



CHARMS: A Centralized Hub for Advanced Revenue Monitoring System - Strengthening Financial Oversight and Efficiency of Isabela State University - Cauayan City Campus

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ABSTRACT

This study developed a web-based revenue monitoring system aimed to enhance the financial management processing of an educational institution. The system was designed to more improvements based on the accuracy, security, and efficiency of recording, organizing, and reporting financial transactions by providing a digitalized platform where data could be easily processed and retrieved more effectively and accurately. Applying a developmental research method, the researchers utilized the waterfall model to carry out each phase of the system's improvements where this is their step to finish the revenue monitoring system. The system was evaluated based on the ISO 25010 software for quality standards of the system, focusing on key characteristics such as accuracy, functionality, efficiency, and security. The evaluation results, users were approved with the system's features, especially its ability to generate reliable and timely reports, smoothness of the recording process, and to secure the sensitive financial information or the confidential data. Moreover, it provided a digital solution to support the growing need for digital transformation in this generation for financial operations. The researchers recommend further system enhancement, especially in the internet connectivity for widely access, additional security protocols to protect confidential financial data, and the system can accommodate expanded financial functionalities in the future. With the continuous improvement of the revenue monitoring system, it holds great potential as a model digital platform for modernizing financial management processes in similar organizational environments.

Keywords - Accuracy, Efficiency, Functionality, Monitoring, Security, Revenue, Web-based

Introduction

Every organization must accurately understand the revenues needed for financial health and decisions. Proper data management allows the organization to monitor profitability, evaluate cash flows, and make strategic decisions. However, many organizations still use old data tracking and management practices, such as spreadsheets or paper-based methods. Such practices are prone to errors, inefficient, and lack of real-time information, which may limit an organization's ability to promptly respond to financial changes, achieve regulation requirements, or provide accurate profitability analysis.

Even with computerized systems, such as accounting information systems (AIS), some aspects of manual recording – like initial data input – are unavoidable. However, the difference lies more in how the development of the system reduces human error, repeats processes, and minimizes inaccuracies. In the study of Arcega et al. (2015), the most common problem among users of the manual accounting system is that the data appears to be a time-consuming nature of data management, accompanied by concerns over security and confidentiality. Time-consuming, followed by problems with security and confidentiality. In



addition, Barratt et al. (2018), in a study about Inventory Record Inaccuracy, found that manual inventory tracking procedures are even more susceptible to containing frequent errors and hindering the visibility of actual inventory in stock. Hence, Shteren and Avraham (2017) opine that to prevent adverse financial loss due to ineffective inventory management, manufacturing businesses must find an inventory system that fits into the operational process. Also, Lado et al. (2017) claim that electronic files are readily accessible, retrievable, and transferable. He asserted that the implementation of an information system had demonstrated effectiveness and efficiency.

Methods

This study utilized a developmental approach to its research design. This study focused on designing, testing, and refining the new system. It focused on evaluating the developed Revenue Monitoring System based on the criteria of accuracy, functionality, efficiency, and security. This approach was appropriate as it allowed the researchers to present a clear and tactful assessment of the system’s features and performance without manipulating any variables. By using the waterfall model, the study aimed to furnish an intention evaluation of the system's ability to meet the operational needs of the CBAO, which involved continuous improvement based on participant feedback. This process enabled the researchers to make iterative adjustments to enhance the system's performance.

Results and Discussions

The following is the presentation of the results and discussion.

Table 5. Experiences of the end-users in the performance of the newly developed web-based system for revenue management in terms of accuracy.

Accuracy	Weighted Mean	Descriptive Interpretation
The data recorded in the system is free of errors.	4	Agree
Confident in the accuracy of the financial records maintained using the system.	4.2	Strongly Agree
Verifying the accuracy of recorded transactions in the system is straightforward.	4.2	Strongly Agree

Errors recorded in the system are rare.	4.2	Strongly Agree
Reports created in the system are accurate and reliable.	4.6	Strongly Agree
Category Mean	4.24	Strongly Agree

Table 5 depicts an overall mean of 4.24, which leads to the interpretation that the end-users highly agree with the accurate performance of the web-based system for revenue management. The highest mean score of 4.6 was measured on the capability of the system to produce reports. This indicates that the users are highly confident that the system can produce accurate and reliable financial reports. With a mean rating of 4.2, the users were also very satisfied since they indicated a high degree of confidence in the reliability of the financial records held by the system, ease of verification of recorded transactions, and infrequent experience of occurrence of mistakes within the system. Moreover, users also concurred in declaring that the data entered into the system was error-free. It received a mean rating of 4, which shows that the users are content with this feature.

