



## Role of Bar and Restaurant Management System: Case of London Lounge, Ubungo Dar-es-Salaam

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**Abstract:** This study aims at revealing the role played by Bar and Restaurant Management System (BRMS) in Tanzania, by studying its functionalities and user perceptions and later providing recommendations that will improve the Food and Beverage (F&B) services. London Lounge was selected as a case study to represent the middle-class bar within the country that makes use of BRMSs. The literature shows that the common design of BRMS include functionalities for accounting, inventory and employee management where the system users had positive perception on the advantages of system usage except for the inexperienced users. Focus group discussion was used as the method for data collection where the study team identified that the appropriate system users are Counter Attendants, Supervisors, Managers and the Director. The findings revealed that the system had enough functionality to exhaust the principal duties for each system user based on their job positions and hence played a big role in managing their operations. The study highlighted some system weaknesses hence provided the recommendations to improve the functionalities of the system and attract more users towards system usage. Future research on design and development of BRMS integrated with other systems to manage multiple businesses under the same ownership is highly recommended in this study.

**Keywords:** Information Communication Technology (ICT), Food and Beverage (F&B), Bar and Restaurant Management System (BRMS), Restaurant Management System (RMS), Food Ordering System

### 1. INTRODUCTION

Food and Beverage (F&B) services have become widely accessible across various regions globally, predominantly available in urban centres and towns. These services are not only needed by the native people, but also tourists whereas statistics related to tourism show that 25% of the tourists' expenditures is on accommodation and dining [1]. Due to the high demand of the services, countries like Vietnam have put some efforts to increase user satisfaction by studying the consumer behaviours towards F&B where Duong et al [2] found out that the consumer behaviour was mainly affected by social influence, service, price and food. Not only that, but also in countries like Turkey F&B business management have been improved in terms of operations management, increase in sales and service quality through the use of Restaurant Management Systems (RMS) [3].

In Tanzania, F&B services are prevalent in bars and restaurants, exhibiting varying scales that is small, medium, and high depending on demand and location. This scale diversity has given rise to distinct operational models. Small-scale enterprises are typically managed by a single individual serving as Counter Attendant and Manager, often the business owner. In contrast, medium and high-scale establishments operate under a more complex hierarchy, involving Managers, Supervisors, Counter Attendants, and Maids. Maids play a central role in order fulfilment, while Counter Attendants report sales to Supervisors, who, in turn, manage stock and report to Managers. Managers oversee all financial aspects, reporting both expenditures and incomes to the Business Owner, encapsulating a comprehensive operational and financial framework for the F&B establishment.

Despite the availability of ICT tools, a significant majority of Bars and Restaurants owners in the country refrain from incorporating ICT in their business management practices. Instead, they persist with traditional paper-based methods which pose inherent disadvantages, including the vulnerability of paper records to damage from strains, loss due to fire or misplacement, and the potential for errors stemming from misinterpretation, all of which could result in financial losses [4]. Interestingly, despite the drawbacks associated with the conventional paper-based approach, the adoption of ICT remains notably negligible across various types of firms in the country, signifying a prevailing perception of insignificance [5].

Conversely, a few bar and restaurant owners have chosen to embrace ICT tools in the management of their business processes. This proactive approach involves the implementation of specialized software systems for recording various business transactions, including sales and purchases. Such a strategic shift may be attributed to their recognition of the

substantial role that ICT plays in other sectors, for instance in education ICT enables students to freely collaborate with each other regardless of where they live or the money they have [6], whereas in agriculture ICT provides updates for market prices for different commodities [7], not forgetting the healthcare where ICT enhances service qualities as well as reduction in healthcare costs [8] to mention a few. Additionally, this decision could be influenced by awareness on government initiatives and reforms aimed at promoting the widespread adoption and application of ICT across diverse sectors [5].

