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Development of Education Accounting Information System

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Abstract:
The purpose of this research is to develop an education accounting information system and determine the feasibility of using an education accounting information system. This research and development used the ADDIE model. The partner in this research was the OSF Semarang Education Commission Institution. Data collection techniques were carried out using questionnaires, interviews, observations, and documentation. The feasibility results obtained for this education accounting information system include: validation by material experts obtained an assessment of 3.94 with the category 'Feasible', validation by media experts obtained an assessment of 4.76 with the category 'Very Feasible', and validation by users obtained an assessment of 4.54 with the category 'Very Feasible'. Based on the validation results, it can be concluded that the education accounting information system is very feasible to be implemented at the OSF Semarang Education Commission Institution so that it can facilitate the work of the Institution Management and College Management in preparing financial reports. The implications of this research include improving the efficiency and accuracy of institutional financial management through technology, providing guidelines for transparency and accountability, and improving the quality of education and public trust in budget management.

Keywords: Development, Accounting Information System, Education, ADDIE

Abstrak:
Tujuan dari penelitian ini adalah untuk mengembangkan sistem informasi akuntansi pendidikan dan mengetahui kelayakan penggunaan sistem informasi akuntansi pendidikan. Jenis penelitian ini adalah penelitian dan pengembangan dengan menggunakan model ADDIE. Mitra dalam penelitian ini adalah Lembaga Komisi Pendidikan OSF Semarang. Teknik pengumpulan data dilakukan dengan menggunakan kuesioner, wawancara, observasi, dan dokumentasi. Hasil kelayakan yang diperoleh untuk sistem informasi akuntansi pendidikan ini antara lain: validasi oleh ahli materi memperoleh penilaian sebesar 3,94 dengan kategori "Layak", validasi oleh ahli media memperoleh penilaian sebesar 4,76 dengan kategori "Sangat Layak", dan validasi oleh pengguna memperoleh penilaian sebesar 4,54 dengan kategori "Sangat Layak". Berdasarkan hasil validasi tersebut, dapat disimpulkan bahwa sistem informasi akuntansi pendidikan sangat layak untuk diimplementasikan di Lembaga Komisi Pendidikan OSF Semarang sehingga dapat mempermudah pekerjaan Pengurus Lembaga dan Pengurus Perguruan Tinggi dalam menyusun laporan keuangan. Implikasi penelitian ini mencakup peningkatan efisiensi dan akurasi pengelolaan keuangan lembaga melalui teknologi, memberikan pedoman untuk transparansi dan akuntabilitas, serta meningkatkan kualitas pendidikan dan kepercayaan masyarakat terhadap pengelolaan anggaran.

Kata Kunci: Pengembangan, Sistem Informasi Akuntansi, Pendidikan, ADDIE

INTRODUCTION

Education accounting information system is one of the resources in the field of education that can be used to collect, process, and present financial information to make a decision. With a computerised accounting information system, the process of recording financial transactions can be done quickly and accurately. Financial data can be accessed easily and in real-time, allowing for more informed decision-making. Accounting has also embraced computing solutions in order to provide relevant and particular information as well as a real-time overview of business for all stakeholders (Khanom 2017). Therefore, a sophisticated digital accounting information system can make it easier for educational institutions to manage finances efficiently. Accounting information systems facilitate processes in operational activities so that they can help prepare activity reports and financial reports (Suharni and Sari 2019). In addition to operational efficiency, the development of education accounting information systems must also support transparency and accountability. The financial reports generated by this system must meet applicable accounting standards and make it easier for educational institutions to comply with tax regulations. Therefore, a good accounting information system not only helps educational institutions manage finances but also builds trust among stakeholders.

Research and development is a systematic process that aims to increase knowledge and create innovation. Research focuses on discovering facts, testing theories, and gaining new understanding of certain phenomena. Meanwhile, development focuses on the application of research results in the form of creating new products or finding solutions that can be applied to the problems at hand. Products produced in Research and Development (R&D) can provide many benefits, such as providing convenience, speed, and effectiveness for users (Winaryati et al. 2021). The digital transformation of the accounting information system is important for accountants to be fully aware that traditional accounting systems will be gradually replaced with more digitalised accounting systems (Salem et al. 2021).

Based on the results of preliminary observations and interviews with the Commission Management at the OSF Semarang Education Commission Institution, it is known that the Institution has four Universities, namely ASM Santa Maria, STIKES Elisabeth, ASMI Santa Maria Yogyakarta, Catechetical Pastoral College of St. Francis Assisi. The four colleges in the institution prepare financial reports using the Microsoft Excel program. The problem that arises is the use of the financial report format, and the determination of the accounts used by each college is different. In addition, the calculation formula used in Microsoft Excel is often incorrect and inappropriate because it must be inputted one by one. Then, the recording in the financial statements only contains income earned and expenses made. This causes the institution not to know whether each college is experiencing a surplus or deficit, so it cannot carry out optimal financial management. Another problem is that the managers of the four universities submit financial reports to the Commission Management in the form of printouts, which are archived in physical form. This is considered less effective and efficient for recapitulating, consolidating financial reports, and organising the preparation flow for the financial reporting of the institution.

Most educational institutions face challenges in managing finances, one of which is the OSF Semarang Education Commission Institution. For example, research by Hidayat (2020) showed that Gelora Madani Foundation Batam experienced confusion in recapitulating the calculation of incoming funds and outgoing funds because the recording was still done manually with office applications. Then, research by Annisa, Azizah, and Tambunan (2021) shows that SMA Negeri 2 Mandau has utilised Microsoft Excel for financial recording but still experiences problems such as errors in making financial reports and financial data cannot be accessed quickly and is not transparent.

