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Effect of Automated Identification Barcode on Procurement performance in service sector: A case of Kenya Airways

Effect of Automated Identification Barcode on Procurement performance in the service sector: A case of Kenya Airways

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Abstract

The paper presents the effects of automated identification barcode on procurement performance in the service sector with Kenya Airways as the case study. It also acknowledges the role played by procurement performance to improve efficiency and services in organizations. Particularly, the research aims at assessing the extent to which the adoption of automated identification barcode impacts overall procurement performance at Kenya Airways. The study adopted a descriptive research design. The target population comprised 80 staff working in the Supply Chain department at Kenya Airways. The business research employed survey data collected from questionnaires filled out by the respondents themselves. The researcher utilized descriptive statistics using SPSS version 28.0 to analyze the data. The results were presented through the use of standard deviation, mean frequencies and percentages. Based on the findings of this study, linear regression assessment was used in evaluating the level of research relation variables. The regression analysis deduced that automated identification barcode has a considerable effect on procurement performance with (β_1=0.971, p=0.000). Further, the R Square value of 0.714 indicated that 71.4% of the variation in procurement performance at Kenya Airways can be explained by variations in automated identification barcode. This implies that a change of one standard deviation in the use of automated identification barcodes results in a (0.971) standard deviation increase in the procurement performance of Kenya Airways. The study illustrated a supportive opinion from the respondents that the use of automated identification barcoding makes the task of inventory retrieval easier and simplifies sourcing. It also underscores that the company needs to engage in automated identification barcode activities to address and enhance its supply chain and procurement outcomes. In conclusion, the study has offered a valuable contribution in the direction of enhancing the procurement performance of Kenya's service sector. The study recommended a systematic approach in the reform of pursuit of procurement

processes which is not only restricted to the automation of several procurement facets but also the capacity building of Kenya Airways' staff and their suppliers when they deal with e-procurement tools.

Introduction

The competitive advantage and viability of enterprises in the service industry greatly depend on the effectiveness of procurement processes in the modern, worldwide economy. Traditional procurement techniques have been completely transformed by introducing electronic procurement procedures, which provide several advantages, such as lower costs, higher accuracy, improved supplier relationships, and increased transparency. Electronic data interchange (EDI), barcode systems, desktop purchasing, online bidding and reverse auctions, electronic invoicing, and online bidding are just a few of the technologies that make up e-procurement, which helps to expedite procurement processes and improve decision-making (Simco, 2020). The adoption of e-procurement platforms has changed the game significantly for major enterprises. By automating and managing various procurement tasks, these systems lessen administrative hassles and enhance the effectiveness of procurement. For instance, Smith (2023) points out that Qatar Airways successfully used an automated procurement system, greatly enhancing departmental communication and operational efficiency.

According to Joshi (2022), Air Rwanda experienced lower expenses and faster procurement execution times after implementing automated procurement techniques. To improve operational efficiency and transparency, Kenya's service sector, especially the aviation sector, represented by Kenya Airways, has started implementing e-procurement techniques. Kenya Airways and other public entities can conduct procurement activities with a strong framework thanks to the Public Procurement and Assets Disposal Act of 2015 and the Public Procurement Regulations on Disposal of Assets 2020. Integrity in procurement procedures is encouraged, and unethical acts are discouraged by these standards. Studies demonstrating how automated procurement systems assist businesses in achieving their goals by locating goods and services at the proper price and quality further highlight e-procurement's importance in enhancing procurement performance. Omak (2021) asserts that automation, which lowers processing times and operating expenses, makes efficient procurement crucial for boosting a company's profit margin. Despite the clear advantages, the Kenyan service industry still faces obstacles in implementing e-procurement procedures. Widespread adoption of these systems may be hampered by problems such as early implementation costs, lack of technical skills, and opposition to change. With an emphasis on Kenya Airways, this study seeks to ascertain how automated identification barcodes affect the service industry's procurement performance.