Given the prevalent low adoption and negative perception on ICT usage in the country, there is a pressing need for comprehensive studies examining the impact of ICT on business management. A focused investigation involving consultations with firms in Tanzania that have successfully implemented such systems is essential. Through these studies, we can reveal the practical utility of ICT adoption within our unique environmental context, shedding light on its potential benefits and addressing the existing scepticism surrounding its adoption. Hence the purpose of this study is to determine the role played by Bar and Restaurant Management System (BRMS) in Tanzania. Specifically, the study aims at identifying the functionalities and the users' perceptions towards the systems. London Lounge, located in Ubungo District, Dar-es-Salaam Region was selected as a case study to represent the intermediary/middle class Bar and Restaurants within the country that use BRMSs. Consequently, the findings will identify the current situation on the ICT adoption and users' perceptions on ICT usage in F&B services and provide recommendations on BRMS designs that meet users' expectations which will gear towards more usage of ICT in enhancing business efficiency and productivity in Tanzania's F&B services.

This research paper has been organised in sections which are Introduction, Literature review, Methodology, Findings, Discussions, Conclusion and Recommendations.

## 2. LITERATURE REVIEW

The literature review for this study provides a global exploration on the functionalities and users' perceptions towards the system. Hence, the chapter is organized into four sub-chapters for System Functionalities, Usage, Usability and Advantages and Disadvantages.

### 2.1 System Functionalities

The BRMS systems which are also referred as Restaurant Management Systems (RMS) have been widely developed with more functionalities depending on the requirements of the service centre. The basic functionalities include provision of accounting personnel and Managers to access various data like accounting, inventory and employee performance [9-10]. These systems are also integrated with payroll systems to handle various deductions of employees' salary to obtain the net salary [11]. Not only that but also the systems are designed with functionalities to allow customers to access menus, make orders directly to the kitchen using android based application [12] and payments and even finding the proper parking space for the customer [9]. Furthermore, the systems produce valuable reports including stock levels, summary of sales, profit and loss as well as employee's performance [13].

### 2.2 Users' Perception on System Usage

When referring the system usage, the systems provide more advantages when compared to the disadvantages in terms of increase in sales and quality of service [9]. This increase in sales and quality of service is evident when referring to easy access of menus and ordering of items and bill payments through the systems. The findings in [10] also emphasize the beneficial effects of the Integrated Restaurant Management System on enhancing operational efficiency, managing costs effectively, and improving customer satisfaction. However, Pasalkar et al [10] also highlight resistance to change among staff with low morale being one of the challenges that could hinder system usage among users.

### 2.3 Users' Perception on System Usability

In case of system usability, it has been observed that restaurant employees who have not experienced using the system have perception of the system being difficult to use. Hence, it appears that new users fear on mastering the system where this fear can be removed by training or exposing them to the system [9]. However, for the system users in Chain Enterprise, it has been revealed that the system advantages outweigh the disadvantages in terms of growth in sales and improved service quality [9].

### 2.4 Users' Perception on Advantages and Disadvantages

In case of system advantage and disadvantages, it has been observed that the system provides advantages in terms of operation management, growth in sales as well as elevated service standard [3]. Additionally, some of these systems help to reduce unnecessary queues and allowing customer to make simultaneous orders [14] leaving aside making order in advance [15] as well as providing useful support in decision-making [13]. On the point of disadvantage, the system provides additional costs because of training to users and system installations [3].

## 3. METHODOLOGY

### 3.1 System Development and Deployment Environment

The London Lounge's BRMS is a single tailor-made window-based application system developed in visual studio using C# and MS Access back end to meet the business requirements. The system's functionalities mainly cover F&B Sales and Stock, Payroll as well as overall Income and Expenditure Information Management.

The deployment of the system has been done locally in a peer-to-peer network model using both wired and wireless network infrastructure containing one computer acting like server hosting the database along with other seven separate computers (running client Operating System) with the BRMS installed in each computer for each system user mentioned in figure 1. Additionally, two printers shared by all users through the network have also been installed. Access to the system is granted through recognized user ID, device ID and IP address.