From the study of Equey, C., & Fragnière, E. (2008), there is a significant contribution of accuracy of the system towards user confidence and overall effectiveness of the system. For making operational as well as financial decisions, users tend to use systems providing accurate and reliable information. Overall, the research reveals that users are highly satisfied with these aspects and emphasizes how effectively the system sustains accuracy by its functionality and user interface.

Table 6. Experiences of the end-users in the performance of the newly developed web-based system for revenue management in terms of functionality

Functionality	Weighted Mean	Descriptive Interpretation
Recording in the system supports all necessary functions for revenue monitoring.	4.6	Strong Agree
The tools available in the system are sufficient for daily recording and monitoring tasks.	4.4	Strong Agree
The system allows for smooth organization of data for reports.	4.6	Strong Agree



Can create and customize reports easily using the system.	4.6	Strong Agree
The system supports all the operations needed for tracking revenue.	4.2	Strong Agree
Category Mean	4.48	Strong Agree

Table 6 indicates the outcome of the functionality of the system as it had a mean score of 4.48, which measures that users agree very much with the system's performance in its intended function. This suggests that the system is regarded for its functionality in supporting revenue monitoring and management tasks. Statements that received the highest rating, each with a mean score of 4.6, show that end-users are very satisfied. These are the capability of the system to facilitate all the required functions for monitoring revenues, how effectively it arranges the data for report generation, and its ability to provide an easy-to-use platform for report making and customization. This finding is supported by Paculaba et al. (2023), which assessed the deployment of a Student Information and Accounting System (SIAS) in a state university. Their research indicated that end-users were very satisfied with the performance of the system, especially in processing financial transactions, managing data for effective monitoring, and producing customizable reports that meet the institution's requirements. These results significantly correspond with the present findings, particularly the extremely high satisfaction of the system's functionality in revenue tracking and report generation. They concluded that such systems as SIAS significantly advance data accuracy, monitoring, as well as institutional performance in general, supporting the positive user perception on functionality in this study.

Moreover, the question indicating that tools provided within the system are adequate for the daily monitoring and recording tasks recorded a mean of 4.4, in clear indication that users are equally satisfied with this aspect of the system. This rating indicates that the users rate the system as functional in facilitating major components of revenue management facilitates all the operations necessary for tracking revenue received a rating of 4.2, indicating that users were highly content with this component of the system.

Table 7. Experiences of the end-users in the performance of the newly developed web-based system for revenue management in terms of efficiency

Efficiency	Weighted Mean	Descriptive Interpretation
Tasks in the system are completed quickly and efficiently.	4.4	Strongly Agree
Data entry using the system is easy and straightforward.	4.6	Strongly Agree
Retrieving historical data from the system records is quick and less hassle.	4.2	Strongly Agree
The system allows users to complete tasks in a timely manner.	4.4	Strongly Agree
The system is not time-consuming when creating reports or tracking records.	4.6	Strongly Agree
Category Mean	4.44	Strongly Agree

The table gives the mean scores and interpretation thereof with regard to how efficiently the Revenue Management System operates. With the overall category mean being 4.44, it indicates that end-users do agree very much with the manner in which efficiently the system is operating. The simplicity of data entry through the system and the effectiveness in generating reports or monitoring records were the highest rated in this category, both with a mean score of 4.6, which indicates a high degree of satisfaction from the users. These results are supported by Gunawardhana and Pathberiya (2015), whose study identified that computer accounting systems improve efficiency to a greater extent by lowering manual effort and time taken to prepare financial reports. Their study of Sri Lankan SMEs established that computer accounting systems automate financial functions, thereby facilitating quick and accurate data processing.

Meanwhile, both the statements showed that the speed and efficiency in the completion of the tasks as well as the capacity of the system to enable users to complete tasks within the required time were highly rated, with a mean score of 4.4. This ensures that the system supports productivity as well as easy user workflow. In addition, retrieving historical data from the system records scored a mean of 4.2 in this category, which meant that users mostly had a good experience with this feature since they expressed a high degree of satisfaction.



