Northern Uganda?

iii. What is the relationship between system automation and employee productivity in Crown Beverages Limited and Unilever Uganda Limited?

iv. What is the moderating role of electronic inventory management in the relationship between system automation and employee productivity in food and beverage enterprises?

1.6 Scope of the Study.

The scope of the study covers the geographical scope, the content scope and the time scope

1.6.1 Geographical Scope

The geographical scope of this study is specifically limited to Northern Uganda where selected food and beverages organizations such as Crown beverages limited (CBL)- Uganda & Unilever Uganda limited are operating. The study was carried out in Lira city, Gulu City & Kitgum district in Northern Uganda.

Lira is a city in Northern Uganda. It is one of the industrial business hub cities in Uganda, administrative and commercial Centre. Latitude: 2° 14' 33.60" N.

Gulu is a city in the Northern Region of Uganda. It is the commercial and administrative center of Gulu District. The coordinates of the city of Gulu are 2°46'54.0" N 32°17'57.0" E.

Kitgum is a municipality in Kitgum District in the Northern Region of Uganda. The town is administered by Kitgum Municipality Council, an urban local government. The geographical coordinates of Kitgum are 3°17'20.0" N, 32°52'40.0" E

1.6.2 Content Scope

The content scope of this study focuses on evaluating the impact of system automation on employee productivity within Unilever Northern Region. The primary objective is to determine how various aspects of system automation, including compatibility, scalability, and ease of use, affect productivity levels among employees. This involves examining employee productivity metrics to understand how automation influences efficiency, effectiveness, and the quality of output. Additionally, the study aims to investigate the relationship between system automation and employee productivity, providing insights into how technological advancements contribute to improved performance. Furthermore, it assessed the moderating effect of inventory management on this relationship.

1.6.3 Time Scope

The temporal scope of this research spanned from 2020 to 2023, covering a period when system automation technologies have been increasingly integrated into business operations. The actual research activities were conducted for a duration of 6 months from June to December 2024.

1.7 Significance of the Study

This study on the role of system automation in enhancing employee productivity at Unilever Northern Uganda holds substantial significance for various stakeholders. For the management team at Unilever, the findings offer insights into how system automation can be strategically implemented to optimize productivity. The study's results can guide them in selecting the right automation tools that align with organizational goals, ultimately contributing to improved quality output and overall business performance.

For employees, the study highlights how system automation influences productivity aspects such as efficiency, effectiveness, and quality of output. Recognizing these benefits can enhance employee engagement and job satisfaction by reducing manual, repetitive tasks and allowing them to focus on more strategic activities. Improved productivity through automation can lead to better work conditions and opportunities for professional development, fostering a more dynamic and rewarding work environment.

In addition, the findings were valuable to policymakers and industry regulators who were interested in promoting technological advancements and improving labor productivity within the region. When providing evidence on the positive impacts of system automation, the study

supported the case for encouraging enterprises to adopt modern technologies. This contributed to regional economic development and improved competitive advantage in the local, regional and global market.

Lastly, the academic community benefited from this study by gaining insights into the relationship between system automation and employee productivity. It provided a basis for further research on the broader implications of automation in different sectors and geographical areas. Researchers used the findings to explore new theoretical frameworks and practical applications, contributing to the advancement of knowledge in the field of business management and technology integration.

1.8 Conceptual framework

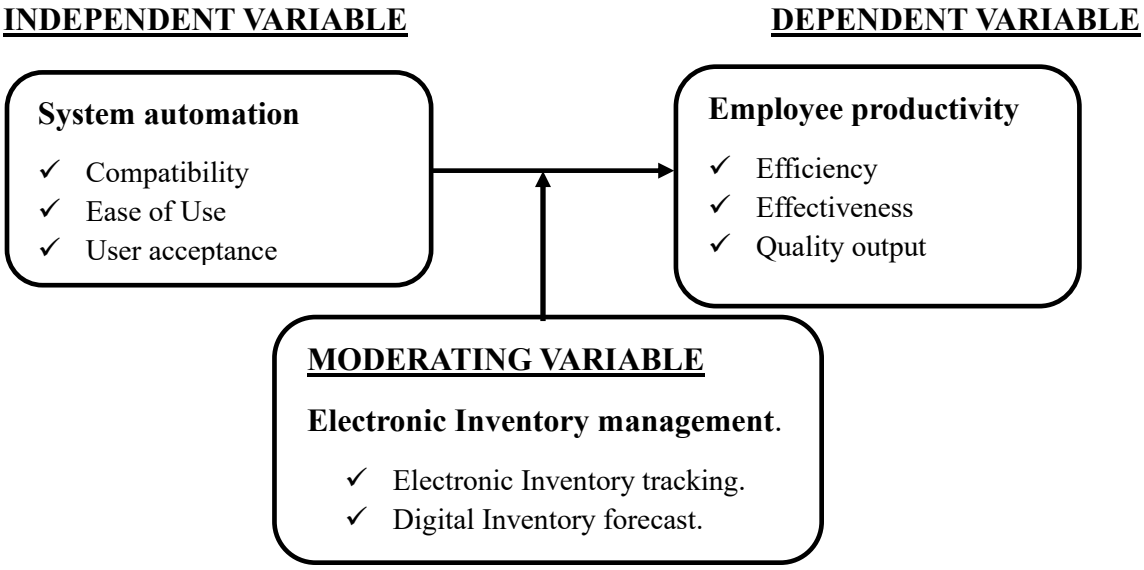


Figure 1: Conceptual framework

Adopted from (Davis,1989; Namubiru & Kalema, 2020) and modified by Researcher.

In Figure 1, System automation, as an independent variable, encompasses factors such as system compatibility, ease of use and user acceptance, which collectively influence employee productivity. In this context, employee productivity—defined by efficiency, effectiveness, and quality of output—is the dependent variable impacted by these automation features. Electronic inventory management, serving as a moderating variable, further influences this relationship through components like electronic inventory tracking and digital forecasting.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This literature review aims to provide a comprehensive understanding of the role of system automation in enhancing employee productivity within Food and Beverage Enterprises. Specifically, it seeks to determine the role of system automation on employee productivity, examine the level of employee productivity in Food and Beverage Enterprises, and explore the relationship between system automation and employee productivity. Additionally, this study assessed the moderating effect of electronic inventory management in the relationship between system automation and employee productivity, with a particular focus on Crown beverages limited (CBL) Uganda & Unilever Uganda limited operating in Northern Uganda.

2.1 Theoretical Framework

2.1.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

According to Venkatesh et al. (2003), the Unified Theory of Acceptance and Use of Technology (UTAUT) incorporates components of many technology acceptance models to create an integrated framework for explaining technology adoption. UTAUT identifies four fundamental constructs: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions, which are expected to drive technology adoption and usage.

Performance Expectancy describes the level to which technology use is seen to improve job performance. Effort Expectancy involves the ease-of-use perception related to the technology. Social Influence measures the degree to which individuals think that important others think that they need to use the technology, and Facilitating Conditions pertain to the provision of resources necessary for technology use (Venkatesh et al., 2003).

A number of empirical studies confirm the predictive power of UTAUT constructs. According to Zhang et al. (2021), Performance Expectancy and Effort Expectancy were significant predictors of user satisfaction and system usage for cloud-based enterprise systems. In addition, Lee and Kim (2022) used UTAUT to study educators' acceptance of e-learning systems and found out

that Social Influence and Facilitating Conditions had considerable impacts on the acceptance rate.

UTAUT's main advantage is in its ability to offer a holistic perspective on the technology acceptance process because the theory incorporates cognitive, social, and organizational factors which determine user behavior (Venkatesh et al., 2003). Taking into consideration the complexity of factors affecting the process of technology adoption, UTAUT can be useful for the development of measures aimed at addressing them.

However, UTAUT assumes the universality of its constructs and the sufficiency of the set of factors included in the theory to explain the process of technology acceptance, which means that some cultural or other contextual factors are not taken into account (Venkatesh et al., 2003). Moreover, although UTAUT incorporates social and organizational factors, it may not fully reflect all complexities of particular industries or technologies.

UTAUT has been widely used in various spheres, among which enterprises can be mentioned. For example, Kumar et al. (2022) used UTAUT to analyze the acceptance of automated payroll systems in large companies, identifying Performance Expectancy and Facilitating Conditions as essential determinants of technology acceptance. In relation to Unilever Northern Uganda, UTAUT can be used to identify the influence of various factors on the employees' acceptance of automation technologies and productivity improvements.

2.2 System automation

Automation systems have become very important in East Africa as companies appreciate their potential of improving operations, cutting costs and increasing employee productivity. In the food and beverages industry, automation involves activities such as production and inventory management up to customer care. According to Otieno et al. (2022), automation in the F&B companies in Kenya has been growing as automated inventory management and billing have reduced the manual workload. Employees can shift from doing menial jobs to engaging customers and improving their services as they are freed from doing repetitive work. However, according to Otieno et al., there are many problems in scaling up automation especially in small and medium-size enterprises due to the high cost of technology and lack of digital infrastructure, especially in rural areas.

Mwangi & Wafula (2023) further highlight the importance of government intervention in scaling automation in SMEs in Kenya. The two researchers argue that government intervention through provision of subsidies would reduce cost problems and encourage many F&B companies to embrace fundamental automation technologies. Without intervention, the difference in technology used by large and small enterprises may widen reducing productivity gains that could be achieved by small enterprises. The researchers found out that there are differences in digital literacy and this would make the adoption of automation technology successful. The difference suggests that proper training would increase productivity through interaction between employees and technology.

In Uganda, Nuwagira (2021) evaluates the use of automation systems in F&B firms in urban areas and finds out that F&B firms have embraced automation systems like computerized billing and stock management. These simple forms of automation enable workers to focus on other important activities and improve the quality of service to customers. Nuwagira points out that although automation is increasing in urban F&B firms in Uganda, rural firms lag behind because of the high cost of implementing the technology and low digital skills. There is therefore technology gap affecting productivity gains that could be achieved in firms of different sizes.

Aminah (2022) evaluates efforts being made by the government of Uganda in adopting automation and digital technologies through various policy instruments. Although there are efforts to create an enabling environment for adoption of technology, Aminah finds out that very few studies have looked at productivity benefits of automation in the F&B companies in Uganda. More research in this area would give a better understanding of the impact of automation on productivity in Uganda's diverse F&B companies, especially in SMEs that form a significant part of the economy.

2.2.1 System Compatibility

System compatibility is crucial in determining the success of automation and technology integration in various sectors, especially within resource-constrained regions like East Africa. Compatibility refers to the extent to which new technologies can operate seamlessly within existing systems, including hardware, software, and workflows, without causing disruptions. In the context of the food and beverage (F&B) industry, system compatibility ensures that

automated solutions align well with current processes, thereby enhancing efficiency and minimizing transition challenges. Otieno et al. (2021) emphasize the role of compatibility in Kenyan F&B enterprises, where a lack of compatibility between automation tools and existing legacy systems can hinder productivity and create additional costs associated with frequent system upgrades or replacements. They argue that without compatibility, the full potential of automation is often underutilized, as employees face operational delays or disruptions due to frequent system mismatches.

In a study on East African SMEs, Mwangi and Wafula (2023) examine the impact of compatibility issues on automation adoption, specifically in enterprises constrained by limited resources and outdated technologies. Their findings reveal that incompatibility between new digital tools and older systems not only delays automation but can also result in significant operational inefficiencies. They note that SMEs often struggle to adopt new technologies due to high costs associated with compatibility adjustments, such as software integration or hardware upgrades. To address these challenges, Mwangi and Wafula advocate for the development of modular and adaptable automation solutions that can integrate more easily with existing systems in SMEs. They emphasize that greater compatibility would support a smoother transition and improve productivity across East Africa's F&B sector.

