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Installing an Automated System will improve Customer Service, and Control Inventory

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Abstract

The purposes of this study can be summarized in defining the improvement of customer service, and inventory control as a result of installing an automated system in Kastero market in terms of efficiency, effectiveness, benefits, and usefulness of services provided by this system.

The key findings of the study is that the service provided to the customers of Kastero market, and the inventory control process at Kastero market as a result of installing the automated system is improved to a medium degree, and it is also preferable to the customers to a medium degree. Most recommended to Kastero market to install the automated system, and continuously update, and improve the efficiency, and effectiveness of this automated system which will help to improve customer service, and inventory control as proposed.

Keywords: Automated system, Customer Service, Inventory Control, Installment, Improvement

1. Introduction

Kastero market is a minimart that owned, and operated by Emad Kastero. It is located in a small strip mall next to a bus station, and behind a police station in down town Aqaba city. As a small business; Kastero market has manage to compete with other businesses by improving its products and services to meet individual customer needs; such as; speed, quality, availability, and usefulness.

Technologically speaking; Kastero market is locking in all parts. In order to fully determine the need to install, and use a new automated system; it is vital to study and examine the present system that exist in Kastero market. "The responsibility of the system analyst is to divide the current system to the small part it contains, and thoroughly analyze, and study those parts to find out the problem, and any improvement may needed." (Dr. Sàad Yasin, 2000)

The current system only allows items purchased, and it is prices to be keyed in manually which is time-consuming. This system does not have the ability to generate a shift report, and does not calculate an end of the day report. This system create inevitable problem in inventory control as well as causes unnecessary delays in ordering items needed by customers in no time. "Efficient and effective inventory management and control systems are critical to the successful management of a retail establishment. Proper systems allow for the efficient use of available space and working capital. The system can identify which product has a higher inventory turnover, which product should be stocked in large quantities, when to reorder and the level of stock-outs to expect. It can provide useful information for volume of sales and profit analysis."(Ghani, J, 1996). Not only does the system in use lack the necessary hardware; such as; scanner, credit card reader, and point-of-sale device, but it is also does not have the supporting software, and application needed to have an automated system. This could have to do with the differing of physical, technological, human, and organizational abilities. (Walter, a, 2003).

By implementing a new automated system, Kastero market hopes for the following benefits: the ability to serve customers faster by keying in items, and prices automatically, the ease in inventory control, and the accuracy of ordering items by itemizing products purchased and ordered. “Customer service is a series of activities designed to enhance the level of customer satisfaction – that is, the feeling that a product or service has met the customer expectation." Turban et al. (2002).

2. Previous Studies

2.1 Walter study (2003)

The study aimed to identify the effect of strategic information in automated decision-making processes in small businesses in America. The study found that managers at senior management levels interested in internal and external information at the same degree when making non routine decisions. They don't prefer a special method to access information for specific problem. It was shown that flexibility and easiness access to internal information are the most important reasons for the success of automated decisions-making especially strategic ones**.**

2.2 Peter Baloh Study (2002)

The study aimed to identify the effects of information technology in our life, and how we do business. It found that there is a relationship between information technology and the actual

value of automated systems. Also it was clearly pointed out that there is a great influence of automated systems on different parts of the business**.**

2.3 Study of Dr. Jawaid Ghani (October 1996)

The main objectives of the study were to understand the nature of inventory management and control systems used by selected retail organizations, and the obstacles they face in utilizing modern technologies to improve upon these systems. Given these objectives it was decided that the best way to proceed with it would be to study establishments which might have relatively developed inventory management and control systems**.**

2.4 Al-Sarhan study (1995)

The study aimed to determine the effectiveness of technology on the degree of centralization, formality and complexity, as well as to find out how much are Jordanian businesses interested in the impact of technology on various organizational elements, particularly the human element. Study found that there is a relationship between technology and the degree of centralization. And there is a relationship between technology and formality degree, between technology and complexity as a whole, and between technology and geographical variation**.**

3. The Problem of the Study

The problem of the study is represented in the unclearness of the extent of the installment of automated systems in Kastero market on the quality of services provided by these systems for customers and the role of these systems in improving customer service, and inventory control in terms of effectiveness, usefulness. Therefore, the study will be representing the following questions:

1. What is the extent of the improvement of the service provided by the automated system to the customers of Kastero market?