E-procurement practices such as automated identification barcodes are widely used in big companies, where contracts have already been set to regulate the processes of procurement spending. The procurement activities that have been employed have saved much time for the employees, which forms an excellent slot for socialising the returns on investments. On the other hand, automation of purchases is one of the simplest methods of improving operational performance, as pointed out by Lyson and Farrington in their 2023 review. By using automated identification barcodes, an organisation can begin processing the purchasing and buying processes more quickly. As a result of the COVID-19 impact in the country and worldwide, the national carrier has been on rescue, requiring taxpayers' funds as a bailout from its sunk finances. Kenya's National Treasury has published KES 20 billion loss in the financial year 2021/2022 and KES 30 billion in the financial year 2022/2023 for the running of this institution. The negotiation to resuscitate the struggling airline began in December 2022 when President William Ruto led a delegation to Washington DC to sell a vast/entire

Government controlling stake at Kenya Airways, which currently stands at 48 %, to the arms of the American investors which are ready to support Kenya Airways with funds to make it first class airline company. Kenya Airways involves purchasing from overseas suppliers and importing goods from local suppliers. An efficient and effective supply chain management is essential to the company, and therefore, regular supply chain performance assessment and performance checks or performance analysis will also be crucial in identifying any emerging challenges to improve performance. Despite realising that there is more enlightenment on how these systems work in service companies such as Kenya Airways, more research needs to be done on automated procurement systems and their impacts. This study, therefore, addresses this gap by examining the effects of automated identification barcodes on the performance of the service industry.

The research study is enshrined with strategic and purchasing management theory. The theory stipulates that purchasing actions to reinforce the firm's competitive priorities can give it advantages. Firms must design their purchasing actions to emphasise the competitive strategy. Nonetheless, such purchasing actions will depend on consumer behaviour. It helps to identify what influences these decisions and highlights strategies to manipulate behaviour proactively. In other words, it streamlines procurement operations, controls costs, and maximises every dollar you spend.

Chen et al. (2023) posit that while engaging in strategic procurement, there is proper inventory control communication between warehouse workers and the security department. Rahman (2022) undertook an empirical study on the effect of barcoding procurement systems on a firm's procurement performance. The study concluded a positive correlation between implementing barcoding systems and the efficiency of institutions' supply chains.

The specified user department keeps effective communication in an automated system and shares technology with the procurement department. This analysis shows that departmental interdependence impacts procurement and financial performance. This shows just how well-grounded solid partnerships are as a base for building excellent and very sound foundations for a firm's SCM environment. Kamara (2023) analysed the performance of organisations in Kenya's Private Sector through e-procurement practices using Guaranty Trust Bank Kenya as a case study. The study found that e-procurement practices like barcoding systems had an organisational benefit for the Private Sector. Rahman (2022) aimed to enhance the relationship between e-procurement and service organisations in Uganda. According to the study, e-procurement has reduced some Service Organizations' performance in Uganda. Obiero (2023) researched the obstacles faced by County Government in Kenya with Kiambu County as a case study in implementing e-procurement systems, emphasising how a system of 'explicit and transparent' procurement methods enabled fraud detection. The study indicated that lack of monitoring of inventories and ease of retrieval led to the wastage of government assets such as vehicles allocated to staff. There has been a lot of research and study on e-procurement practices. However, this research has been limited to specific areas such as non-governmental organisations and supermarkets. Hence, the data collected cannot be deemed general. Additionally, some elements of e-procurement practices, such as automated barcode systems in the service business, must be featured. These restrictions have largely been observed in the service sector. Future studies on the impact of automated identification barcode systems on procurement department performance have to make significant improvements. This is why this study is essential.

Methods

In any given setting, it is best to outline all the events, processes and perspectives that come into play so that proper positioning can be made to address given situations. This study used surveys and individually administered questionnaires. This approach was applied to address automated

identification barcodes and procurement performance, where the research sought to moderate the procurement performance of automated identification barcodes. Further, a descriptive research design was used to assess the impact of automated identification barcodes on Kenya Airways' purchasing process in Nairobi. The sample population selected purposively consisted of Kenyan Airways staff, who varied in age, education level, and gender.

Table 1: Sample population

Category	Number of workers (f)	Percentage
Heads of Departments	1	1.25
Purchasing and Supplies managers	2	2.5
Inventory managers	2	2.5
Store workers	50	62.5
IT Clerk	25	31.25
Total	80	100

Source: Kenya Airways, (2024)

The researcher utilised questionnaires as a form of primary data collection, consistent with Mugenda Mugenda's (2019) assertion that questionnaires are widely employed to collect population data. Furthermore, the questionnaire featured a uniform set of questions, which improved dependability and reduced bias. The questionnaire was divided into five sections: part one dealt with respondents' general information, while part two dealt with automated identification barcodes. The questionnaires were pre-checked for consistency before being issued to the participants.