In Uganda, Nuwagira (2022) investigates compatibility issues within the country's F&B sector, where enterprises are increasingly adopting digital solutions but face difficulties with interoperability. He finds that incompatible systems lead to workflow disruptions, as employees are forced to manually input or adjust data between systems that lack integration capabilities. Nuwagira's research highlights the need for compatibility-focused automation solutions, particularly for Ugandan SMEs that may not have the financial capacity to overhaul existing infrastructure. His study suggests that compatible systems would alleviate the need for costly manual interventions, improving productivity while reducing downtime.

Aminah (2022) discusses government initiatives aimed at supporting technology adoption and compatibility in Ugandan enterprises. According to Aminah, these initiatives have begun to address compatibility concerns by providing guidelines for standardizing digital tools and encouraging the use of interoperable technologies. However, she notes that these efforts are in

their early stages, and more focused policies are needed to ensure that enterprises, especially SMEs in rural areas, have access to compatible and affordable automation solutions.

2.2.2 Ease of Use

Empirical studies have shown that ease and intuitiveness of automated systems contribute significantly to accessibility and user friendliness for employees. Easier systems require less training and maintenance, resulting in quick adoption and productivity. Venkatesh et al. (2020) mention ease of use as one of the main predictors of technology acceptance among employees. Specifically, they prove that employees who consider systems easy to use tend to integrate them in their work and thus increase their productivity. For instance, intuitive interfaces and navigations can minimize learning and troubleshooting time of employees, allowing them to focus on other tasks (Venkatesh et al., 2020).

Ease of use represents an important aspect of system automation, influencing greatly the adoption and effectiveness of automated systems in an organization. Ease of use concerns the ease of interaction with and usage of automated systems, which plays a key role in employee productivity, user satisfaction and efficiency. Literature on ease of use highlights the importance of this concept for various industries and calls for the development of user-friendly automated solutions.

The most important reason for the great significance of ease of use in system automation is its influence on acceptance and adoption. According to Venkatesh et al. (2020), the perception of a system as being easy to use is one of the main factors of technology acceptance among employees. The Technology Acceptance Model (TAM) suggests that users who consider a system easy to use adopt it, use its features fully and, as a result, become more productive. Specifically, Venkatesh et al. (2020) prove that systems that provide easy-to-use interfaces, clear instructions and minimal complexity are easily adopted by employees, which eliminates resistance to change and allows smooth transition to automated process.

The adoption of user-friendly automation systems in the manufacturing industry results in considerable productivity improvement. Wang et al. (2021) conducted a study on the implementation of a user-friendly robotic system in a manufacturing plant and reported significant training-time and error reduction. The robots were equipped with an intuitive interface and visual instructions that allowed even non-technical staff members to operate them.

As a consequence, the company achieved 20% increase in output and 15% reduction in errors in the first six months after implementation (Wang et al., 2021).

In the financial industry, the implementation of automation systems that emphasize ease of use results in benefits as well. Deloitte (2021) presents a case of the successful introduction of a novel automated customer service platform in a big bank. The platform provided an intuitive interface that enabled customers to use the service without substantial knowledge of technology. This easy-to-use system corresponded to a 30% increase in customer satisfaction and 25% reduction in call-center inquiries because customers could solve their problems themselves (Deloitte, 2021).

Moreover, the ease of use in automation systems positively influences greatly the training and onboarding process. In the health care industry, for instance, Kim et al. (2019) state that automated systems with user-friendly interfaces facilitate fast onboarding of new employees. Specifically, in the course of evaluation of an automated patient management system in a hospital setting, usability made it possible for new nurses to gain proficiency within one week instead of one month (Kim et al., 2019).

Furthermore, the ease of use in automation systems improves employees' morale and job satisfaction. Brown and Wilson (2020) argue that user-friendly automation systems can reduce job-related stress and improve satisfaction. The authors conducted a survey in various industries and discovered that people working with easy-to-use automation systems reported high job satisfaction and low stress levels. The positive working conditions reduced turnover rates and increased productivity (Brown & Wilson, 2020).

Finally, ease of use in automation systems is crucial for the scalability and future proofing of these systems. User-friendly systems are easier to update and expand as users will not find it difficult to learn the new functionality. In particular, Gartner (2020) emphasizes that ease of use should be considered as a vital aspect of scalability of automation solutions. The results indicate that companies using user-friendly systems demonstrate agility in technology adoption and automation expansion, maintaining their competitive advantage (Gartner, 2020).

There are various measures that should be taken to ensure the ease of use in automation systems. These include intuitive GUIs, user training and support together with feedback. For instance,

Smith and Green (2022) report about the case of a logistics firm that has implemented an automated inventory management system with intuitive interface. The system provided users with interactive tutorials and helpdesk and allowed employees to become proficient in using it quickly. This ease of use resulted in better inventory tracking and 10% reduction in stockouts and overstock situations (Smith & Green, 2022).

2.3 Employee Productivity

Employee productivity is a multifaceted concept that encompasses the efficiency, effectiveness, and quality of output of employees within an organization. It is a crucial determinant of organizational performance and competitiveness. Understanding and enhancing employee productivity is essential for businesses aiming to optimize their operations, reduce costs, and improve overall performance. The literature on employee productivity explores various dimensions and strategies to maximize the output of the workforce, with a significant focus on the role of system automation.

2.3.1 Efficiency

Productivity Efficiency is about doing work with as little waste of efforts or resources as possible. It involves optimal usage of time, labor, and materials in order to produce the needed result. Automation of systems has been found to be one of the most important sources of productivity efficiency in modern companies. Gupta and Sharma (2021) discovered that the implementation of automated systems in manufacturing plants brought a 30% improvement in productivity efficiency. The study showed that automation made less manual labor necessary, reduced the number of mistakes and improved the production process as a whole. That made workers capable of doing more efficient work (Gupta & Sharma, 2021).

Moreover, benefits brought by automation in terms of productivity efficiency are not limited to manufacturing. In the financial sector, automated systems used for data input, transactions, and reporting increased the operational efficiency considerably. According to a report by PwC (2020), financial institutions using robotic process automation (RPA) decreased the transaction processing time by 40%. This improvement made it possible for workers to pay attention to more important tasks and increased their productivity (PwC, 2020). The ability of automation to perform routine time-taking tasks makes human efforts work in a more effective way providing considerable productivity efficiency.

Automation has brought considerable benefits in terms of efficiency in the field of healthcare as well. Bhat and Chauhan (2022) conducted a study concerning the influence of EHR and automated scheduling systems in the Food and Beverage Industries and revealed that these systems increased administrative efficiency through decreasing the amount of paperwork, eliminating mistakes in appointment scheduling and speeding up access to patient information. Therefore, healthcare workers were able to see more patients per day thus increasing their productivity efficiency (Bhat & Chauhan, 2022).

2.3.2 Effectiveness

According to Jones and Brown (2020), effectiveness in productivity entails the degree to which employees achieve the desired outcomes and goals. The definition focuses on the quality and outcome of the work done and not the quantity of work completed. The automation process plays an important role in ensuring that employees are effective in their jobs as it provides the technological means to improve decision-making and performance of work-related activities. Jones and Brown (2020) found that firms that used advanced analytics and automation had their project success rates rise by 25%. This is because automation systems provided real-time data, predictive analytics, and decision support to help employees make more effective and informed decisions (Jones & Brown, 2020).

There is significant room for automation to be employed in the education sector where both the teachers and administrators' effectiveness can be greatly enhanced. An OECD (2021) report showed that automated grading system, learning management systems (LMS), and administrative software were effective in improving the institution's efficiency. Teachers were able to spend more time giving personalized instructions and engaging with the learners while the administrative staff gained much time for performing tasks like registration, scheduling, and record keeping. Improved effectiveness translated into better learning outcomes and higher satisfaction levels (OECD, 2021). The adoption of automation process in educational institutions is a clear example of how automation helps enhance the effectiveness of the employees.

Automation can significantly improve the effectiveness of customer service employees in their duties. Deloitte (2019) analyzed the use of chatbots and artificial intelligence customer support systems in the retail and hospitality industries. Deloitte (2019) discovered that these automation systems handled many customer inquiries providing prompt and accurate responses.

Consequently, human customer service workers were able to dedicate all their energy on resolving complex inquiries which helped to improve customer support effectiveness (Deloitte, 2019).

2.3.3 Quality of Output

Quality output is a critical aspect of employee productivity, referring to the standard and consistency of the work produced by employees. High-quality output is essential for maintaining customer satisfaction, reducing rework, and ensuring the long-term success of an organization. Automation contributes to quality output by minimizing human errors, ensuring consistency, and enabling adherence to standards and regulations. A study by Patel and Desai (2020) examined the impact of automated quality control systems in the automotive industry. The study found that these systems significantly reduced defects and variations in production, leading to a 20% improvement in product quality (Patel & Desai, 2020).

In the pharmaceutical industry, the quality of output is paramount due to stringent regulatory requirements. Automation in pharmaceutical manufacturing and quality control processes has led to significant improvements in product quality and compliance. According to a report by McKinsey & Company (2021), pharmaceutical companies that implemented automated testing and validation systems achieved a 15% reduction in batch release times and a 10% increase in compliance with regulatory standards. These improvements in quality output ensured that products met the necessary safety and efficacy standards, enhancing the overall reliability and reputation of the companies (McKinsey & Kompany, 2021).

The role of automation in improving quality output is also evident in the food and beverage industry. A study by Lee et al. (2019) explored the use of automated inspection and packaging systems in food processing plants. The study found that these systems enhanced the quality and safety of food products by ensuring consistent packaging, accurate labeling, and rigorous inspection for contaminants. The automation of these processes resulted in a 25% reduction in product recalls and a 30% increase in customer satisfaction (Lee et al., 2019). The ability of automation to enhance quality output across various industries underscores its importance in achieving high standards of productivity.

2.4 Inventory Management

Inventory management is a pivotal aspect of organizational operations, encompassing the supervision of inventory from the point of purchase to the point of sale. Effective inventory management ensures that businesses maintain optimal stock levels, thereby minimizing costs and maximizing efficiency. Automation in inventory management has revolutionized how companies handle their inventories, providing real-time data and analytics to inform decision-making processes. This section delves into the facets of inventory management, specifically focusing on inventory tracking and inventory forecasting, and how these components contribute to overall organizational efficiency.

2.4.1 Electronic Inventory Tracking

Effectiveness in the context of employee productivity is defined by Jones and Brown (2020) as an extent to which employees attain intended results. Effectiveness is associated with quality and significance of employees' work rather than just a quantity of completed tasks. Automation is an important element in increasing the effectiveness of employees since it provides tools and technologies that help make better decisions and perform better. For example, according to Jones and Brown (2020), integration of analytics and automation helped organizations to enhance their project success rate by 25%. The reason for this increase was the provision of real-time data and decision support provided by automation systems, allowing people to make better decisions (Jones & Brown, 2020).

The effectiveness of teaching staff and administrative employees in education institutions can also be significantly increased due to automation. In the report of OECD (2021), it was shown that automation including automatic grading systems, learning management system (LMS), and administrative software helped to improve institutional effectiveness. Teachers were able to spend more time communicating with students, and administrators had an opportunity to optimize processes related to registration, scheduling, and data keeping. As a result, educational effectiveness was improved; students and employees became more satisfied (OECD, 2021).

Employee effectiveness of customer service personnel can be significantly increased using automation technologies. According to Deloitte (2019), it was found that using automation in the form of chatbots and customer support systems in retail and hospitality increased the efficiency of the whole process because automated systems processed the major part of customer inquiries

providing fast and correct response. Thus, employees who worked in customer service department could focus on more complicated tasks (Deloitte, 2019).