2. What is the extent of the improvement of the inventory control provided by the automated system to customers, employees, and manager of kastero market?

3. What is the extent of the contribution of automated system to improve the values which will be more preferable to the customers of Kastero market?

4. The Importance of the Study

The importance of this case study can be summarized in showing the unfolding benefits of the automated system used in small business which provides an added value to the customers, employees, and manager of these businesses. As the automated system has a main roles in different parts, it will be necessary to show it is situation in these businesses in terms of positivity to promote it and negativity to eliminate or reduce it, especially with the limitations of the study to the issues of customer service, and inventory control in Kastero market.

5. Study Objectives

The study aims to identify the extent of the improvement provided by the automated system in Kastero market. It will Identify the effectiveness, usefulness, quickness, and efficiency of

customer services provided by these systems. As well as, to identify the role of these systems in improving inventory control.

6. Methodology

The study adopted the analytical and descriptive approach, where preliminary data were collected from the study society and statistically analyzed to access the results of the study areas.

7. The Population and the Sample of the Study

The population of the study consists of the customers, managers, and employers of Kastero market.

8. The Study Hypotheses

Based on the questions raised, the study tests the following hypotheses:

The first hypothesis states that "The service provided by the automated ystem for customers of Kastero market had been improved".

The second hypothesis states that "The control provided by the automated system to the inventory in Kastero market had been improved"

The third hypothesis states that " The installment of the automated system at Kastero Market will provide customers with added value preferable to them".

9. Study Tool

The questionnaire is the initial data collecting tool that is designed to measure the situation existed in the study population. 100 copies have been distributed to customers, employees, and manager of Kastero market as the population of the study which will be effected by the installment of the automated systems. 84 copies have been restored, and approved for analysis. The method of the questionnaire is based on closed questions, with answers ranging from (strongly agree) to (strongly disagree), and the previous answers have been weighting by degrees (5, 4, 3, 2, 1) respectively.

10. Statistical Methods and Measure

Several statistical measures were calculated:- arithmetic, t test, and test Cronbach's alpha, and standard deviation. For answers of the questions, the criteria to accept question (item) is that the arithmetic mean is greater than 2.50 and that the item to be significant the t- value must be greater than the value of the tabulated value or that the observed significance level is less than 0.05.

11. Degree of Importance

The arithmetic averages of the items which are statistically significant were given the following degrees:

2.00 - less than 2.50 consider Weak (low).

2.50 - less than 3.00 consider Medium.

3.00 - less than 3.50 consider Strong.

3.50 – and more consider very strong (too high).

12. The Frequency of Shopping

Table 1.

Frequency of shopping				
	Daily	Weekly	twice a Month	Monthly
the frequency (number)	28	38	16	2
Percentage %	33.3	45.2	19.0	2.4

The above Table shows that most of kastero market's customers shop on a daily or weekly basis. 33.3% from the sample society that were questioned, and tested shop daily, and 45.2% shops weekly (a total of 78.5%) for those two categories. Also, we see that 19.0% of the customers were shopping twice a month, and only 2.4% shop monthly.

13. Paying Methods

Table 2.

Paying Methods			
	Credit Card	Checks	Cash
the frequency (number)	18	12	54
Percentage %	21.4	14.3	64.3

The above Table shows that most of kastero market's customers (Sample Society) which is the percent of 64.3% prefer to pay with cash. For this particular store, a credit card machine was not identified as an important part when installing a new automated system. Also 14.3% choose checks as a method of payment, and the rest of the customers (21.4%) only stated that they prefer credit card as a method of payment.

14. Gender

Table 3.

Gender (Sex)		
	Female	Male
the frequency (number)	37	47
Percentage %	44.0	56.0

The above table shows that 56.0% from Kastero market's customers are males, and the remaining 44.0% are females.