**3.2 Research Design and Approach**

The research team used qualitative data collection approach through focused group discussion and interview methods to collect data from the targeted group. This approach was used in order to grasp an in depth and unbiased perception of the people towards the use of the system in their daily work operations. The target group for this study was the current and previous London Lounge employees who performed their duties using the London Lounge BRMS. The study identified that the appropriate system users are Counter Attendants, Supervisors, Managers and the Director where Figure 1 represents the organizational hierarchy based on the users’ interactions with the system.

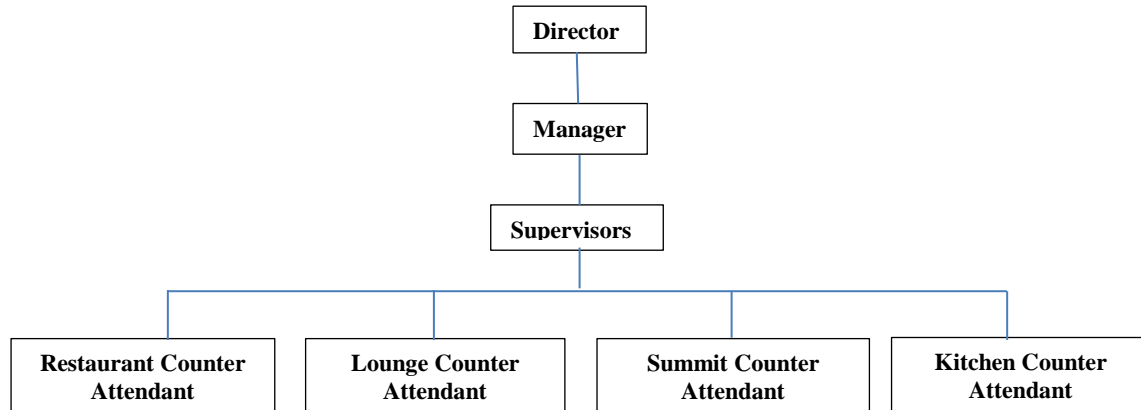


Figure 1: London lounge bar and restaurant management system users

**3.3 Population, Sampling and Instruments Used**

Separate focused groups for Counter Attendants, Supervisors and Managers were created along with one special group containing one more member, the Director was also created. The distribution of the focus group is presented in Table 1 where System Users are as described in Figure 1, Potential Participants refers to all the employees who were conversant with the system, Actual Participants refers to those who were consulted by the research team and Percentage is of the Actual over the Potential Participants.

Table 1: Focus group distributions

System Users	Potential Participants	Actual Participants	Percentage
Director	1	1	100.0%
Manager	17	13	76.5%
Supervisor	15	10	66.7%
Counter Attendants	20	14	66.7%
<b>Total</b>	<b>53</b>	<b>38</b>	<b>71.7%</b>

An interview guide for all the focused groups that could lead and help the team to conduct a discussion which is proper and relevant to the study was developed using Thematic Framework. Using the framework, Topics and Sub-Topics relevant to the research’s objectives were identified and finally relevant questions for each Sub-Topic were formulated and the presented in Table 2.

Table 2: Interview guide: Topics and questions

SN	Topic	Sub-Topic	Related Questions
1.	System Functionalities	System Functionalities	Which operation do you perform using the system? Which reports are produced by the system?
2.	Users’ Perception	System Usage	After experiencing the use of system, what is your opinion on the use of the system in business when compared to the paper?
		System Usability	How long did it take for you to be conversant with the system?

	Which component was difficult to learn?
	What do you think about the design of the system?
	How does the system prevent you from making errors?
	Which feedback does the system communicate to you during its usage?
	How does the system use help in your daily operations?
Advantages and Disadvantages	Which issues does the system have during its use?
	Which additional costs does the system pose to the business?

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Note-taking and audio recording (whenever approved) were used in order to ensure that the information from the members was completely captured. The contents captured through note-taking and audio recording were finally used by the research team to create a comprehensive summary of responses from the engaged participants.