2.4.2 Digital Inventory Forecast

Digital Inventory forecasting is the process of predicting future inventory needs based on historical data, market trends, and demand patterns. Accurate inventory forecasting helps businesses avoid the pitfalls of overstocking or understocking, both of which can incur significant costs. Automated inventory forecasting systems employ advanced algorithms and machine learning techniques to analyze vast amounts of data and generate precise forecasts. According to Choi and Lambert (2020), companies that adopted automated forecasting tools experienced a 20% reduction in forecast error rates and a 15% decrease in overall inventory costs (Choi & Lambert, 2020).

The application of automated inventory forecasting is particularly beneficial in industries with highly variable demand patterns. For example, in the fashion industry, where trends can shift rapidly, accurate forecasting is crucial for maintaining appropriate inventory levels. A report by McKinsey & Company (2021) revealed that fashion retailers using automated forecasting systems reduced markdowns by 30% and improved sell-through rates by 20%. These systems enabled retailers to respond quickly to changing consumer preferences, thereby maximizing sales and profitability (McKinsey & Company, 2021). The ability of automation to enhance inventory forecasting underscores its value in dynamic and fast-paced industries.

In the manufacturing sector, automated inventory forecasting plays a vital role in production planning and supply chain management. Kumar and Rajeev (2019) conducted a study that examined the impact of automated forecasting on manufacturing operations. The study found that automated forecasting led to a 25% improvement in production scheduling and a 20% reduction in lead times. Accurate forecasts allowed manufacturers to optimize their production processes and align their supply chains with anticipated demand, reducing bottlenecks and improving overall efficiency (Kumar & Rajeev, 2019). This highlights the potential of automated forecasting to enhance operational efficiency and competitiveness in the manufacturing industry.

2.5 Summary of Literature gap

Despite the increasing adoption of system automation in East Africa, a notable literature gap exists regarding system compatibility, particularly within the food and beverage (F&B) sector.

One significant area that warrants further exploration is the lack of comprehensive frameworks to ensure compatibility between new technologies and existing systems. Current studies, such as those by Otieno et al. (2021) and Mwangi and Wafula (2023), primarily focus on the benefits of automation but do not sufficiently address how F&B enterprises can assess and enhance compatibility before implementing new solutions. This gap leaves organizations without clear guidelines to navigate the integration of technologies effectively, potentially undermining the full benefits of automation.

Moreover, most existing research predominantly examines urban enterprises, as noted by Nuwagira (2022) and Aminah (2022), overlooking the unique challenges faced by rural small and medium-sized enterprises (SMEs). This necessitates further research to establish these connections, as understanding the relationship between compatibility and productivity is crucial for maximizing the benefits of technological investments.

Finally, the literature often fails to discuss the need for interoperability standards that can facilitate the integration of various technological tools, as highlighted by Smith and Jones (2021). This lack of focus on standards hinders the development of solutions that enhance compatibility across the sector. Furthermore, there is insufficient analysis of government policies addressing compatibility issues in technology adoption. More research is needed to assess the effectiveness of existing policies and propose enhancements that specifically target these challenges, as suggested by Pereira et al. (2022). Addressing these gaps provided valuable insights into improving system compatibility and the success of automation initiatives in East Africa's F&B enterprises, particularly in Uganda, where SMEs form the backbone of the economy.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presented the methods used to conduct the study. It encompasses the research design, study area, population, sample size determination, sampling technique, sampling procedures, data collection methods, data collection tools, data collection procedure, study variables, quality control, data analysis and presentation, ethical considerations, study limitations, and dissemination of the results. These were discussed in detail in the following sections.

3.1 Research Design

This research utilized a cross-sectional time frame and descriptive design to assess the effects of system automation on employee productivity. A cross-sectional time frame and descriptive design are effective for capturing a snapshot of data at a specific point in time, allowing for the examination of relationships between variables without requiring longitudinal tracking (Salkind, 2019). The study also adopted a mixed methods approach. This approach facilitated the analysis of current levels of employee productivity and how they relate to system automation within Unilever's operations. Therefore, the QUAN-QUAL approaches were used convergently, to facilitate a vast collection of data. Furthermore, while focusing on a single time frame, the researcher efficiently gathered and analyzed data regarding system automation's effect on productivity, providing valuable insights into the immediate effects and patterns observed in the study population (Neuman, 2019).

3.2 Study population

The population of interest for this study includes employees working at selected food and beverages organizations such as Unilever and Crown Beverages, along with their wholesale outlets and technical staff, in Gulu City and Lira City, which is crucial to the operational success of both companies. Unilever employs 30 individuals in Gulu and 54 in Lira, while Crown Beverages employs 30 staff in Gulu and 34 in Lira, totaling 188 employees across both companies. The population also comprises of 40 key customers from wholesale outlets; 108

district sales representatives; and 40 technical staff (admin and back-office) (Crown Beverages' annual report, 2021) and (Unilever Uganda, 2022). Targeting this population allows the research to identify key factors influencing employee productivity and evaluate how system automation affects their performance, ultimately providing actionable insights for enhancing productivity and optimizing operational processes (Aminah, 2022; Nuwagira, 2022).

3.4 Sample Size Determination

Using Krejcie and Morgan's (1970) table, the sample size for this study is determined based on the total population of approximately 148 employees and 40 key customers both at Unilever and Crown Beverages in Gulu City and Lira City. For this population size, the recommended sample size is 188 at a 95% confidence level with a 5% margin of error. This sample size provides a statistically valid representation, ensuring meaningful insights into employee productivity and the impact of system automation.

Table 1: The sample size of respondents

Category of Population	Respondents	Total population	Sample Size	Technique
Wholesale outlets	Key customers	40	28	Convenience sampling
Employees	District sales representatives	108	72	Stratified random sampling
Technical staff	Admin, back-office staff	40	28	simple random sampling
Total		**188**	**128**	

Source: Crown Beverages' annual report (2021) and (Unilever Uganda, 2022).

3.5 Sampling Procedures

The sampling procedures in this study were guided by the principles of stratified random sampling (Creswell & Creswell, 2017). Stratification ensures that participants are grouped based on specific criteria, such as department and hierarchical level, allowing for a more nuanced

representation of the organization's workforce. This method is crucial for enhancing the generalizability of findings by capturing diverse perspectives within Unilever Uganda Limited. Additionally, "Key customers" under the Wholesale outlets category indicates the specific group of respondents who participated in the interviews and qualitative analysis. They were sampled using convenience sampling.

3.6 Data Collection Methods

The study employed a mixed-methods approach, combining both quantitative and qualitative data collection methods (Creswell & Creswell, 2017). This comprehensive strategy enables a holistic exploration of the research questions. The use of questionnaires, a widely accepted quantitative method, allowed for the systematic collection of numerical data related to the leverage system and its effect on employee productivity. Concurrently, qualitative insights were be gathered through key informant interviews, providing a deeper understanding of individual experiences and perceptions within the organizational context.

3.6.1 Survey Method

The structured questionnaire was developed based on established principles of survey design (Dillman, Smyth, & Christian, 2014). Closed-ended questions using Likert scales were employed to quantify respondents' attitudes and perceptions regarding the system automation. The standardized nature of the questionnaire enhances replicability and allows for statistical analysis, ensuring the study's quantitative data is both reliable and comparable. This method is particularly suited for capturing a broad overview of employees' perspectives efficiently.

3.6.2 Interview Method

Key informant interviews were conducted following a semi-structured interview guide (Bryman, 2016). This approach provides a balance between structure and flexibility, allowing for the exploration of individual responses in greater depth while ensuring consistency across interviews. The purposive sampling technique (Palinkas et al., 2015) guided the selection of participants, ensuring that a diverse range of roles and experiences within the organization is represented.

3.7 Data Collection Tools

The chosen tools for data collection, structured questionnaire, and interview guide, are instrumental in ensuring the relevance and accuracy of the gathered information.

3.7.1 Questionnaire

A structured questionnaire, designed based on a thorough literature review and aligned with the study's objectives, was employed established guidelines for questionnaire development (De-Vellis, 2017). This ensured that the questions were clear, unambiguous, and directly address the research objectives. Utilizing a 5point Likert scale allowed for quantifiable responses, facilitating statistical analysis and providing a structured format for participants to express their perceptions of the systems automation effect on employee productivity. Moreover, an online questionnaire was adopted in this study to further implement system automation.

3.7.2 Interview Guide

The interview guide, developed in line with best practices in qualitative research (Patton, 2015), consisted of open-ended questions designed to explore participants' experiences and perceptions. The semi-structured nature of the guide allows for flexibility in probing further into participants' responses while maintaining a consistent focus on key themes. Piloting the interview guide with a subset of participants was employed to refine and enhance its effectiveness in capturing rich qualitative insights.

3.8 Data Collection Procedures

The data collection procedure followed a systematic and ethical approach to ensure the reliability and validity of the gathered information.

3.9 Reliability and Validity of Instruments

Ensuring the reliability and validity of the data collection instruments is paramount to the study's credibility and trustworthiness.

3.9.1 Reliability of Instruments

Internal consistency reliability of the structured questionnaire was assessed using Cronbach's alpha (Cronbach, 1951), Typically, alpha values above 0.70 are considered acceptable for these

research purposes. This statistical measure determines the extent to which the questionnaire items consistently measure the same construct. A high Cronbach's alpha value indicated that the reliability and internal consistency of the questionnaire, ensuring that it accurately measures participants' perceptions of the leverage system. The results of the reliability test are indicated in the table below;

Table 2: Reliability analysis using Cronbach's Alpha

Instrument	Number of Items	Cronbach's Alpha	Reliability Status
Questionnaire	55	0.89	Reliable (above 0.7)

Source: Primary data (2024)

The Cronbach's Alpha score of 0.89 in the table above indicates a high level of internal consistency, confirming that the instrument used for data collection is reliable according to the 0.7 threshold recommended by (Barifaijo et al., 2010).

3.9.2 Validity of Instruments

Content validity of both the structured questionnaire and the interview guide ensured through expert review and feedback (Polit & Beck, 2020). Subject matter experts evaluated the instruments to confirm that the questions effectively measure the intended constructs. Additionally, face validity was assessed by seeking feedback from a small sample of potential participants to ensure that the instruments are clear, relevant, and aligned with participants' experiences. These measures collectively contribute to the validity of the instruments, enhancing the trustworthiness and rigor of the study's findings. A CVI formular was adopted and the results were listed as follows;

$$CVI = \frac{\text{Items rated relevant by experts}}{\text{Total number of items}}$$

The findings from the experts were used to establish content validity index which into a CVI of 0.82 since it was above the required 0.7 for the research instrument to be declared valid (Kothari, 2004).

3.10 Data Analysis and Presentation

In this study, a comprehensive data analysis process was employed, integrating both quantitative and qualitative techniques to address the research objectives effectively. The analysis process encompassed multiple stages, ensuring a thorough examination of the data.

For the quantitative data collected through online structured questionnaires, the researcher used descriptive statistics to analyze objectives 1 and 2, applying the techniques of frequencies, percentages and averages. Furthermore, objectives 3 and 4 were analyzed using inferential statistics where correlation and regression was used to determine the relationship between the variables. The software aid IBM Statistical Package for the Social Sciences (SPSS) version 20.0, was chosen for its widespread use and recognized capability in statistical analysis (Field, 2018).

Qualitative data derived from interviews was analyzed through a thematic analysis approach. The researcher applied a thematic analysis approach to analyze the qualitative data obtained from interviews (Braun & Clarke, 2019). This method of analysis involved a systematic process of identifying and coding key themes, patterns, and categories inherent in the qualitative data. The qualitative data, which consisted of extensive textual information, underwent a thorough review, organization, and examination. This allowed for the identification of commonalities, disparities, and connections within the perspectives and experiences expressed by the study participants (Braun & Clarke, 2019).