The population (sample society) is almost evenly divided between males, and females. Therefore, it appears that gender factor does not exist in relationship to new technology (Automated System).

15. Age

Table 4.

	Age					
	More than 54	45-54	35-44	25-34	18-24	Under 18
the frequency (number)	5	15	14	21	22	7
Percentage %	6.0	17.9	16.7	25.0	26.2	8.3

The above table shows that a percent of 8.3% from the sample study their ages were less than 18 years, 26.2% their ages range from 18 to 24, 25.0% their age range from 25 to 34 years, 16.7% from the population their ages range from 35 years to 44, 17.9% their ages range from 45 t0 54 years, and finally only 6.0% of Kastero's customers are greater than 54 years old. Kastero market serves a variety of ages.

16. Educational Level

Table 5.

	Educational Level			
	Master or higher	Bachelor	Diploma	GED or less
the frequency (number)	6	36	18	24
Percentage %	7.1	42.9	21.4	28.6

The above table shows that a percent of 42.9% from the sample study

were a bachelor degree holder, 28.6% were holding a GED or less, 21.4% were a Diploma holder, and 7.1% of population were holding a higher study (master and above) certificates. Kastero's market serves a variety of educational levels, and backgrounds.

17. Hypotheses Analysis and Testing

17.1 First Hypothesis

There is a statistical meaning found on "The service provided to the customers of Kastero Market as a result of installing the automated system had been improved".

Table number (6) below contains five parts and it shows the following:

1- part number (1) was statistical in which the arithmetic average greater than 2.5 and the level of significance observance is less than 0.05, which means that the current service at Kastero market effective to a medium degree.

2- part number (2) was statistical in which the arithmetic average greater than 2.5 and the level of significance observance is less than 0.05, which

means that the customers prefer to shop at stores, or market that service them quickly (very fast) ,and to a medium degree.

3- part number (3) was statistical in which the arithmetic average greater than 2.5 and the level of significance observance is less than 0.05, which

means that the installment of a new automated system to record products and pay for it electronically in Kastero market will be beneficial to the customers, and to a medium degree.

4- part number (4) was statistical in which the arithmetic average greater than 2.5 and the level of significance observance is less than 0.05, which

means that the installment of a new device to allow customers to pay for their items by credit card will be useful, and beneficial to them, and to a medium degree.

5- part number (5) was statistical in which the arithmetic average greater than 2.5 and the level of significance observance is less than 0.05, which

means that it is important to you as a customer to get an itemized printed receipt for your purchases, and to a high degree.

6- The parts above all together which represent customers service has got an arithmetic average of 3.89, and a level of significance observance less than 0.05 which is statistically significant, which means that the first hypothesis " the improvement of the service provided to the customers of Kastero Market as a result of installing the automated system" has to be accepted to a medium degree.

Table(6. show the arithmetic average, standard deviation, T-value, and the level of significance observance for the different parts of the questionnaire related to the dimension of service provided to the customers

Part number	Part	Arithmetic Average	Standard Deviation	T- Value	Observance α	egree
1	The current service at Kastero market is effective	2.83	0.93	3.29	0.00	Med.
2	You prefer to shop at stores or markets that serve you quickly	2.87	1.06	3.19	0.00	Med.
3	Installing an Automated System to record product and pay for it electronically at Kastero market will be beneficial to you	2.88	1.25	2.80	0.01	Med.
4	Installing a device that allows for you to pay for your purchases by a credit cards will be useful and beneficial to you	2.68	0.82	1.99	0.04	Weak
5	It is important to you as a customer to get an itemized receipt for you purchase	3.19	1.15	5.52	0.00	Strong
	Total	2.89	0.37	9.59	0.00	Med.

17.2 Second Hypothesis

There is a statistical meaning found on "the control of the inventory at Kastero Market as a result of installing the automated system had been improved".

Table number (7) below contains four parts and it shows the following:

7- Part number (6) was statistical in which the arithmetic average greater than 2.5 and the level of significance observance is less than 0.05, which means that kastero market keeps enough quantity of the items you purchase in stock and on the shelves, and to a week (low) degree.

