



# Efficacy, Reliability, and Accuracy of Inventory System and Point-of-Sale Service for Small-Medium Enterprises in Tabuk City

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**Abstract**— *Objectives: The purpose of this study was to determine the level of satisfaction among small and medium-sized enterprises (SMEs) in Tabuk City regarding the efficacy, reliability, and accuracy of the use of an inventory system and a point of sale (POS) in order to develop standardized and high-quality software. Methods/Statistical analysis: Weighted Mean, T-Test, and F-test Statistical analysis tools were utilized to assess the efficacy, reliability, and accuracy of the Inventory System and Point of Sale Service for SMEs in Tabuk City. Furthermore, the researchers used a questionnaire to gather data. Findings: Respondents in this survey were satisfied, as evidenced by the system's efficacy having a general weighted mean of 3.0 reliability weighted mean of 3.05 and accuracy at 3.21 points out by this study's findings. Furthermore, a significant difference in the Efficacy, Reliability, and Accuracy of Inventory System and POS revealed that when grouped according to position, enterprise classification, and years in business. While on the contrary, there is no significant difference in the efficacy, reliability, and accuracy of inventory system and POS when grouped according to position, enterprise classification, and years in business. Novelty: It will assist small and medium-sized enterprises (SMEs) improve business process procedures without incurring significant capital expenditures to purchase such a system. The evaluation of the system will help the researchers determined how to improve the system and address future needs.*

**Keywords**— *Point of Sale, Inventory, Reliability, Efficacy, Accuracy, Small-Medium Enterprise.*

## I. INTRODUCTION

Inventory management is critical in today's industrial environment since it helps manufacturing companies improve their efficiency and competitiveness. The primary objective of this study is to establish the impact of inventory management strategies on industry performance. A suitable inventory model is anticipated to reduce costs significantly, thus boosting the supply chain surplus and making it more efficient. Inventory management is critical in industries because it has a more significant impact on the surplus-value of the supply chain. To keep up with fast-evolving technologies in the world's many sectors, the industry needs to stay current with contemporary technology in addition to its technical skills<sup>[1]</sup>. In the context of product homogeneity, businesses and consumers

have placed a premium on services, particularly after-sale and inventory support. In reality, manufacturers or retailers may provide after-sale service, and manufacturers should develop an after-sale service deployment plan that specifies who will provide after-sale support. Manufacturers' decisions about their after-sale service and inventory management system deployment plan may be influenced by several variables, the most significant of which is market demand unpredictability. Retailers often have access to more market demand data than manufacturers, and they have the option of sharing their private information with manufacturers. Due to the complexity of the market and the limitations of information technology, it is difficult for retailers to acquire flawless information, and the quality of

the information may have a significant impact on the manufacturers' and retailers' choices<sup>[2]</sup>.

Point of sale service and inventory management in small and medium-sized companies may benefit from information technology. The use of this technology must take into consideration the employee's cost and skill level. Thus, selecting the appropriate information technology to manage inventory is critical for any business to maximize its productivity. Three categories of information technology variables were identified in this study: 1. Inventory management software and hardware such as electronic point of sale (EPOS), electronic data interchange (EDI), radio frequency identification (RFID), and BARCODE are used; connecting exchange of data with suppliers and consumers; lastly using computers to assist with inventory management<sup>[3]</sup>.

Inventory management failures in any business may result in a rise in the number of losses, which can have a negative impact on the financial performance of the business. It is shown by the growing amount of stock losses throughout the year-end financial cycle count activities. As a result, further research is required to ascertain the underlying cause of the issue. If no action is taken to improve, many gaps in internal control will be created, increasing the danger of theft and fraud schemes. Fewer studies have been conducted to investigate the connection between inventory performance and financial performance for discrete inventory components such as completed products, raw materials, packaging materials, and work in progress. Typically, stakeholders use a financial statement to evaluate a business's performance. Thus, they are interested in learning about the variables that may affect the financial statement's numbers, including inventories<sup>[4]</sup>. Furthermore, the devastating consequences of inefficient, chaotic, and manual inventory management were emphasized. For example, when sales forecasts did not match actual transactions, there was no periodic review of inventory and distribution processes, safety stocks were maintained in excess of what was necessary, and manual checking rather than automated checking resulted in human errors, all of which contributed to the inaccuracy of inventory reports. According to statistics from ten (10) pharmaceutical firms, five (5) of the companies' inventory control systems are manual, while the remaining five are automated, manual system loss in inventory management has increased to 8.9 percent above computerized inventory management. The primary reasons of this manual inventory management loss include incorrect order taking, product theft, incorrect inventory information, erroneous money collection from consumers, and under-billing, all of which are caused by paper-based operations<sup>[5]</sup>.

The inventory & point of sale system was deployed to the different businesses around Tabuk City for at least one (1) month duration. Observation on the over-all functionality of the system by different users were used to determine if the system met the minimum requirement and demands that a certain business establishment requires in an inventory & point of sale system. After a month of deployment, evaluation forms were floated.