3.11 Ethical Considerations

Ethical considerations play a pivotal role throughout the research process, with strict adherence to the ethical guidelines established by Gulu University Research Ethic Committees. The study meticulously addressed specific ethical considerations to safeguard the welfare and rights of the participants:

Informed Consent: Participants were provided with comprehensive information concerning the research's objectives, methodologies, potential risks, and benefits prior to the commencement of data collection. To ensure unequivocal understanding and voluntary participation, informed consent forms were employed. This approach aligns with established ethical principles and assures that participants make informed and autonomous decisions about their involvement (Smith, 2019).

Confidentiality and Anonymity: The study upheld the highest standards of confidentiality. All personal information and participant identities were rigorously protected. Collected data underwent anonymization and secure storage procedures, safeguarding individuals' identities and privacy. Access to the data was restricted solely to the research team, maintaining the utmost privacy and confidentiality (Jones et al., 2018).

Privacy Protection: Stringent measures were implemented to ensure participants' privacy throughout the research process. Personal identifiers were meticulously removed from the data, with only aggregated and de-identified findings reported. The research team exhibited the utmost respect for participants' privacy, maintaining the ethical commitment to protect sensitive information (Brown, 2020).

Data Security: To prevent unauthorized access, the collected data was securely stored. Electronic data was fortified with password encryption, and physical copies were housed within locked cabinets. These comprehensive security measures were enacted to shield the data from potential breaches and guarantee its integrity.

Voluntary Participation: Participation in the study was entirely voluntary, emphasizing participants' autonomy. Participants were assured that they can withdraw from the research at any stage without encountering negative consequences or penalties. This voluntary nature was unequivocally communicated during the informed consent process, empowering participants to exercise independent decision-making.

3.12 Study Limitations and delimitations

One key methodological limitation of this study was the sample size. Although it was carefully determined, the sample size may limit the generalizability of the findings due to resource and time constraints that impacted the feasibility of including a more extensive and diverse participant pool. In contrast, the study deliberately delimits its geographical scope to Gulu City and Lira City in Uganda, recognizing that the findings may not be directly applicable to other regions or countries because of contextual variations.

Another methodological limitation involves data collection constraints. Unforeseen circumstances, such as participant non-response or limited access to certain information, could affect the completeness of the data and subsequently influence the overall robustness of the

analysis. Conversely, the study sets a specific time frame for data collection and analysis, meaning that any changes in the leverage system's dynamics or employee productivity beyond this period were not accounted for, thus delimiting the research context.

Lastly, while external factors beyond the researcher's control may impact the study's relevance over time, particularly changes in the economic or organizational landscape, the research is also limited to Unilever Uganda Limited. This means that the findings may not be fully generalizable to organizations with significantly different structures, cultures, or operational models. By clearly outlining these limitations and delimitations, the study aims to provide a realistic context for interpreting its results and emphasizes the need for cautious consideration of its findings within the specified boundaries.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This study focused on system automation and employee productivity of Crown Beverages Limited and Unilever Uganda Limited in Northern Uganda's food and beverage sector. This section focuses on data presentation, analysis and interpretation structured according to the study objectives in form of descriptive, correlational and regression analyses.

4.1 Results indicating Demographic Background of the respondents

The demographic background of respondents has been summarized and presented gender, age bracket, educational qualification, experience in business and business sector as presented below;

Table 3: Gender of the respondents

Gender of the respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	62	48.4	48.4	48.4
	female	66	51.6	51.6	100.0
	Total	128	100.0	100.0	

Field data, 2024

The study finding revealed that, Males represent 62(48.4%) of the study population, while females make up 66(51.6%). This indicates a relatively balanced distribution of gender in the sample size, with a slightly higher proportion of female respondents. The findings mean there are no missing or excluded data for gender in this dataset.

Table 4: Age of the respondents

Age of the respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	26	20.3	20.3	20.3
	26-35	87	68.0	68.0	88.3
	36-45	15	11.7	11.7	100.0
	Total	128	100.0	100.0	

Field data, 2024

The study revealed that, the age distribution of the 128 respondents reveals a clear skew toward younger adults, with the largest group 87(68.0%) of respondents falling within the 26-35 age range, making it the most represented demographic in the study. Followed by 26(20.3%) of respondents in the age category of 18-25, finally, 15(11.7%) of the respondents were in age group of 36-45, representing smallest group. This distribution of respondents indicate that the study sample is predominantly composed of younger adults, with a significant drop-off in the number of older respondents.

Table 5: Education level of the respondents

Education level of the respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Diploma/Certificate	37	28.9	28.9	28.9
	Bachelor's Degree	80	62.5	62.5	91.4
	Above Master's Degree	11	8.6	8.6	100.0
	Total	128	100.0	100.0	

Data source: Primary data, 2024

The study revealed that, the education level distribution of the 128 respondents are predominantly focused on higher education, with a clear majority holding a Bachelor's Degree**.** It was indicated that, 80(62.5%) of respondents have Bachelor's degree, making it the largest educational group. Follow by 37(28.9%) of the respondents having Diploma/Certificate**.** It was also confirmed that, only 11(8.6%) of respondents were Master's or above**.** This indicate that the sample is heavily composed of respondents with at least a Bachelor's degree, follow by Diploma/Certificate, and a smaller proportion possessing advanced graduate education.

Table 6: Years of Experience in Business

Years of Experience in Business					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 years	21	16.4	16.4	16.4
	6-10 years	14	10.9	10.9	27.3
	11-15 years	54	42.2	42.2	69.5
	16and above	39	30.5	30.5	100.0
	Total	128	100.0	100.0	

Data source: Primary data, 2024

The study revealed that, respondents' years of experience in business shows a varied distribution, with the largest group of respondents having 54(42.2%) with 11-15 years of experience with business, making it the most represented group. Followed by 39(30.5%) of the respondents with 16 and above years of experience. The study also reported that, only 21(16.4%) of respondents were between 1-5 years and 14**(**10.9%**)** of respondents were with the organization between 6-10 years of experience This distribution suggests that the sample is primarily composed of individuals with substantial business experience, with a clear concentration in the 11-15 and 16+ year categories, indicating a higher level of professional expertise within the group of respondents.

Table 7: Business Sector

Business Sector:					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Wholesale	11	8.6	8.6	8.6
	sales agents	70	54.7	54.7	63.3
	Manufacturing	41	32.0	32.0	95.3
	Other (Please specify)	6	4.7	4.7	100.0
	Total	128	100.0	100.0	

Data source: Primary data, 2024

The study results revealed that, the data on the business sectors of the 128 respondents reveals a clear predominance of individuals working in sales-related roles. It was reported that, majority 70(54.7%) of respondents are involved in sales agents, making this the largest group of respondents in the study, followed by the respondents who are working in manufacturing, with 41(32.0%) representing this sector and a smaller proportion of respondents who work in wholesale with 11(8.6%) of respondents, while only 6 (4.7%) of respondents were unspecified

sectors, comprises. The business sector distribution indicates that a significant majority of respondents (86.7%) are employed in sales (54.7%) or manufacturing (32.0%). The relatively smaller representation of wholesale and other sectors suggests that the sample is primarily drawn from industries related to sales and production.

4.2 System Automation

The analysis section of system automation comprises of the analyses of three important dimensions namely: Compatibility, Ease of Use User Acceptance, as presented in the following sections.

4.2.1 Compatibility

The provided data offers a detailed examination of respondents' perceptions regarding the compatibility of System Automation. This analysis categorizes responses into five levels of agreement: "SD+D" (Strongly Disagree + Disagree) interpreted as Disagree, "N" (Neutral), and "A+SA" (Agree + Strongly Agree) interpreted as Agree.

Table 8: Results on Compatibility

	SD	D	SD+D	N	A	SA	A+SA
There is seamless integration with existing systems.	6.3%	72.7%	78.9%	7.0%	14.1%	0.0%	14.1%
There is minimal disruption to current workflows and processes.	4.7%	12.5%	17.2%	24.2%	34.4%	24.2%	58.6%
There is support for a wide range of software and hardware configurations.	4.7%	11.7%	17.4%	15.4%	50.8%	16.4%	67.2%
There is a need for extensive customization to align with current infrastructure.	6.3%	4.7%	10.9%	9.4%	50.0%	29.7%	79.7%
There are minimal compatibility issues reported by users.	2.3%	2.3%	4.7%	6.3%	54.7%	34.4%	89.1%
Average	4.86%	20.78%	25.62%	12.66%	40.80%	20.94%	61.74%

Data source: Primary data, 2024

The study affirmed that, as perceived by the respondents, it was confirmed that**,** 78.9% of respondents disagree that there is seamless Integration with Existing Systems and only 14.1%

agree that the integration is seamless, reflecting a more positives outlook on this aspect of compatibility. The study also indicated that, 58.6% of respondents agree or strongly agree that there is minimal disruption to current workflows and processes, indicating that for most users, the system does not significantly interfere with their existing operations. However, 17.2% still disagree or strongly disagree, and 24.2% remain neutral, suggesting that for some, the system's effect on workflows is noticeable.

The study also reports, 67.2% of respondents agreeing or strongly agreeing that the system supports a wide range of software and hardware configurations. While 17.4% disagree or strongly disagree, and 15.4% are neutral. The study also confirms that, 79.7% of respondents agree or strongly agree that such customization is necessary, highlighting that the system may not easily fit into existing setups without significant adjustments and only 10.9% disagree or strongly disagree, suggesting that there is no need for customization is widely acknowledged. In terms of compatibility issues, the system performs very well, with 89.1% of respondents agreeing or strongly agreeing that minimal compatibility issues are reported by users. This is the highest positive response across all categories, with only 4.7% disagreeing, indicating that compatibility with other systems or software is generally not a concern. The average 61.74% of respondents agree or strongly agree across all categories, signaling a generally positive view of the system's compatibility. However, the average 25.62% of respondents disagree or strongly disagree indicates that there are still challenges. While most users (61.64%) find the system relatively compatible, issues with integration, the need for customization, and disruption to workflows are notable areas where improvement could be made.

In a Key Informant Interview to analyze qualitative data, participant B, (2024) noted that, "Yes, there are automated processes like inventory tracking and order management systems." This reflects an awareness of the existence of automation tools but suggests that their integration into current systems may not always be seamless. The comment implies that while automation is present, achieving full compatibility with pre-existing infrastructure requires further effort, possibly through better system design or customization.

While participant C, (2024) emphasized the benefits of automation by stating, "Automation has reduced errors in orders." This highlights the system's capability to improve efficiency and

accuracy in operations. However, the absence of comments regarding the broader effect on workflows may indicate that while errors are reduced, there could still be areas where the implementation process causes temporary disruptions.

4.2.2 Ease of use

The data presented examines the ease of use of System Automation in Food and Beverage companies, reflecting respondents' experiences and perceptions across several dimensions.

Table 9: Results on Ease of Use

Statement of Inquiry	S+D	D	SD+D	N	A	S + A	A+SA
There is smooth adaptation to increasing workloads and user demands.	7.0%	3.9%	10.9%	7.8%	65.6%	15.6%	81.3%
There is minimal performance degradation even with large-scale expansion.	6.4%	12.0%	18.4%	12.0%	49.6%	20.0%	69.6%
There is flexibility for future upgrades and enhancements with little disruption.	0.0%	10.9%	10.9%	27.3%	50.8%	10.9%	61.7%
There is a significant drop in performance when scaling up operations.	2.3%	3.9%	6.3%	13.3%	50.8%	29.7%	80.5%
There is comprehensive support for scaling both horizontally and vertically.	3.9%	22.7%	26.6%	20.3%	34.4%	18.8%	53.1%
AVERAGE	**3.93%**	**7.68%**	**11.63%**	**15.10%**	**54.20%**	**19.05%**	**73.28%**

Primary data, 2024

The study revealed that, 81.3% of respondents agreeing or strongly agreeing, indicating strong satisfaction that there is smooth adaptation to increasing workloads and user demands, however, there is a noticeable discrepancy in other areas, particularly in the support for scaling and performance degradation. When it comes to scaling performance, 69.6% of respondents agreed that there is minimal performance degradation during large-scale expansion, although the 18.4% who disagreed or strongly disagreed suggests that some users might experience performance issues under certain conditions. A further concern is expressed in the statement about performance drops when scaling up operations, with 80.5% of respondents reporting a significant drop, highlighting a critical area of improvement for the system's ability to scale without sacrificing performance.