8- Part number (7) was not statistical in which the arithmetic average less than 2.5 and the level of significance observance is greater than 0.05, which means that Kastero market doesn't restock items as it runs out.

9- Part number (8) was statistical in which the arithmetic average greater than 2.5 and the level of significance observance is less than 0.05, which

means that the installment of a new automated system to record products purchased, and calculate it is cost will increase Kastero market abilities to serve customer in a better way, and to a medium degree.

10- part number (9) was statistical in which the arithmetic average greater than 2.5 and the level of significance observance is less than 0.05, which

means that an automated inventory system, that allows for automatic monitoring of items, would help to increase the efficiency, and effectiveness of Kastero market's service, and to a medium degree.

11- The parts above all together which represent Inventory Control has got an arithmetic average of 3.68, and a level of significance observance less than 0.05 which is statistically significant, which means that the second hypothesis " the improvement of the inventory control process at Kastero Market as a result of installing the automated system" has to be accepted to a medium degree.

Table number (7): show the arithmetic average, standard deviation, T-value, and the level of significance observance for the different parts of the questionnaire related to the dimension of inventory control process.

Part number	Part	Arithmetic Average	Standard Deviation	T- Value	Observance α	Degree
6	Kastero market keeps enough quantity of the items you purchase in stock	2.79	0.87	3.03	0.00	Weak
7	Kastero market does restock items as it runs out.	2.01	0.61	-7.32	0.00	.....
8	installment of a new automated system to record products purchased, and calculate it is cost will increase Kastero market abilities to serve you better	2.95	1.06	3.90	0.00	Med.
9	an automated inventory system, that allows for automatic monitoring of items, would help to increase the efficiency, and effectiveness of Kastero market's service	2.99	1.01	4.42	0.00	Med.
	Total	2.68	0.49	3.45	0.00	Med.

17.3 Third Hypothesis

There is a statistical meaning found on "The installment of the automated system at Kastero Market will provide customers with added value preferable to them".

Table number (8) below contains three parts and it shows the following:

12- part number (10) was statistical in which the arithmetic average greater than 2.5 and the level of significance observance is less than 0.05, which means that an automated inventory system, would be beneficial, and useful to the customers of Kastero market, and to a medium degree.

13- part number (11) even though the arithmetic average greater than 2.5, the level of significance observance is greater than 0.05 too, which means it was not found enough statistical evidence on getting and installing new technology would be preferable, and acceptable to the customers.

14- part number (12) was statistical in which the arithmetic average greater than 2.5 and the level of significance observance is less than 0.05, which means that the suggested new automated system will help customers in a greater way to come, and shop at Kastero market, and to a higher degree.

15- The parts above all together which represent the automated system has got an arithmetic average of 3.95, and a level of significance observance less than 0.05 which is statistically significant, which means that the third hypothesis " the installment of the automated system at Kastero Market is preferable to the customer " has to be accepted to a medium degree.

Table 8 show the arithmetic average, standard deviation, T-value, and the level of significance observance for the different parts of the questionnaire related to the dimension of the added value preferable to the customer.

Part number	Part	Arithmetic Average	Standard Deviation	T- Value	Observance α	Degree
10	The automated system of Kastero's market will be useful and beneficial to you.	2.95	0.85	4.88	0.00	Med.
11	The process of getting and installing of an automated systems is preferable and acceptable to you.	2.56	0.59	0.93	0.36	.....
12	The new proposed system will push you, and promote you to come to kastero's supermarket a lot more than before.	3.35	0.80	9.70	0.00	Strong
	Total	2.95	0.45	9.24	0.00	Med.

18. Conclusion

The study found the following results:

1- The service provided by the automated system for customers of Kastero market had been improved to a medium degree. The current service at Kastero market effective to a medium degree. The customers prefer to shop at stores, or market that service them quickly (very fast) ,and to a medium degree. The installment of a new automated system to record products and pay for it electronically in Kastero market will be beneficial to the customers, and to a medium degree. The installment of a new device to allow customers to pay for their items by credit card will be useful, and beneficial to them, and to a medium degree, and it is important to the customers of Kastero market to get an itemized printed receipt for their purchases, and to a high degree.