### 3.4 Validity and Reliability

To ensure the validity and reliability case of the study, member checking was performed, wherein participants were given the opportunity to review and confirm the accuracy of the summarized responses, ensuring alignment with their perspectives. Moreover, the interview guide underwent a rigorous pre-test phase to refine and validate the clarity and relevance of the questions. The data analysis process incorporated independent verification and consensus-building among the research team members. Regular team meetings and discussions were conducted to deliberate and reconcile any discrepancies in interpretations, ensuring a reliable and consistent analytical process.

### 3.5 Analysis of Data

In this study, the responses collected via a tailor-made interview guide were collected and summarized based on the questions for each focus group. Eventually, system functionalities and users' perception for each focus group was organized to provide a clear understanding in order to achieve the objectives of this case study.

### 3.6 Ethical Consideration

Ethical considerations were meticulously followed during this case study by maintaining ethical standards in gathering and analysing data. Purpose, procedures, and any potential risks involved for the study were clearly specified to the participants in order to have their consent. Confidentiality, anonymity and other criteria for selecting and collecting responses from the focus group discussions and interviews were consistently applied throughout the process.

## 4. FINDINGS

The findings obtained from the conducted focused group discussions are mainly presented as System Functionalities and the Users' Perception on the system. System Functionalities covers all the activities that users perform using the system whereas Users' Perception contains opinions on system usage, usability and, advantages and disadvantages.

### 4.1 System Functionalities

Discussion on System Functionalities was aimed at capturing all the activities that is performed by each user using the system depending on their role and responsibilities. The findings from each focus group are presented here after.

Counter Attendants mentioned that the system allows them to record sales and transferred stocks to another counter. Furthermore, the system produces corresponding reports on sales of the day, stock transferred and the current stock status.

Supervisors mentioned that they use the system to record stock purchases as well to distribute the newly bought stock to each counter. Also, the system provides supervisors with report for stock purchases at any given time, stock distribution as well as current stock status.

Managers said that they use the system to register and deactivate system users and new products, record on credit sales, expenses, complimentary to customers, defective products, losses (also known as shorts) from workers, salary advances, payroll and finally generate a related report on every transaction that was keyed in as well as producing the overall income and expenditure report at any given time interval.

The Director stated that the system is mainly used to register Managers and generate various reports based on the needs though the system allows him to assume the role of Managers. The reports include income and expenditure, defective products, complimentary, purchases, total sales, bank transactions, shorts, on credit sales, payroll, and stock evaluation.

### 4.2 Users' Perceptions

The Users' Perceptions on the system were further classified in terms of System Usage, Usability, and Advantages and Disadvantages.

#### 4.2.1 System usage

System Usage contains information about the users' opinions on the use of the system when compared to the traditional paper-based approach. The gathered information from each focus group is presented hereafter.

Counter Attendants revealed that during heavy transaction days, they could just generate their accurate reports in a very short period of time compared to when they had to do everything in papers and calculator. This is due to the fact that the system auto retrieves the selling prices, calculates the total sales and auto balance the stock quantities.

Supervisors declared that the system plays a big role in tracking stock movements and values very easily compared to the use of paper and calculator. One of the participants said that *"if you want to know the total value of all the stock it would just be the matter of clicking rather than manually finding the summation of quantities of each product and multiplying by the buying price"*.

On the viewpoint of Managers, they mentioned that the use of system is more helpful because it provides easy tracking on every business aspect. For example, when preparing for employees' salaries, it is a big task to track all the salary advances and shorts (losses) for each employee and get the net salary of a particular employee. But with the system, the net salary for each employee is retrieved in a very short period of time by a single click of a button.

The Director mentioned that the usage of the system helps in decision making on various matters related to the business. This is due to the existence of reports which could be used to determine the trend of the business. This includes tracking the total income, expenses, salaries, complimentary, customer debts and even theft. Hence, using these reports it is easy to analyse what should be done in order to improve the business returns. The Director cemented his point by saying that *"With expenses reports, I could see that at certain particular day or month of the business, the expenses may go higher and hence demand ways to mitigate the rise"*.

#### 4.2.2 System's usability

System Usability contains users' opinions on aspects like system's ease of use, design, error reduction and feedbacks to users. The findings from each focus group on each aspect are presented hereafter.