The study also revealed, 61.7% agree that upgrades can be done with minimal disruption, where majority were accepted that there is flexibility for future upgrades and enhancements and also garnered mixed feedback. However, 27.3% remained neutral. Finally, the system's support for both horizontal and vertical scaling received a relatively lower rating, with only 53.1% of respondents agreeing that comprehensive support is available. It was also noted that, the 26.6% who were neutral or disagreed suggests that further improvements might be needed to enhance scaling flexibility across different dimensions of operation.

In a Key Informant Interview conducted, Participants unanimously acknowledged the widespread implementation of system automation processes, particularly in the ordering, inventory, and delivery systems. Participant A, (2024) noted that "automation has significantly streamlined the order placement process, reduced human errors and improved accuracy." Specific examples included automated customer service portals that enhance communication and order tracking. The key informant interview highlights a consensus among participants regarding the extensive adoption of system automation processes in critical operational areas such as ordering, inventory, and delivery systems. Participant A's response emphasizes the tangible benefits of automation, including streamlining order placement, minimizing human errors, and improving accuracy. These improvements align with the broader goals of operational efficiency and customer satisfaction.

4.2.3 User Acceptance

The data presented illustrates the user acceptance of System Automation within the Century Bottling Company and Unilever Uganda, highlighting respondents' perceptions across various aspects of daily tasks and acceptance of automating of these tasks.

Table 10: Results on user acceptance

	Strongly Disagree	Disagree	SD+D	Neutral	Agree	Strongly Agree	A+SA
There is an intuitive user interface that facilitates easy navigation.	2.3%	12.5%	14.8%	23.4%	36.7%	25.0%	61.7%
There is minimal training required for employees to effectively use the system.	4.7%	6.3%	10.9%	34.4%	44.5%	10.2%	54.7%
User-friendly documentation is available that aids in understanding the system.	8.6%	21.9%	30.5%	7.0%	35.2%	27.3%	62.5%
There is a steep learning curve for new users.	5.5%	0.0%	5.5%	13.3%	50.8%	30.5%	81.3%
There is consistent feedback from users about the system's ease of use.	2.3%	8.6%	10.9%	19.5%	53.9%	15.6%	69.5%
AVERAGE	4.68%	9.86%	14.52%	19.52%	44.22%	21.72%	65.94%

Primary data, 2024

The study shows that, 61.7% of respondents agree/strongly agree that there is an intuitive user interface that facilitates easy navigation indicating that most users find the interface relatively easy to use. However, 14.8% were neutral, and 14.8% disagreed, suggesting that there could still be some usability issues that need addressing to make the interface more universally intuitive. It was also noted that, 54.7% of respondents agree that minimal training is needed for employees to effectively use the system, with 44.5% indicating some level of agreement although the remaining portion of respondents 10.9% revealed that the system is not entirely self-explanatory for all users, which points to the potential for enhancing user onboarding and training resources.

The study also indicates that, 62.5% of respondents agreeing that it is user-friendly and helpful for understanding the system. However, the 30.5% who were neutral that the documentation could be made clearer or more comprehensive to improve understanding for all users. The study indicates that, 81.3% of respondents agreeing or strongly agreeing that there is a steep learning

curve for new users. Lastly, 69.5% of respondents agree, that user feedback is regularly gathered and the system is being actively evaluated and that user concerns are being considered in future iterations or updates. Overall user acceptance is relatively high, key areas for improvement include reducing the learning curve for new users, enhancing the intuitiveness of the interface for a broader range of users, and refining the documentation to ensure it meets everyone's needs.

4.2.4 Qualitative Results on Objective One: Extent of System Automation Implementation

Three themes emerged under this objective: awareness of automation tools, perceived improvements in service quality, and enhanced ordering and delivery processes.

> *Theme 1: Awareness of automation tools. Key informants were aware of the automated processes used by the two companies. One informant stated, "Yes, there are automated processes like inventory tracking and order management systems"* (KII-02, 2026).

Informants unanimously acknowledged that automation was widely implemented, particularly in the ordering, inventory and delivery systems, and gave examples such as automated customer service portals that improve communication and order tracking.

> *Theme 2: Perceived improvement in service quality. Informants linked automation to better accuracy in order handling. One noted that "automation has significantly streamlined the order placement process, reduced human errors and improved accuracy" (KII-01, 2026). Another added, "Automation has reduced errors in orders"* (KII-03, 2026).

> *Theme 3: Enhanced ordering and delivery, with occasional disruptions. Alongside the benefits, one informant remarked that "the delivery systems sometimes experience delays during system upgrades, although users highly accepted usag*e" (KII-03, 2026).

The interviews confirm that automation is present in the core operations of both companies and is valued for accuracy and responsiveness, which supports the survey result that most respondents agreed the systems were in use. Informants also pointed to disruptions during upgrades, which is consistent with the survey finding that 78.9% of respondents disagreed that integration with existing systems was seamless (Table 7). Contingency arrangements during system upgrades therefore emerge as a practical concern.

4.3 Employee Productivity

The analysis of Employee Productivity in this study comprises of the analysis of Efficiency, Effectiveness and Quality output as below:

4.3.1 Efficiency

The following analysis focuses on the efficiency of employees, reflecting their ability to complete tasks, meet deadlines, and utilize the system efficiently in their daily work routines.

Table 11: Results on Efficiency

Efficiency	Strongly Disagree	Disagree	SD+D	Neutral	Agree	Strongly Agree	A+SA
There is a significant reduction in time required to complete tasks.	5.5%	10.2%	15.6%	10.9%	46.9%	26.6%	73.4%
There is improved use of resources and tools to achieve better output.	0.0%	25.0%	25.0%	4.7%	39.8%	30.5%	70.3%
There is a decrease in the amount of wasted effort and resources.	2.3%	6.3%	8.6%	2.3%	60.9%	28.1%	89.1%
There is an enhanced ability to handle multiple tasks simultaneously.	10.2%	8.6%	18.8%	11.7%	43.8%	25.8%	69.5%
There is consistent feedback that productivity tools improve overall efficiency.	2.3%	4.7%	7.0%	15.6%	46.1%	31.3%	77.3%
AVERAGE	4.1%	10.9%	15.0%	9.04%	47.50%	28.5%	75.9%

Primary data, 2024

The study revealed that, 73.4% of respondents strongly agreeing that there is a significant reduction in time required to complete tasks. This suggests that, for most users, the system has positively affected time management and task completion. However, the 15.6% disagreed that not all tasks benefit equally from the system's time-saving capabilities, implying there may be specific areas where improvements could be made. Furthermore, 70.3% of respondents agreed that there is improved use of resources and tools to achieve better output and only 25.0%

disagreed, indicating that, there are still inefficiencies in resource allocation or tool usage for some users, highlighting an opportunity to fine-tune this aspect.

Furthermore, the study also revealed that, 89.1% of respondents agreeing that there is a noticeable decrease in waste, indicating that the system is effective at minimizing inefficiencies and optimizing resource use. It was also noted that, 69.5% of respondents agreed that the system enhances the ability to handle multiple tasks simultaneously. However, only 18.8% were in disagreement, pointing to possible challenges when juggling multiple tasks, which might be linked to the complexity of the system or limitations in certain features.

Finally, it was affirmed by 77.3% of respondents, which indicates strong support for the tools provided within the system. However, only 7.0% remained disagreed, suggesting that there are still some variabilities in the effectiveness of the tools depending on user needs or expectations. The system generally enhances efficiency, with notable strengths in reducing wasted effort and improving task completion times, there are areas that could benefit from further refinement.

4.3.2 Effectiveness

This analysis examines the perceived effectiveness of employees, focusing on their ability to achieve role-specific goals, contribute to the organization's objectives, and handle challenges effectively.

Table 12: Results on Effectiveness

Effectiveness	Strongly Disagree	Disagree	SD+D	Neutral	Agree	Strongly Agree	A+SA
There is a noticeable increase in achieving set goals and objectives.	3.9%	0.0%	3.9%	25.0%	46.1%	25.0%	71.1%
There is enhanced ability to solve complex problems and make better decisions.	4.0%	4.8%	8.7%	2.4%	65.1%	23.8%	88.9%
There is a clear improvement in	1.6%	6.3%	7.9%	9.5%	69.8%	12.7%	82.5%

performance metrics related to job roles.							
There is effective communication and collaboration among team members.	2.4%	4.0%	6.3%	9.5%	53.2%	31.0%	84.1%
There is a high alignment of work outcomes with organizational goals.	1.6%	4.0%	5.6%	12.7%	50.8%	31.0%	81.7%
AVERAGE	2.70%	3.82%	6.48%	11.82%	57.00%	24.70%	81.66%

Primary data, 2024

It should be stressed that the study results show that a vast majority of the respondents have noted that the use of the system has resulted in the improvement of the level of attainment of established goals and objectives; thus, 71.1% of the respondents agreed that the system helped improve the accomplishment of established goals and objectives. At the same time, 46.1% of the respondents agreed and 25.0% of the respondents strongly agreed that the system helped improve the accomplishment of established goals and objectives. Moreover, 3.9% of the respondents strongly disagreed and 25.0% of the respondents were neutral concerning this question.

As for the improvement of problem solving and decision-making skills, one can state that the overall agreement rate equals 88.9%. Thus, 65.1% of the respondents agreed and 23.8% of the respondents strongly agreed that the system has improved their ability to solve complex problems and make better decisions. In other words, it means that the system is highly efficient in helping improve the ability to think critically. Furthermore, 82.5% of the respondents have reported an improvement in performance connected with their job roles; 69.8% of the respondents agreed and 12.7% of the respondents strongly agreed. A minority of respondents (7.9%) was neutral concerning this question.

Moreover, 84.1% of the respondents agreed that the system provides good possibilities for effective teamwork; hence, it means that the system helps people collaborate effectively through the means of sharing information and communicating within the team. At last, the alignment of

work outcomes with the goals of an organization was evaluated positively by 81.7% of the respondents.

4.3.3 Quality of Output

This analysis evaluates the perceived quality of output among respondents utilizing system automation in food and beverage organizations.

Table 13: Results on Quality output

Quality of output	SD	D	SD+D	N	A	SA	A+SA
There is an increase in the accuracy and precision of work produced.	1.6%	2.4%	4.0%	5.6%	60.3%	30.2%	90.5%
There is a reduction in errors and rework required.	0.0%	9.4%	9.4%	19.5%	57.0%	14.1%	71.1%
There is higher customer satisfaction with the quality of the final product.	2.3%	10.9%	13.3%	17.2%	53.9%	15.6%	69.5%
There is consistent adherence to quality standards and procedures.	0.0%	15.6%	15.6%	13.3%	52.3%	18.8%	71.1%
There is positive feedback on the overall quality and reliability of output.	2.3%	3.9%	6.3%	13.3%	60.9%	19.5%	80.5%
AVERAGE	1.24%	8.44%	9.72%	13.78%	56.88%	19.64%	76.54%

Primary data, 2024

These findings imply that a majority of 71.1% of the participants recognize the positive influence of the system on the enhancement of their ability to reach set goals and objectives. 46.1% agree that the system had contributed to that, while 25.0% strongly agree to that. On the contrary, 3.9% strongly disagree that the system positively affects their ability to reach set goals and objectives. In addition, 25.0% of the participants remain neutral on that matter, indicating the existence of the spheres where the system's influence on goal achievement is not evident enough.