Data Analysis Techniques and Presentation

The study's quantitative data was processed using descriptive statistical analysis. Tables of frequency distributions, mean, and standard deviations were used as a reference to carry out this process. Further, the researcher utilised regression analysis to ascertain the correlation between adopting automated identification barcodes and Kenya Airways' procurement performance. Its performance was affected when it started implementing automated identification barcodes. E-procurement practices such as automated identification barcodes affected companies within service sectors in Kenya in terms of their performance, hence the evolution of an 'econometric' regression equation. The regression equation that was utilised is the following one:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Whereby:

- Y: Performances of the KQ
- β_0 is the interpretation of Y
- X_1: represents the Automated Identification barcode
- ε: Error term

The table offers the analysis methodology from this study's variables.

Table 2: Data analysis matrix

The Objective of the study	The Study Questions	Methodology of analyzing
Background information	Part A	Descriptive
Automated Identification barcode by the KQ.	Part B	Descriptive
Impacts of automated identification barcode on procurement Performances	Part C	Regression and correlation

Results

The research survey targeted the supply chain department of Kenya Airways, distributing 80 questionnaires to the staff. The response rate is summarised in Table 3 below:

Table 3: Response Rate

Frequency	Percent
Responses received	72
No response	8
Total	80

Table 4: Correspondent of agreement with statements on automated identification barcode

Statements	Mean	Std.Dev
Use of automated identification barcode ease in inventory retrieval	4.259	0.5153
Use of automated identification barcode enables ease in inventory tracking	3.941	0.6788
Use of automated identification barcode reduced procurement cycle	4.271	0.6434
Use of automated identification simplifies sourcing of inventories	4.388	0.5995
The use of automated identification barcode provides an effective audit trail of inventories	4.329	0.6247

The staff of Kenya Airways agreed that automated identification barcodes ease inventory retrieval (mean = 4.388) and enable ease in inventory tracking (mean = 4.329). The system reduced the procurement cycle (mean = 4.271). The automated identification barcode simplifies the sourcing of inventories (mean = 4.259), and bar-coding systems provide an effective audit trail of inventories (mean= 3.941). This implied that automated identification barcodes played a significant role in enhancing Kenya Airways' performance.

A regression analysis evaluated the relationship between the independent variable (automated identification barcode) and the dependent variable (procurement performance). The results are summarised in the tables below.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.845	0.714	0.700	.7378

Predictor: (Constant), bar code systems
The R Square value of 0.714 indicates that variations in automated identification barcodes can explain 71.4% of the variation in procurement performance at Kenya Airways. Other factors not included in this model can explain 28.6% of the variation.

Table 6: ANOVA (Analysis of Variance)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	114.088	1	114.088	50.528	.0000

Source: Researcher (2024)

Predictor: (Constant), automated identification barcode
Dependent Variable: Procurement performance
The ANOVA table provides information on the levels of variability in the regression model and serves as a basis for testing the significance of the model. The F statistic (50.528) with a significance level of 0.0000 ($p < 0.05$) indicates that the model is statistically significant in predicting the impact of automated identification barcodes on procurement performance.

Table 7: Regression Analysis Results

Independent Variable	Un-standardized Coefficient B	Std. Error	Standardized Coefficient Beta	t	Sig.
(Constant)	4.793	.612		7.832	.0000
Automated Identification barcode (X1)	0.742	.161	.577	4.609	.0000

Source: Researcher (2024)

The regression equation derived from the analysis is:
Y=4.793+0.742X1+ϵ
Y is the procurement performance, and X1 is the automated identification barcode.

The results show that the independent variable, bar code systems, significantly contribute to the procurement performance at Kenya Airways. A one-unit increase in the use of automated identification barcodes leads to increased procurement performance, with a standardised coefficient (Beta) of .577, indicating a strong positive relationship. Constant at zero, Procurement performance will be positively influenced as evidenced by a coefficient of (β0= 1.521), this being significant at (p=0.000). From the analysis, we can deduce that automated identification has a considerable effect on procurement performance (β1=0.971, p=0.000The findings indicate that adopting automated identification barcodes significantly enhances the efficiency and performance of procurement processes at Kenya Airways. This is reflected in improved procurement performance metrics, including cost reductions, enhanced accuracy, and increased operational efficiency.

Conclusions

Adopting automated identification barcodes was established as a critical organisational resource that improved Kenya Airways' procurement performance. Moreover, barcoding systems improved Kenya Airways' procurement effectiveness and positively affected Kenyan Airways procurement performance since the two variables had a positive correlation. This study recommended that Kenya Airways adopt and implement a systematic approach in the pursuit of procurement processes, which is not restricted to the automation of several procurement facets but also the capacity building of their staff and suppliers when they deal with e-procurement tools.

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