In case of Counter Attendants, they mentioned that the system was easy to use and did not take much time to adopt even for those who did not use computer or such systems before. However, they mentioned that only the design on opening and closing stock was a bit confusing to them at first. Counter Attendants also reported that the system helps them by preventing errors since during data entry the products' information is recorded using barcode scanner instead of typing. Not only that, but also the system prevents them from accidentally making sales of products which are out of stock or unregistered into the system by the Manager. Furthermore, the system provides timely feedback whenever an operation is done successfully or not. One of the participants expressed their opinion by saying that *"if you fail to login, the system will tell whether there is a problem with credentials, network or client computer settings"* where the other one added that *"if you fail to record sales, the system will tell you if the problem is related to product registration, stock quantities being not enough or server not being connected"*.

The Supervisors also explained that the system was easy to use since the functionalities available were easy to understand and were not in big number. Moreover, they mentioned that the system helps in preventing them from making errors since the system does not allow mistakenly recording purchases of the products which were not registered as well as distributing non-existent stocks to counters. Furthermore, the Supervisors mentioned that the system provides feedback communications whenever there is a failure in stock distribution by stating whether the stock quantity is low or the server is not reachable.

Managers stated that the system was difficult to use and this was mainly because the system had many functions hence it is not easy to learn and master them in a short time. They also mentioned that the use of English language also contributed to the difficultness of the system. Managers also said that the system helps in preventing them from making error when they mistakenly attempt to give salary advances that exceeds the employee's net salary, the system will detect and cancel the data entry. Not only that, but also the system detects the null values when accidentally try to submit an empty entry to the system. One of the Managers clarified that *"In some sensitive cases like record deletion or updating, the system asks whether you are sure of the action you want to do just to make user verify his actions"*. In case of feedback communication, Managers said that the system provides a lot of feedback when doing various activities. For example, when registering a new product to the system, the system will state whether the product has been successfully registered or failed along with the reason for the failure.

Director mentioned that the system is not difficult to use though it needs more time and practice to be conversant with it. The needed extra time was mainly caused by the big number of reports and functionalities available in the system.

#### 4.2.3 System advantages and disadvantages

This part contains information on how the system helps in daily operations, issues during system use and the additional costs posed by the system to the business. The findings from each focus group are presented hereafter.

In case of Counter Attendants, they mentioned that the system helps them to perform all the necessary duties fast and accurately. However, they mentioned that the system does not have a proper mechanism for editing information when wrongly entered since for every change in data they have to consult the manager. Not only that but also the Counter Attendants reported that the system puts additional costs in terms of time, and purchase of calculator and papers when they have to prepare total bills for each Maid since the Maids do not use the system to perform their duties. It should be noted

that every wait-staff must submit a piece of paper containing the contents of the order received from the customers to the Counter Attendant before they deliver the order to the customer. Eventually, Counter Attendants must collect the papers submitted by each wait-staff in order to calculate their total bills separately.

Supervisors claimed that the system is very helpful in dealing with daily stock monitoring process since it allows getting all the required information related to the stock. However, the Supervisors mentioned that the system does not allow them to directly retrieve stocks status for previous days from the system instead they have to save such reports in separate files. Also, one of the participants said that *“The system poses additional cost in terms of time and purchase of calculators whenever there is a mismatch between the total in stock’s purchase receipts and the system since the system can’t scan and verify the receipts”*.

Managers insisted that the system helps a lot in preparing the daily income expenditure report which is needed on daily basis by the Director. However, one of the Managers insisted that *“The system brings issues in retrieving records when the server date and time readings are wrong”*. This is because the system reads time from the server machine which is not connected to the internet and the clients are reading from the server. Furthermore, they reported that the system poses additional costs to the business through purchasing fuel since whenever there is a power cut-off, they have to switch to generator in order to operate.

The Director insisted that the system helps a lot in decision making since it provides a lot of useful reports which can be retrieved instantly. However, it was mentioned that the system does not allow him to manage multiple businesses in the same system instead he has to purchase separate systems for each business. Furthermore, the system puts additional cost of buying, installing, training and maintaining the system. Not only that, but also it needs additional IT Staff to support the system.