When considering problem-solving and decision-making, the system gets an overall score of agreement equal to 88.9%. 65.1% agree that the system helped them enhance their skills to solve complex problems and make better decisions. That means that the system proves to be highly effective in helping people perform better in terms of problem-solving and decision-making. In addition, 82.5% of the participants report a positive improvement in their job role performance, with 69.8% agreeing and 12.7% strongly agreeing that there was such improvement. The result indicates that the use of the system helps people improve their job performance.

Moreover, the analysis demonstrates that 84.1% of the participants agree that the system helps them collaborate effectively. Moreover, 90.5% agree or strongly agree that the accuracy and precision of work have been improved. That is another important positive aspect of using the system since it helps participants achieve higher quality results in their activities. Besides, 71.1% agree or strongly agree that the number of mistakes and reworks have decreased; however, a somewhat bigger percentage (9.4%) disagrees or strongly disagrees on that question compared to others.

Furthermore, 69.5% of respondents agree or strongly agree that there was an increase in customer satisfaction with the final product, meaning a great result achieved in this sphere. In addition, 71.1% of the participants agree or strongly agree that there is a consistent conformity to quality standards. However, 15.6% of the participants disagree on that issue, meaning that there is still some room for improvement in terms of consistent adherence to quality standards. Finally, 80.5% of respondents agree or strongly agree that the participants receive positive feedback about the quality and reliability of their work. These results mean that a majority of respondents is satisfied with their achievements. Moreover, it should be noted that 76.54% of the participants strongly agree with all five aspects under discussion. The obtained results reflect the contemporary trend of the improvement of quality with a certain potential for further development in terms of reducing the number of errors made. Thus, the results indicate that there are contemporary tendencies of increasing precision and reliability of the work performed and reducing mistakes and enhancing customer satisfaction from the process.

The results of the survey demonstrate that there is a high degree of consensus concerning the collaboration issue. Therefore, one can assume that the system provides opportunities for the

participants' cooperation through information sharing and communication facilitation. In addition, it has been found out that the participants get an affirmation concerning the alignment of work results with organizational objectives. That is 81.7% of them agreed to that issue.

4.3.4 Qualitative Results on Objective Two: Level of Employee Productivity

Three themes emerged: improved efficiency, enhanced responsiveness, and skills gaps that limit effectiveness.

> *Theme 1: Improved efficiency and coordination. Informants described productivity as having improved over time. One said, "Employees now complete tasks faster, and there's better coordination among teams thanks to automation"* (KII-02, 2026).

Another participant added that,

> *"The time taken to process tasks has reduced drastically"* (KII-03, 2026).

> *Theme 2: Enhanced responsiveness and task focus. One informant stated, "Employees are more responsive due to the automated processes"* (KII-05, 2026).

Informants also noted that automation handles routine tasks, allowing employees to concentrate on more strategic activities.

> *Theme 3: Technical proficiency gaps and system failures. Some informants identified weaknesses. One noted, "Some employees struggle with navigating the systems, which can cause delays"* (KII-04, 2026).

On the quality of output, another stated,

> *"When systems go down, it becomes chaotic as employees have to revert to manual processes"* (KII-05, 2026).

The interviews support the quantitative results on efficiency, effectiveness and quality of output, where most respondents agreed that automation improved accuracy and reduced errors. They also show that the benefits depend on employees' technical skills and on system reliability, so training, technical support and manual fallback procedures are needed to sustain productivity.

4.4 Inventory Management

The results below present the analysis of Electronic Inventory Management.

4.4.1 Analysis of Electronic Inventory Management (EIM)

This section analyzes respondents' perceptions regarding the processes of electronic inventory tracking related to system automation and employee productivity.

Table 14: Results on Electronic Inventory tracking and Management

Statement of Inquiry	Strongly Disagree	Disagree	SD+D	Neutral	Agree	Strongly Agree	A+SA
There is accurate real-time tracking of inventory levels.	0.0%	10.2%	10.2%	24.2%	50.0%	15.6%	65.6%
There is timely identification of inventory discrepancies and stock outs.	2.3%	7.0%	9.4%	7.0%	48.4%	35.2%	83.6%
There is efficient management of inventory movements and locations.	0.0%	2.3%	2.3%	20.3%	54.7%	22.7%	77.3%
There is improved visibility of inventory status across all locations.	0.0%	6.3%	6.3%	7.0%	56.3%	30.5%	86.7%
There is a reduction in the incidence of inventory loss and theft.	0.0%	4.7%	4.7%	11.7%	50.0%	33.6%	83.6%
AVERAGE	0.46%	6.10%	6.58%	14.04%	51.88%	27.52%	79.36%

Primary data, 2024

The research also shows that the majority of the participants, 65.6%, believe that inventory levels are measured in real time. Moreover, it was found out that 83.6% of the participants believe that errors and stock-outs are detected timely, which means that the system works well when alerting about the problem areas in the company. Furthermore, 77.3% of the respondents think that inventory movement and location management are conducted well, which can be seen as good performance of the system in managing and monitoring the location and movement of inventory. What is more, 86.7% of the respondents think that the level of visibility of the status of the inventory in different locations has increased, which is one of the highest results achieved in the survey. Finally, it was found out that 83.6% of the participants agree that the amount of inventory loss and theft has been decreased due to the introduction of the electronic tracking system. On average, 79.36% of the participants are satisfied with the work of the electronic inventory

tracking system, especially concerning visibility and detection of the errors. These results reflect the high level of agreement of the participants concerning the electronic inventory tracking system with improvements in terms of visibility, efficiency and decrease of loss.

4.4.2 Digital Inventory Forecast

This section presents an analysis of respondents' perceptions regarding the digital inventory forecast measures associated with system automation and employee productivity.

Table 15: Results on Digital Inventory forecast

Statement of Inquiry	Strongly Disagree	Disagree	SD+D	Neutral	Agree	Strongly Agree	A+SA
There is accurate forecasting of future inventory needs based on historical data.	0.0%	12.5%	12.5%	7.0%	61.7%	18.8%	80.5%
There is effective alignment of inventory levels with anticipated demand.	2.3%	3.9%	6.3%	17.2%	57.8%	18.8%	76.6%
There is timely adjustment of inventory orders based on forecasted data	1.6%	8.6%	10.2%	13.3%	57.0%	19.5%	76.6%
There is improved accuracy in predicting inventory requirements for peak periods.	3.9%	7.0%	10.9%	2.3%	58.6%	28.1%	86.7%
There is a reduction in instances of overstocking and stockouts due to accurate forecasting.	1.6%	14.1%	15.6%	10.9%	52.3%	21.1%	73.4%
AVERAGE	1.88%	9.22%	11.10%	10.14%	57.48%	21.26%	78.76%

Primary data, 2024

The study indicates that, 80.5% of respondents strongly agree that the forecasting of future inventory needs is accurate based on historical data although 12.5% disagree and 12.5% are neutral, indicating that some users may still feel the forecasts are not entirely reliable. The study also revealed that, 76.6% of respondents agree that inventory levels are effectively aligned with anticipated demand. This suggests that the system is generally good at matching inventory to demand, but again, 17.2% of the respondents are neutral and 6.3% disagree, signaling a potential for improvement in how well the system forecasts demand in certain instances. It was also revealed that, 76.6% of respondents agree that inventory orders are adjusted in a timely manner

based on forecasted data. While positive, 13.3% are neutral, and 9.8% disagree, indicating some lag or inefficiency in the adjustment process for certain users. It was further noted that, 86.7% agree that the system has improved accuracy in predicting inventory requirements for peak periods.

The study further revealed that, 73.4% strongly agree that there has been a reduction in overstocking and stock outs due to accurate forecasting. While 15.6% of respondents are neutral, and 14.1% disagree, indicating that stock management is still a challenge for some users. The average, 78.76%, of respondents agree and have positive perception of the digital inventory forecasting system. The system performs especially well in predicting inventory needs during peak periods and in leveraging historical data for forecasting.

4.5 Results on inferential statistics (correlation analysis)

The analysis of correlation was performed to determine the relationship that exist between system automation and employee productivity and the results were presented in the table below

Table 16: Inferential statistics results on Correlation Analysis

Correlation [a]

		Compatibility	Ease of Use	User Acceptance	Employee Productivity
Compatibility	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	128			
Ease of Use	Pearson Correlation	.560**	1		
	Sig. (2-tailed)	.000			
	N	128	128		
User Acceptance	Pearson Correlation	.495**	.749**	1	
	Sig. (2-tailed)	.000	.000		
	N	128	128	128	
Employee Productivity	Pearson Correlation	.585**	.673**	.687**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	128	128	128	128

**. Correlation is significant at the 0.01 level (2-tailed).

The study revealed that, there is moderate, positive and significant correlation between compatibility and Employee Productivity with ($r = 0.585^{**}$, $p < 0.01$). These findings further reveal a strong positive correlation between Ease of use and employee productivity with **(**$r = 0.673^{**}$, $p < 0.01$). The study also shows that, a strong positive significant relationship exists

between User acceptance and Employee Productivity with **(**r = 0.687****, p < 0.01). These strong and moderate correlations affirmed that, that the ease with which employees can use automated systems plays a crucial role in both their engagement with the system and their overall employee productivity.

This further implies that employees who are more satisfied with the system tend to be more productive. This reinforces the idea that an increase in user engagement with system automation tools is associated with overall improvement in work output of the employees.

In a separate Key Informant Interview, it was revealed that system automation was widely seen as a catalyst for improved employee productivity. One of the participants highlighted specific improvements in task accuracy, resource utilization, and compatibility. Participant E, (2024) explained that, "Inventory tracking has reduced the time spent on manual audits, enabling employees to focus on other critical tasks." This signifies that there is a strong relationship between system automation and productivity of employees.

Table 17: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.759[a]	.576	.565	.34156
a. Predictors: (Constant), User Acceptance, Compatibility, Ease of Use				

Primary data, 2024

The model summary reveals that systems automation as an independent variable with predictors; User Acceptance, Compatibility and Ease of Use explains variations in employee productivity by approximately 57.6% where (R^2 = 0.576). The regression model shows a strong predictor of employee productivity in the context of system automation in Crown Beverages Limited and Unilever Uganda. The relatively low standard error (0.34156) indicates that, the model provides accurate predictions.

Table 18: Regression analysis results on ANOVA

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.622	3	6.541	56.064	.000[b]
	Residual	14.466	124	.117		
	Total	34.088	127			
a. Dependent Variable: Employee Productivity						
b. Predictors: (Constant), User Acceptance, Compatibility, Ease of Use						

Primary data, 2024

The ANOVA results confirm that, there is statistical significance of the overall regression model with ($F = 56.064$, $p < .001$). This shows that, the predictor (system automation) is significant in explaining employee productivity, where User acceptance with ($\beta = .286$; $t = 4.169$; $p < .05$), followed by compatibility ($\beta = .218$; $t = 3.683$; $p < .05$) and Ease of Use shows a positive relationship and statistically significant ($\beta = .195$; $t = 2.647$; $p > .05$). This means that, system automation is a reliable variable in explaining variations in employee productivity.

Coefficients

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.345	.201		6.692	.000
	Comp	.218	.059	.263	3.683	.000
	Ease	.195	.074	.247	2.647	.009
	User	.286	.069	.372	4.169	.000
a. Dependent Variable: Employment Productivity						

Primary data, 2024

The findings reveal that, there is a strong positive significant relationship between user acceptance and employee productivity, meaning it has the strongest influence on employee productivity compared to the other predictors as shown by statistically significant level ($p = 0.000$). The result further reveals that, Ease of Use and compatibility has significant positive effects on employee productivity, with ($\beta = 0.263$, $p < 0.005$) and ($\beta = 0.247$, $p < 0.005$), respectively. This indicates that, their effects on employee productivity are statistically significant.