Since Inventory and POS plays vital role in most business's operation, it is important to adapt or implement the system based on user's needs. This study aimed to determine the satisfactory level of SME's on the use of Inventory and point of sale service in Tabuk City. Specifically, it (1) determined the level of Satisfaction of Inventory System and Point of Sale Service for SMEs in Tabuk City in terms of efficacy, reliability and accuracy; and (2) determined the significant difference in the Efficacy, Reliability and Accuracy of Inventory System and Point of Sale Service for SMEs in Tabuk City when grouped as to position, enterprise classification and years in the business.

## II. MATERIALS AND METHODS

The descriptive method of research had been used to accomplish the study's aims. Descriptive research entails the collection of data that characterizes occurrences and then organizing, tabulating, visualizing, and describing the data collected. The major data sources were a survey questionnaire and interviews with managers, owners, and employees of various SMEs. The interview elicits information on the existing business process and the experiences of managers, owners, and employees, while the survey questionnaire examines the efficacy, reliability, and accuracy of the Inventory System and Point of Sale Service used by SMEs in Tabuk City. Along with the interview, observation was done to verify or identify any facts that may have been forgotten during the interview.

### 2.1. Statistical analysis

Weighted Mean was used to interpret the total responses of all the respondents for every survey question by computing the average weighted mean. The formula is:  $WM = \frac{\sum fx}{n}$ , where: WM= weighted mean, f= frequency of score, and N= no. of respondents. T-Test was used to determine the significant difference in terms of enterprise classification. And F-Test was used to determine the significant difference in terms of position and years in the business.

2.1. Instrumentation

Table 1. Descriptive results, scales and arbitrary values used in the computation using SPSS.

Scale	Arbitrary Value	Description
1	1.0 – 2.33	Needs Improvement
3	2.34 – 3.66	Satisfactory
5	3.67 – 5.00	Excellent

III. RESULTS AND DISCUSSION

Level of Satisfaction of Inventory System and Point of Sale Services for SMEs in Tabuk City in terms of Efficacy, Reliability and Accuracy.

The level of Efficacy on the satisfaction of respondents on the Inventory System and Point of Sale Services. Based on the table, the general weighted mean is 3 which means that the respondents were satisfied with the efficacy of the system. The level of reliability on the satisfaction of respondents on the Inventory System and Point of Sale Service. Based on the table, the general weighted mean is 3.05 which means that the system's reliability is satisfactory—the level of accuracy on the satisfaction of respondents on the Inventory System and Point of Sale Services. Based on the table, the general weighted mean is 3.21 which means that the respondents were satisfied with the accuracy of the system. According to Khan & Siddiqui (2019), inventory accuracy is the most important indication of inventory control since it efficiently controls the outputs of various commodities. The accuracy indicator is used to determine how dependable the inventory is, and the duration indicator is used to determine how long a certain commodity remains in the organization. According to the findings of their study, inventory control indicators enable the company to plan, manage, and use the optimum inventory management model to enhance inventory flow<sup>[6]</sup>. Fang & Chen's study (2021) found that inaccuracies were decreased as a result of system automation and integrated information. Reports were made accessible to assist users functioning at various 'layers' with decision-making. Prior to the system's installation, the error rate associated with transactions was rising. Following deployment of the system, the error rate dropped to nearly nonexistent. As a result, nearly all transactions were accurate and reliable<sup>[7]</sup>. The results indicate that the more accurate and relevant the information generated by the POS and inventory information system, the more likely it will be felt that POS and inventory usage can improve performance. Additionally, the POS and inventory management system must be simple to use and include functions that can improve performance, productivity,

facilitate work, and make work more compelling<sup>[8]</sup>. The use of POS data also contributes to the current body of knowledge by enhancing the precision and veracity of the empirical results<sup>[9]</sup>. Wanjohi et al. (2013) concurred that the use of electronic inventory systems in supermarkets resulted in faster processing of customer orders, more accurate record keeping, improved stock management, decreased customer queuing time, faster introduction of new products, increased product availability, product variety maintenance, decreased stock out costs, decreased demand uncertainty, and automatic and accurate ordering. All of these factors aided in the improvement of customer service delivery<sup>[10]</sup>.

Significant difference in the Efficacy, Reliability and Accuracy of Inventory System and Point of Sale Service for SMEs in Tabuk City when grouped as to position, enterprise classification and years in business.

The efficacy, reliability, and accuracy of the inventory systems and point-of-sale services utilized by SMEs are compared in Table 5. According to the table, the F-value is 0.683 and the probability value is 0.519; the null hypothesis is accepted because the probability value is greater than the level of significance at the 5% level. This means that when SMEs are grouped by position, there is no discernible change in the Efficacy, Reliability, and Accuracy of Inventory and Point of Sale Systems. Table 6 shows how SMEs' inventory systems and point-of-sale services vary widely in terms of their efficacy, reliability, and correctness. The table shows that the t-value is 1.041, the probability value is 0.312, and the null hypothesis is accepted since the probability value is above the 5% level of significance. As a result, when The size of their organization breaks down SMEs, the effectiveness, reliability, and correctness of their inventory system and point of sale service are not significantly different from one another. For SMEs' inventory systems and their point-of-sale services, there is wide variance in efficacy, reliability, and accuracy, as indicated by Table 7. The table shows that the f-value is 1.685, with a probability of 0.217, and the null hypothesis is accepted because the probability value above the level of significance at the 5% level. Inventory systems and point-of-sale services for SMEs are equally effective, reliable, and accurate, regardless of how long the firm has been in business.