Table 8. Experiences of the end-users in the performance of the newly developed web-based system for revenue management in terms of security

Security	Weighted Mean	Descriptive Interpretation
Confident that the data recorded in the system is safe.	4	Agree
Unauthorized access to records in the system is not a concern.	3.4	Agree
Security measures for protecting sensitive financial data in the system are sufficient.	4.4	Strongly Agree
The financial data in the system is well protected from theft or loss.	4.4	Strongly Agree
The system is not vulnerable to security risks, such as unauthorized changes or data breaches.	4.2	Strongly Agree
Category Mean	4.08	Agree

Table 8. Experiences of the end-users in the performance of the newly developed web-based system for revenue management in terms of security. Table 8 is a representation of the weighted average of the scores and descriptive interpretation of the experience of the end-users in implementing the newly proposed web-based system for revenue management based on security. This category achieved a mean score of 4.08, indicating users' agreement. This indicates that users tend to view the web-based system as secure in handling financial information and safeguarding it against threats. Among the assessed items, the greatest mean ratings of 4.4 were achieved for both the sufficiency of security measures for safeguarding sensitive financial information and safeguarding the financial information from theft or loss, signifying that users were highly satisfied and convinced about the data security of the system. The response to the assertion that the system is resistant to security threats like unauthorized modification or leakage of information had an average score of 4.2, indicating the users strongly agree that the system is fairly secure against typical threats. This is supported by Trofimova et al. (2019), who set the importance of well-constructed accounting information systems in the public sector to ensure transparency, accountability, and data protection. In carrying out research, they stipulated that secure systems were important in reducing the risk of data manipulation

and ensuring verifiable financial reports. Also, Meiryani et al. (2022) explained how smart accounting systems help avoid fraudulent financial reporting, particularly when designed with robust data security and validation capabilities. This helps to reinforce the belief of adequate security in the functionality of the system.

The assertion of confidence in data protection recorded in the system received a relatively lower mean rating of 4.0, which was indicative of a user satisfaction. Notably, the lowest rated statement was the one in which it was asserted that unauthorized access to records is not a problem, which received a mean rating of 3.4. The outcome still reflects user satisfaction, but perhaps the implication is that some users might be in doubt or worried about unauthorized use of the system. As highlighted by Ogah (2012) in his analysis of accounting systems as decision-making tools, data integrity and access control are essential in establishing user confidence and evading misuse of sensitive financial information.

Table 9. Overall performance of the newly developed web-based system for revenue management

Criteria	Weighted Mean	Descriptive Interpretation
Accuracy	4.24	Highly Satisfied
Functionality	4.48	Highly Satisfied
Efficiency	4.44	Highly Satisfied
Security	4.04	Satisfied
General Mean	4.31	Highly Satisfied

As per Misfud (2018), how well a system performs will be quantified based on the completeness and accuracy of a goal, and efficiency will be quantified in terms of effort needed to finish a task for a user. Table 9 provides the performance of the web-based system that was newly developed for revenue management on a basis of accuracy, functionality, efficiency, and security. It led to a mean overall of 4.31, which suggests that the users were extremely satisfied. The results indicate that users are likely to view the overall performance of the system in a positive light, viewing it as effective and reliable in facilitating revenue-related activities. In accordance with the work of Aziz et al. (2022), their work emphasized that well-designed accounting systems simplify finance procedures, improve business performance, and establish users' confidence by providing consistent information.



Conclusion and Future Works

The newly established web-based revenue management system has been an effective and dependable instrument for the Campus Business Affairs Office (CBAO) of Isabela State University, as attested by high user satisfaction levels in terms of different performance indicators. The system reliably satisfies its intrinsic features, i.e., appropriate tracing of the revenue, reliable data inputting, automatic creation of reports, and secure financial information processing. Such features made tracking revenue from an office smoother and easier to report. While overall user satisfaction was excellent, paying attention to developing some other systems' aspects on security will maximize its capability and reliability. These findings validate the worth of the system as a computerized solution to revenue management and its wider use. Generally, the findings establish that the system is an important resource in streamlining revenue management processes, and with minimal modifications, it has the capability to be an exemplary platform for computerized financial systems in similar organizational settings.

However, the study is delimited to an intranet-based solution, exclusively serving the operational needs of CBAO and is not intended for integration with external university departments or third-party entities. While the study focuses on improving internal efficiency, its functionalities are confined to the designated intranet environment and do not extend to campus-wide financial systems or broader institutional financial policies.

Furthermore, the system can be updated into stronger security features to address the minor concern of the users on unauthorized access of the system. Also, the system may upgrade the system to accommodate additional functionalities in response to the evolving needs of the Campus Business Affairs Office (CBAO), i.e. enabling notification in the system, reports of statement of accounts of the lessee, appearance of the beginning balance of the rentals. The researchers suggested expansions include inventory management and expense tracking modules, enabling the office to manage a broader range of financial operations within a single platform.

Ethical Considerations

In developing the CHARM system, ethical guidelines were followed to maintain the research integrity. The researchers ensured that all the data gathered would be handled confidentially, with no important information disclosed.

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