4.5.1 Qualitative Results on Objective Three: Relationship between System Automation and Employee Productivity

Two themes emerged: a positive effect of automation on productivity, and areas for improvement in system usability.

> *Theme 1: Positive impact on productivity. Informants saw automation as a driver of productivity. One explained, "Inventory tracking has reduced the time spent on manual audits, enabling employees to focus on other critical tasks"* (KII-05, 2026).

Another observed,

> *"Automation has made employees' work easier, especially in processing orders"* (KII-03, 2026). Informants cited improvements in task accuracy and resource use.
>
> *Theme 2: Usability as a limiting factor. One informant commented, "The system could be more user-friendly"* (KII-05, 2026).

The interview evidence agrees with the correlation and regression results, in which user acceptance (β = .372) and ease of use (β = .247) were significant predictors of productivity. Informants tied productivity gains to ease of use and to how well employees can operate the systems.

4.6 Results on the Moderating Role of Electronic Inventory Management

Table 19: Results on Moderation Analysis

Model Summary							
	R	R-sq	MSE	F	df1	df2	p
	.8013	.6420	.1145	74.1311	3.0000	124.0000	.0000

Model						
	Coeff	se	t	p	LLCI	ULCI
Constant	-1.4781	.5877	-2.5151	.0132	-2.6412	-.3149
Employee Prod	1.1001	.1629	6.7546	.0000	.7778	1.4225
EIM	.8033	.1907	4.2119	.0000	.4258	1.1808
Int_1	-.1500	.0473	-3.1743	.0019	-.2436	-.0565

Field data, 2024

As presented in the table above, moderation analysis was performed using process Macro Procedure in SPSS, the model summary table shows that Electronic Inventory Management

(EIM) explains the relationship between system automation and employee productivity by 0.64.2% as reflected by (R^2=.6420). Looking at the interaction term reflected by (p=.0019; p<.01) indicates that electronic inventory management has a significant moderating effect on the relationship between system automation and employee productivity.

CHAPTER FIVE

DISCUSSION OF RESULTS

5.0 Introduction

In this chapter, findings are discussed and summarized in line with the existing literature and research questions. This section further discusses the results of the research objectives with an aim of answering the research questions as informed by the literature.

5.1 Assessing the extent of system automation implementation in Crown Beverages Limited and Unilever Uganda Limited in Northern Uganda's food and beverage sector.

The results revealed a mixed perception of system compatibility among respondents. While respondents generally agreed that the system was compatible with existing processes, significant challenges were noted. Specifically, majority of respondents disagreed that the system allowed for seamless integration with existing systems, indicating substantial difficulties in incorporating automation into established workflows. Despite this, majority of respondents reported minimal compatibility issues, suggesting that while integration may initially pose challenges, the system ultimately aligns well with the operational requirements once implemented. These findings echo Gupta and Sharma (2021), who highlighted that the success of automation often depends on the adaptability of existing systems to new technologies, particularly in ensuring efficiency gains.

The study also assessed the ease of use of system automation in the enterprises. A majority of respondents found the system adaptable to increasing workloads and user demands. However, concerns about scaling up operations were evident, with majority reporting a significant drop in performance during large-scale expansions. This discrepancy highlights the need for further refinement of system scalability to sustain performance under growing demands. Consistent with findings from Bhat and Chauhan (2022), the ability to scale automated systems effectively is a crucial factor in maintaining productivity and meeting organizational goals.

User acceptance emerged as a crucial factor in the successful implementation of automation. While many of respondents reported a positive experience with the system's user interface, challenges such as a steep learning curve and the need for enhanced documentation were noted.

This aligns with Patel and Desai's (2020) assertion that user training and support systems are essential in reducing barriers to effective utilization of automation technologies.

The literature underscores the transformative potential of automation in enhancing employee productivity through improved efficiency, effectiveness, and quality of output (Gupta & Sharma, 2021; Jones & Brown, 2020). However, the findings from CBL and Unilever Uganda Limited indicate that while automation facilitates significant efficiency gains, issues such as integration challenges, scaling limitations, and usability concerns can hinder its full potential. Addressing these areas would not only improve system adoption but also enhance productivity outcomes by enabling employees to focus on strategic, value-adding tasks rather than operational bottlenecks.

5.2 Evaluating the level of employee productivity in Crown Beverages Limited and Unilever Uganda Limited operating in Northern Uganda.

The study found that majority of respondents agreed that system automation significantly improves efficiency, as seen in reduced task completion times and minimized wastage of effort and resources. This aligns with Gupta and Sharma's (2021) assertion that automation reduces manual labor and errors, thereby streamlining operations. For example, the significant majorty agreement on reduced wastage reflects the effectiveness of automation in resource utilization. These results demonstrate the role of system automation in enabling employees to focus on high-value tasks, consistent with evidence from other sectors such as healthcare, where automation minimizes paperwork and expedites processes (Bhat & Chauhan, 2022).

Nonetheless, the disagreement regarding task time reductions highlights potential disparities in how employees experience these benefits. Variations in tool usage and resource allocation suggest a need for targeted improvements in system design and training to ensure uniform benefits across departments. These results disagree with Deloitte (2019) who state that time reductions in customer service illustrate how it can enhance the effectiveness of employees by augmenting their capabilities.

Regarding effectiveness, respondents agreed that system automation supports achieving organizational goals, solving complex problems, and improving decision-making. Jones and Brown (2020) similarly emphasize the transformative role of automation in providing real-time data and predictive analytics that enhance decision-making capabilities. For example, of

participants reported improvements in critical thinking and problem-solving, which likely results from access to advanced analytics provided by the automated systems.

However, the 11.82% neutral responses suggest that not all employees perceive these tools as equally impactful, potentially due to role-specific requirements or system limitations. Addressing this variability could involve tailoring system functionalities to meet diverse employee needs.

High-quality output, another dimension of productivity, was also emphasized in the findings. This is in line with literature from Lee et al. (2019) which highlights system automation's role in maintaining consistency and reducing defects, evident in the food and beverage industry. Similarly, this study corroborates that automation enhances the standard and reliability of work outputs, with implications for customer satisfaction and organizational reputation. While the specific quality metrics were not detailed in this study, the strong support for automation in reducing errors aligns with broader industry practices.

The findings affirm that system automation significantly enhances employee productivity in Crown Beverages Limited and Unilever Uganda Limited. However, disparities in perceived benefits across different roles indicate the need for: Continuous refinement of systems to address specific inefficiencies in task management and tool integration. Moreover, broader inclusion of employee feedback to ensure system functionalities align with role-specific needs. This discussion underscores the importance of system automation as a strategic tool for improving efficiency, effectiveness, and quality of output, thereby driving overall organizational productivity. However, achieving maximum effect requires a deliberate focus on inclusivity and continuous improvement which aligns with McKinsey & Kompany (2021) who revealed that system automation as a strategic tool for improving efficiency, effectiveness, and quality of output.

5.3 Examining the relationship between of system automation and employee productivity in Crown Beverages Limited and Unilever Uganda Limited.

The findings clearly show that the various dimensions of system automation such as compatibility, ease of use and user acceptance have a strong relationship with the productivity of employees. For instance, compatibility has the highest correlation with the productivity of employees, highlighting the need to develop a compatible automation system to meet the demands of organizations and tasks performed by the employees. This result is consistent with

the results presented in the literature such as the study conducted by Gupta and Sharma (2021). Ease of use has the same correlation coefficient with productivity, suggesting that user friendly systems increase employee productivity through effective and efficient performance of their tasks. Similarly, user acceptance is the strongest correlated dimension with the productivity of employees. All these results clearly suggest the need to ensure the system's usability and the involvement of employees in their use. The study by Jones and Brown (2020) found out that tools that help in making better decisions improve productivity.

The model predicts the variance in employee productivity, meaning that the factors associated with system automation including user acceptance, compatibility, and ease of use are strong predictors of the productivity of employees. Specifically, the user acceptance dimension is a powerful predictor because of its high impact on the productivity of employees. This result is consistent with the study conducted by Deloitte (2019). In this study, it was discovered that employees' satisfaction with the automation tools improved the performance of their jobs. Compatibility and ease of use also have positive impacts on the productivity of employees. This result agrees with the results obtained from the study conducted by Patel and Desai (2020), which highlighted the usefulness of automation tools to decrease the complexity and errors. The ANOVA results showed the significance of the overall regression model.

5.4 The moderating role of electronic inventory management in the relationship between system automation and employee productivity in food and beverage enterprises.

From the results obtained, there is a strong positive association between system automation dimensions such as compatibility, ease of use and user acceptance and productivity of the employees. It is clear that compatibility is strongly associated with productivity. This shows the need to ensure that the systems of automation are compatible with the needs of the organizations and employees for productivity to be enhanced. This finding conforms to previous literature such as Gupta and Sharma (2021) who argued that system integration improves efficiency and output of the employees.

In addition, ease of use is another dimension which strongly correlates with productivity, hence reiterating the proposition that user friendly systems can help to improve engagement and efficiency of the employees. Furthermore, user acceptance has the highest correlation with productivity. All the above findings highlight the role played by system usability and user

acceptance in enhancing productivity, which conform to the assertion made by Jones and Brown (2020) that the tools which facilitate improved decision making can increase productivity.

In the regression model, the variance explained is high, showing that the factors which have been identified (user acceptance, compatibility and ease of use) can be good predictors of productivity. It is clear that user acceptance is the most significant predictor, since employee satisfaction with the automation systems greatly influences productivity. This finding confirms the assertion made by Deloitte (2019) that the satisfaction of employees with automation systems influences performance. Also, compatibility and ease of use of automation systems have a statistically significant impact on productivity. The above findings agree with the previous research such as that conducted by Patel and Desai (2020) which highlighted the ability of automation systems to reduce errors and manage complexities hence increase efficiency and effectiveness of the processes. Therefore, ANOVA test confirms the statistical significance of the overall regression model.

It is evident that the study shows that the electronic inventory management (EIM) plays a significant moderating role between system automation and employee productivity. It is clear that the interaction term confirms the statistical significance of the moderating role played by the EIM. Electronic inventory tracking and forecasting of the EIM offers real time accuracy and visibility, minimizes the errors and aligns the levels of inventory with demand. These factors ensure smooth workflow and allow the employees to focus on the activities that add value hence increasing efficiency and effectiveness.

These findings show that through the integration of EIM and system automation, the productivity can be enhanced through addressing the various inefficiencies. Automated inventory systems eliminate manual interference, optimize the allocation of resources and decision making. This is in agreement with previous literature such as that of Chopra and Meindl (2021)..

CHAPTER SIX

SUMMARY, CONCLUSION, RECOMMENDATIONS, AND AREAS FOR FURTHER RESEARCH

6.0 Introduction

The study focused on the role of system automation in enhancing employee productivity in food and beverage enterprises. As such, this section therefore presents the summary of key findings, conclusion in line with research objectives, recommendations in line with the study findings and the section ends with areas of future study.

6.1 Summary of Key findings

Qualitative findings revealed that System automation was found to have a notable impact on employee productivity by streamlining tasks, enhancing decision-making, and improving task management. While automation made work easier, respondents identified areas for improvement, particularly in system usability to ensure broader accessibility and effectiveness.

The study revealed a substantial implementation of system automation in Crown Beverages Limited and Unilever Uganda Limited. Automation systems were characterized by high levels of compatibility, ease of use, and user acceptance, contributing significantly to operational efficiency and productivity. Notable patterns included improved task efficiency, reduced resource wastage, and enhanced decision-making capabilities among employees. These findings demonstrate that system automation is well-integrated into operations and provides a strong foundation for improved performance in Northern Uganda's food and beverage sector.