The findings of Y et al. (2019) reveal that the higher the quality of information generated by POS in support of employees' jobs, the greater the effect of colleagues, managers, and organizations on their use of POS and inventory management. The findings indicate that the primary element boosting the influence of peer opinion on attitude and actual use is the quality of the information. This conclusion is reinforced by prior research findings that

quality information has an effect on how information systems are used in order to maximize their utility. If the POS information system can provide more accurate and relevant information about the work performed, it will increase colleagues' and employers' motivation to use the POS and inventory system, as it will be perceived as beneficial in improving their performance, which will eventually affect their attitude and use of the POS and inventory system<sup>[9]</sup>.

#### IV. CONCLUSION

The study revealed that respondents were satisfied with the System's Efficacy, Reliability and Accuracy general weighted mean of 3.0, 3.05 and 3.21 respectively. Furthermore, there was no significant difference on the Efficacy, Reliability and Accuracy of Inventory System and Point of Sale Service for SMEs when grouped according to Position, Enterprise Classification and Years in the Business. The system should be modified according to the end-user's suggestions. These include improvement of the user interface, integration of a decision support system, reduce of latency rate or response time and the likes. Continuous development and consultation to business industry in order to cope up with the new trends and business processes that might be included in the inventory system and point of sale service is also encourage.

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Table 2 level of Efficacy on the satisfaction of respondents on the Inventory System and Point of Sale Services.

Indicators	Needs Improvements	Satisfactory	Excellent	Mean
1. Use of terms throughout system: The terms used are consistently related to POS?	0	18	1	3.11
2. Terminology related to task: The terms used are related to certain business activities.	0	18	1	3.11
3. Position of messages on screen: I can see warning messages easily/clearly.	2	16	1	2.89
4. Prompts for input: I can clearly use the	2	16	1	2.89

system without the need for assistance.				
5. Computer informs about its progress: The system guides me step by step.	1	17	1	3
6. Error messages prompt by the system are helpful	2	15	2	3
<b>General Weighted Mean</b>				<b>3</b>

Table 3 level of Reliability on the Satisfaction of respondent on the Inventory System and Point of Sale Services.

Indicators	Needs improvement	Satisfactory	Excellent	Mean
1. Organization of information: Information in POS are well organized.	0	19	0	3
2. Sequence of screens: Screens are clearly arranged according to step.	1	16	2	3.11
3. Learning to operate the system: I am a novice user but I can easily use the system.	2	16	1	2.89
4. Exploring new features by trial and error: I am a novice at the cashier services but I can learn the system on my own.	3	14	2	2.89
5. Remembering names and use of commands: I can clearly understand buttons or commands.	1	14	4	3.32
6. Performing tasks is straightforward: I need assistance while using the system.	3	15	1	2.79
7. Help messages on the screen: The messages are helpful for me as a merchant.	1	15	3	3.21
8. Supplemental reference materials: The system has help function.	1	15	3	3.21
<b>General Weighted Mean</b>				<b>3.05</b>

Table 4 level of Accuracy on the Satisfaction of respondent on the Inventory System and Point of Sale Services.

Indicators	Needs improvement	Satisfactory	Excellent	Mean
1. System speed: The new system is faster than the traditional system.	1	13	5	3.42
2. System accuracy: I have tested and have trust that reports generated by the Inventory and POS are accurate.	0	18	1	3.11
3. Correcting your mistakes: The system suggests whenever I commit mistake	2	16	1	2.89
4. Designed for all levels of users: Users whether novice or expert can use the system.	1	13	5	3.42
<b>General Weighted Mean</b>				<b>3.21</b>

Table 5 ANOVA table on the significant difference in the Efficacy, Reliability and Accuracy of Inventory System and Point of Sale Service for SMEs when grouped according to position.

Mean	Sum of Squares	df	Mean Square	F-value	p-value
Between Groups	.267	2	.134	.683	.519
Within Groups	3.132	16	.196		
Total	3.399	18			

Table 6 ANOVA table on the significant difference in the Efficacy, Reliability and Accuracy of Inventory System and Point of Sale Service for SMEs when grouped according to enterprise classification.

Independent t-test	t-value	df	p-value	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Equal variances assumed	1.041	17	.312	.2074	.19920	-.21282	.62771
Equal variances not assumed	1.089	11.198	.299	.2074	.19055	-.21106	.62595

Table 7 ANOVA table on the significant difference in the Efficacy, Reliability and Accuracy of Inventory System and Point of Sale Service for SMEs when grouped according to years in business.

ANOVA	Sum of Squares	df	Mean Square	F	p-value.
Between Groups	.591	2	.296	1.685	.217
Within Groups	2.808	16	.175		
<b>Total</b>	<b>3.399</b>	<b>18</b>			