## 5. DISCUSSION

From the findings, it has been observed that the London Lounge BRMS has functionalities that cover most of the core duties that are performed by the Counter Attendants, Supervisors, Managers and the Director and plays a very big role in managing the important business processes at London Lounge. This is evident when analysing the system functionalities available to each system user that allow them to quickly and accurately perform most of their duties and produce more valuable reports similar to Mundle [13] who mentioned various reports produced by the system which are essential in decision-making and hence amplified business efficiency and productivity. These findings are also supported by [3,10,15,16] who acknowledged the advantages of such systems in terms of operation management, sales elevation and improved service standards.

Moreover, the system design has considered the need to minimize errors during its usage by including auto-error detection mechanisms which play a vital role in preventing the users from making errors in different ways such as discarding null records, out of stock sales which is managed by the stock tracking functionality just as mentioned by Pasalkar et al [10], advance salaries beyond salaries which is also implied by Ancilla et al [11] who mentioned the deductions from employees’ salary are managed by the system. Furthermore, it has been observed that the system design has included different feedback communications to the users as they use systems. Some of these feedback communications are related to problems occurred during system usage whereas the rest are related to successful completion of various operations which can be considered as a non-functional requirement in system.

However, the findings from the study also reveal that there are some system users who face some difficulties in learning and using the system which are considered to be the system design related issues or staff’ resistance to change as suggested by Pasalkar et al [10] who also identified similar challenge in using the system and identify the need for providing comprehensive training. Not only that, but also in some few cases the system does not allow the users to fully perform their tasks as a result some users have to perform some of their tasks outside the system which in turn introduces addition costs to the users and or business. Furthermore, it has also been revealed that there is no single interface for business owners to manage multiple businesses and obtain collective reports on them. This highlight issue on integration with other systems which was also mentioned by Pasalkar et al [10] as one of the challenges reported by system users.

## 6. CONCLUSION

This study has revealed the useful roles played by BRMS in managing business operations specifically at London Lounge. Furthermore, the perceptions of the users towards the system have also been highlighted and discussed in this paper. Specific weaknesses of the system have also been spotted out and recommendations for the system improvements are presented in the recommendation section. More research studies are needed to propose the design and development of BRMS integrated with other systems so as to manage multiple businesses owned by a single person with individual and collective analysis reports.

## 7. RECOMMENDATIONS

The study has highlighted that some system users had issues on the system when responding to the questions under system usability and disadvantages sub-topics implying the existence of some negative perceptions towards the system. To resolve the issues presented and improve the system usability and advantages, the following should be considered;

Introduction of systems which could easily be learnt with less cost of buying, installing, training and maintenance in order to attract more people towards the use. This can be achieved by considering usability factors during system design since if properly considered it would attract more people towards system usage and result into increased productivity and

team morale, user efficiency, and amplified potential for e-commerce and diminished training and documentation expenditures among other positive outcomes.

Furthermore, to make the system more useful, improvements to the system functionalities is inevitable. A BRMS designed with functionalities that cover broad range of the business aspects including customer orders, table and parking reservation handling would be of great use in improving customer interaction with business. Customer order functionality helps handling multiple orders at a time, Easy of updating the menus hence restaurant menu printing cost reduced, and reduces queues, whereas with customer table and parking reservation functionality, a customers can reserve a table and parking slot in advance hence high service assurance and easy customer trends identification.

Moreover, a system that links a business to its regular suppliers and allows supervisors to send stock orders to them and verify the stock delivered would add more value since it will keep all the order and receipt records and reduce the chances for quantity mismatch during data entry process done by supervisors hence improved stock management.

Additionally, a single system with ability to manage multiple businesses is most preferable. This is due to the fact that most of the business persons own multiple businesses hence having one application that could manage all the businesses together and provide individual as well as collective analysis reports on each business would be more useful to the business owners since it would ease the analysis process and reduce the cost in purchasing and hosting.

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