Employee productivity in the two companies was found to be significant and positively influenced by system automation. High levels of productivity were linked to improved efficiency, effectiveness, and quality of output facilitated by automation tools. The findings showed strong correlations between ease of use, user acceptance, and productivity, underscoring the importance of accessible and user-friendly systems. These systems minimized manual errors, optimized workflows, and allowed employees to focus on higher-value tasks, aligning well with trends observed in other industries where automation has improved operational outcomes.

Further analysis on the relationship between system automation and employee productivity was carried out with the regression model explaining a moderate percentage of the variance in productivity. User acceptance emerged as the strongest predictor, followed by compatibility and ease of use. These findings highlight the critical role of employee satisfaction with automation tools in driving productivity. Moreover, the analysis revealed that automation tools supported employees in achieving organizational goals, solving complex problems, and improving collaboration, indicating that their effect is both direct and multifaceted.

Electronic inventory management (EIM) was confirmed as a significant moderator in the relationship between system automation and employee productivity, explaining high variation in the relationship. The interaction term highlights the critical role of EIM in amplifying the benefits of system automation. EIM tools, such as electronic tracking and digital forecasting systems, reduced errors, improved inventory accuracy, and enhanced decision-making. These tools facilitated better resource alignment with production needs, enabling employees to work more efficiently and effectively.

6.2 Conclusion

The study demonstrates that system automation significantly influences employee productivity in the food and beverage sector, with electronic inventory management playing a critical moderating role. Compatibility, ease of use, and user acceptance of automation systems drive productivity by improving task efficiency, resource utilization, and decision-making. EIM further amplifies these effects by providing real-time inventory tracking and accurate demand forecasting, aligning resources with operational needs. These findings highlight the transformative potential of automation and EIM integration in optimizing workflows and fostering employee performance. The study contributes valuable insights to the field by emphasizing the importance of aligning automation tools with employee capabilities and organizational objectives.

Qualitatively, the findings confirm that system automation plays a vital role in enhancing employee productivity and operational efficiency in the food and beverage sector. Automation has improved service quality, employee responsiveness, and task efficiency. Furthermore, EIM has strengthened the relationship between automation and productivity by providing accurate inventory tracking and reducing stock-related inefficiencies. However, areas such as system

usability and inventory forecasting require attention to fully realize the potential of automation. This study contributes to understanding how integrated automation and EIM systems can drive performance in industrial settings, offering actionable insights for operational improvement.

6.3 Recommendations

To enhance system automation's effect on employee productivity, Crown Beverages Limited and Unilever Uganda Limited should prioritize improving user acceptance and ease of use by engaging employees in the design and implementation of automation systems. Providing regular training to employees on how to maximize the use of these systems will ensure better integration into daily tasks and enhance productivity outcomes.

Based on the study findings on efficiency and quality output, organizations dealing in food and beverage should invest in advanced electronic inventory management tools, such as RFID for tracking and AI-driven forecasting systems, to enhance inventory visibility and demand alignment. These tools will reduce stock-related inefficiencies, improve overall operational efficiency, and allow employees to focus on value-adding activities.

Future research should explore the long-term impacts of system automation on employee satisfaction and retention, as well as other moderating factors such as organizational culture and technological adaptability. Policymakers and industry leaders should develop guidelines to standardize the adoption of automation and EIM tools across the sector to ensure equitable access and benefits for all enterprises. This holistic approach will support sustained growth and competitiveness in the food and beverage industry.

From the qualitative findings, it was recommended to enhance employee feedback mechanisms: Establish continuous feedback loops involving employees in system design, implementation, and refinement. This participatory approach will address usability challenges and improve overall system effectiveness.

6.4 Areas of further studies

Integration Challenges of System Automation: Investigate the specific factors contributing to integration challenges, particularly the barriers to seamless integration with existing systems.

Scalability and Performance Issues: Examine the technical and organizational constraints that lead to performance degradation during large-scale system expansions.

User Training and Acceptance: Explore the effectiveness of different training programs and support mechanisms in reducing the steep learning curve associated with automation.

Impact on Workforce Dynamics: Assess how system automation affects job roles, employee satisfaction, and engagement within automated environments.

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APPENDIX A: QUESTIONNAIRE

Dear valued respondents,

I am **ONYEKO GEOFFERY, (22/U/1509/MBA/PS)** a student of Gulu University pursuing a Master's degree in Business Administration. I am conducting a research study on **"**Role of System Automation in Enhancing Employee Productivity in F&B Enterprises; A Case of Unilever Northern Uganda" "I would like to kindly request for your participation in this study by providing your valuable insights and opinions. Your responses will be rendered with utmost confidentiality and will only be used for academic purposes. Thank you for your time and valuable support in advance.

Section A: Demographic characteristics of the Respondent

1. Gender: ☐ Male ☐ Female ☐ Prefer not to say
2. Age: ☐ 18-25 years old ☐ 26-35 years old ☐ 36-45 years old ☐ Above 46 years
3. Education Status: ☐ Diploma/Certificate ☐ Bachelor's Degree ☐ Above Master's Degree
4. Years of Experience in Business: ☐ Less than 1 year ☐ 1-5 years ☐ 6-10 years ☐ 11-15 years ☐ 16 years or more
5. Business Sector: ☐ wholesale ☐ sales agents ☐ Manufacturing ☐ Other (Please specify) _____

Section B: System Automation

You can fill out the corresponding cells with "Strongly Disagree =1", "Disagree = 2," "Neutral =3," "Agree= 4," and "Strongly Agree = 5,".

Statements on System Automation	**1**	**2**	**3**	**4**	**5**
System Compatibility					
There is seamless integration with existing systems.					
There is minimal disruption to current workflows and processes.					
There is support for a wide range of software and hardware configurations.					
There is a need for extensive customization to align with current infrastructure.					
There are minimal compatibility issues reported by users.					
Ease of Use					

There is smooth adaptation to increasing workloads and user demands.					
There is minimal performance degradation even with large-scale expansion.					
There is flexibility for future upgrades and enhancements with little disruption.					
There is a significant drop in performance when scaling up operations.					
There is comprehensive support for scaling both horizontally and vertically.					
User Acceptance					
There is an intuitive user interface that facilitates easy navigation.					
There is minimal training required for employees to effectively use the system.					
User-friendly documentation is available that aids in understanding the system.					
There is a steep learning curve for new users.					
There is consistent feedback from users about the system's ease of use.					

Section C: Employee Productivity

You can fill out the corresponding cells with "Strongly Disagree =1", "Disagree = 2," "Neutral =3," "Agree= 4," and "Strongly Agree = 5,".

Statements on Employee Productivity	**1**	**2**	**3**	**4**	**5**
Efficiency					
There is a significant reduction in time required to complete tasks.					
There is improved use of resources and tools to achieve better output.					
There is a decrease in the amount of wasted effort and resources.					
There is an enhanced ability to handle multiple tasks simultaneously.					
There is consistent feedback that productivity tools improve overall efficiency.					
Effectiveness					
There is a noticeable increase in achieving set goals and objectives.					
There is enhanced ability to solve complex problems and make better decisions.					
There is a clear improvement in performance metrics related to job roles.					
There is effective communication and collaboration among team members.					
There is a high alignment of work outcomes with organizational goals.					
Quality of Output					
There is an increase in the accuracy and precision of work produced.					

There is a reduction in errors and rework required.					
There is higher customer satisfaction with the quality of the final product.					
There is consistent adherence to quality standards and procedures.					
There is positive feedback on the overall quality and reliability of output.					

Section D: Inventory Management.

You can fill out the corresponding cells with "Strongly Disagree =1", "Disagree = 2," "Neutral =3," "Agree= 4," and "Strongly Agree = 5,".

Statements on Inventory Management	**1**	**2**	**3**	**4**	**5**
Electronic Inventory Tracking					
There is accurate real-time tracking of inventory levels.					
There is timely identification of inventory discrepancies and stockouts.					
There is efficient management of inventory movements and locations.					
There is improved visibility of inventory status across all locations.					
There is a reduction in the incidence of inventory loss and theft.					
Digital Inventory Forecast					
There is accurate forecasting of future inventory needs based on historical data.					
There is effective alignment of inventory levels with anticipated demand.					
There is timely adjustment of inventory orders based on forecasted data					
There is improved accuracy in predicting inventory requirements for peak periods.					
There is a reduction in instances of overstocking and stockouts due to accurate forecasting.					

APPENDIX B: INTERVIEW GUIDE FOR CUSTOMERS

"Thank you for agreeing to participate in this interview. My name is ONYEKO GEOFFERY, (22/U/1509/MBA/PS) a student of Gulu University pursuing a Master's degree in Business Administration, and I am conducting research to explore how system automation affects employee productivity and customer satisfaction in the food and beverage sector in Northern Uganda, specifically focusing on Crown Beverages Limited and Unilever Uganda Limited."

Consent:

"I want to assure you that your responses will be kept confidential and will only be used for research and academics purposes. Your participation is voluntary, and you can withdraw at any time. Do I have your consent to proceed with the interview?"

Section 1: System Automation Implementation

2. Are you aware of any system automation processes used by these companies? If so, how have you perceived their impact on service quality?

3. In your opinion, have you noticed any changes in the ordering or delivery process? Please share specific examples if applicable.

Section 2: Employee Productivity

4. How would you rate the efficiency and responsiveness of employees you've interacted with at these companies?

5. In your opinion, has there been a change in employee performance or productivity over time? If yes, can you describe that change?

Section 3: Impact of System Automation on Employee Productivity

6. How do you believe system automation has impacted employee productivity? Can you give specific examples where you noticed improvements or challenges?

7. Are there particular areas where you think system automation could be improved to further enhance employee performance?

Section 4: Electronic Inventory Management

8. How effective do you think the inventory management practices are at these companies? Have you experienced any stock-related issues, and what was your experience?

9. What improvements or changes would you recommend regarding system automation and employee productivity for Crown Beverages Limited and Unilever Uganda Limited?

APPENDIX C: THEMATIC ANALYSIS

Objective	Emerging Themes	Key Insights	Supporting Quotes
1. Assessing the extent of system automation implementation	- Awareness of automation tools - Perceived service quality improvements - Enhanced ordering and delivery processes	Automation reduces errors and enhances order accuracy.	"Yes, there are automated processes like inventory tracking and order systems." "Automation has reduced errors in orders."
2. Evaluating the level of employee productivity	- Improved efficiency - Enhanced responsiveness - Positive trends in employee performance over time	Technical challenges impact productivity.	"Employees are more responsive due to the automated processes." "The time taken to process tasks has reduced drastically."
3. Examining the relationship between system automation and employee productivity	- Positive impact on productivity - Areas for improvement in system usability	Automation improves accuracy and resource use.	"Automation has made employees' work easier, especially in processing orders." "The system could be more user-friendly."
4. Investigating the moderating role of electronic inventory management	- Effective inventory tracking - Stock-related challenges and resolution - Recommendations for improvement	EIM minimizes stock-related inefficiencies and improves resource alignment.	"Inventory tracking is much faster and more accurate." "There are still occasional stockouts, but they are resolved faster now."

APPENDIX D: WORK PLAN

S/N	Activity	Time Frame						
		Feb 2024	March 2024	April 2024	May 2024	June 2024	July 2024	Augst 2024
1	Develop research synopsis							
2	Conduct literature review							
3	Develop research proposal							
4	Defend research proposal							
5	Collect data							
6	Analyze data and final report							

APPENDIX E: KRECJIE AND MORGAN TABLE (1970)

Table for Determining Sample Size from a Given Population

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368

N=Sample Size

S=Population

APPENDIX F: ONLINE QUESTIONNAIRE