2- The control provided by the automated system to the inventory in Kastero market had been improved to a medium degree. Kastero market keeps enough quantity of the items you purchase in stock and on the shelves, and to a week (low) degree. Kastero market doesn't restock items as it runs out. Installment of a new automated system to record products purchased, and calculate it is cost will increase Kastero market abilities to serve customer in a better way, and to a medium degree, and an automated inventory system, that allows for automatic monitoring of items, would help to increase the efficiency, and effectiveness of Kastero market's service, and to a medium degree.

3- The installment of the automated system at Kastero market will provide customers with added value preferable to them with a medium degree. An automated inventory system, would be beneficial, and useful to the customers of Kastero market, and to a medium degree. The suggested new automated system will help customers in a greater way to come, and shop at Kastero market, and to a higher degree, and it was not found enough statistical evidence on getting and installing new technology would be preferable, and acceptable to the customers.

4- It appears that gender factor does not exist in relationship to new technology (Automated System). Kastero market serves a variety of ages. Kastero's market serves a variety of educational levels, and backgrounds. A credit card machine was not identified as an important part when installing a new automated system, and most of Kastero market's customers shop on a daily or weekly basis.

5- The study, research, and questionnaires, end surely in a way that agree with the main topic of the study. As a result the topic, in its main form, can be approved:

"Installing an Automated System will improve Customer Service, and Control Inventory".

19. Recommendations

The study recommends the followings:

1- The study advised manager, and owner of Kastero market to invest in this new automated system.

2- Kastero market should try to benefit from the automated system installed in improving their services.

3- Kastero market should try to benefit from the automated system installed in improving their inventory control process.

4- The study recommended the new automated system purchased to contain at least one cash register, one personal computer, bar code reader, receipt printer, credit card reader, point-of-sale device, and the necessary softwares needed.

5- Kastero market should continuously and sufficiently update the automated systems in term of hardware, software, and supported application.

6- It is necessary for Kastero market to make their automated system flexible to meet changing customer's needs in this competitive environment.

7- The study advised manger, and owner of Kastero market to study the market place, and collect information about available systems before purchasing one.

8- The study advised manger, and owner of Kastero market to benefit from this study, and any other related studies, and do some farther research before deciding on purchasing and installing the new automated system as proposed.

References

A. Saudi. **(**2006**)**. The impact of computerized management information systems on the performance of employees in enterprise security: an empirical study. *Journal of Administrative Sciences studies*, 33(1): 74-78.

S. Yasin. (2005). *Analysis & design of information system: system development life cycle*. Dar al-manahej publishers. Amman.

A. Walte. **(**2003**)**. Strategic Information & Strategic Decision Making: the FIS/CEO Interface in Simaller Manufacturing Companies. *Information & Management.*

Z. Alkashi. **(**2003**)**.The effectiveness of accounting information systems in achieving security and the emphatic and reliability in electronic commerce. M.S. thesis. University of Oman Arabic graduate. Oman.

A. Issam. **(**2002**)**. The impact of information technology standard used in Jordanian commercial banks on the efficiency of its financial performance, M. Phil. Thesis. Gezira University. Sudan.

M. Al-Essa. **(**2000**)**. The role of information systems in managerial decision-making at the Ministry of education. M. s. thesis. Arab Academy for banking and financial Sciences. Oman.

S. Slight. **(**2000**)**. *Information Technology*. Dorling Kindersley Ltd. London.

Douglas w. Mellott jr. (1999). Fundementals of Consumer Behavior (Tulsa: Penn Well Books).

R. Pyker., N. Raivinder. **(**1998**)**. User Satisfaction Determinants: The Role of Hardware and Procedural Components. *Journal of Computer Information Systems*, 38 (2): 44 – 48.

A. Al-Serhan. **(**1995**)**. The relationship between technology and organizational structure-a field study in Jordanian industrial corporations. M. Phil. Thesis. University of Jordan. Oman.

Mark A. Liberman, et. (1981). *Office Automation*. John willy & son.

R. Tricker. (1976). *RI management information and control systems.* USA.