Manual recording of transactions is prone to errors and takes a long time. In addition, the demands of increasingly complex tax regulations and the need for accurate and real-time financial information encourage the development of reliable accounting information systems. Therefore,

researchers examined the development of an education accounting information system to facilitate the preparation of financial reports for the OSF Semarang Education Commission Institution. The development of an education accounting information system is important because it can support the institute's routine activities, especially in managing finances as a form of accountability for related parties, and it is useful in making financial allocation decisions. User involvement in the development of this system is also very important to ensure the effectiveness of system performance.

In research conducted by Mujiani and Mardhiyah (2019), the accounting information system developed has limitations on the use of systems that are only applied to one faculty. In addition, it is necessary to improve the accounting information system to the financial reporting stage in accordance with applicable accounting standards. According to research by Karunia and Adan (2022), the accounting information system developed cannot print reports because the system has not been computerised. Therefore, in this study, an education accounting information system that can be applied to all universities in the OSF Semarang Education Commission Institution was developed. The system is developed using the single-entry method, where the recording of financial transactions can be done once and will automatically be inputted into the relevant accounts. The system is also equipped with a print feature so that managers and administrators of institutions can print the necessary reports. Novel accounting technology, such as cloud accounting information systems, has taken centre stage in its presumed capacity to provide relevant online accounting and auditing solutions that are accessible from anywhere through cloud service providers (Beredugo, 2023).

There are at least three urgencies or the importance of developing accounting information systems. First, very rapid technological changes encourage an agency to adapt to these changes so that agency operations can run optimally and satisfactorily. Second, there are changes in the system itself from time to time, so that adjustments to the system used are needed. Third, it facilitates the work process and management of agencies, both profit and non-profit organisations, from planning to evaluation. The impact of these changes is the need to develop a new accounting information system or modify an existing system to solve financial problems. Technology has developed intensively over the past few years. Accounting systems are one of the most important factors that help economic units to keep up with the development of science and technology and their exploitation in the organisation of accounting work based on internet-based systems designed to carry out all accounting procedures of economic units. Dematerialisation of accounting documents and migration of certain accounting operations to electronic platforms have overcome the research stage (Paiman 2020).

Literature Review

Accounting Information System

The system has three characteristics, namely components, which are something that can be seen, heard, and felt; process, which is the activity of coordinating the components involved in the system; and purpose, which is the final goal to be achieved (Krismiaji 2015). Information is data that has been organised and processed to provide meaning and assist decision-making (Romney and Steinbart, 2018). Furthermore, accounting, according to Siallagan (2020), is a body of knowledge and a structured, unique, or original organisational role, which records, classifies, processes, summarises, and analyses all transactions and events, as well as the financial nature that occurs in the entity's operational activities with the aim of providing significant information required by management as a report and accountability regarding the trust given to them.

Krismiaji (2015) defines an accounting information system as a system that processes data and financial transactions to produce information that is useful for businesses in planning, controlling, and operating these business activities. Supported by Romney and Steinbart (2018), an accounting information system is a system that collects, records, stores, and processes data to produce information for decision-makers. This includes people, procedures, and infrastructure, as well as internal controls and security measures. Based on some of the above opinions, it can be

concluded that the accounting information system is a system that processes data starting from the process of collecting, classifying, recording, storing, processing until information is obtained as a reference for determining decisions by those in need.

Research and Development

According to Arifin and Nurdyansyah (2018), research and development methods are research methods used to produce products and test the effectiveness of the products produced. Supported by the opinion of Winaryati et al. (2021), Research and Development (R&D) is the conception and implementation of product ideas, both new products and improvements to old products. Products produced in Research and Development (R&D) can provide many benefits, such as convenience, speed, and effectiveness for users. Based on some of the above opinions, it can be concluded that research and development is the process of creating new products or improving existing products and validating the products produced before they are implemented en masse with the hope that these products can make users' work easier.

Based on the ADDIE model, research and development consists of five stages, namely analysis, design, development, implementation, and evaluation. The following are the steps of research and development based on the ADDIE model:

Analysis

The first stage in the ADDIE model is to analyse the importance of product development in the form of new models, methods, media, or teaching materials (Maydiantoro, 2021). Development begins with an obstacle or problem faced by the research subject. The problem arises because the product currently used is inadequate or irrelevant to the needs of the research subject.

Design

The second stage was to design the product design to be developed to get an overview when developing the product. Design activities in the ADDIE model are a systematic process that starts from designing the concept and content of the product (Maydiantoro, 2021). Instructions for implementing the design must be made clearly and in detail as the basis for the development process in the next stage.

Development

The third stage is the product development stage, which is realising the product design that was made previously (Maydiantoro 2021). The existing design is then realised into a product that is ready to be tested and applied to research subjects as problem-solving. Therefore, at this stage, researchers need to compile validation instruments by experts to measure product performance.

Implementation

The fourth stage is the implementation or application of the product to get feedback on the developed product (Maydiantoro, 2021). The assessment is given by experts by referring to the assessment instrument that has been made before. When the product is considered to have deficiencies that need to be corrected, the researcher can make revisions to improve the product.

Evaluation

The last stage in ADDIE research is evaluation. The evaluation stage is carried out to provide feedback to product users so that improvements or revisions are made based on evaluation results or unmet needs. The ultimate goal of evaluation is to measure the achievement of development goals (Maydiantoro, 2021).

RESEARCH METHODS

Development Procedure

The procedure in the research and development of this educational accounting information system used the ADDIE model because the model was in accordance with the needs of researchers in achieving research objectives. Due to time constraints, research and development had only been carried out up to the implementation stage, so it needs to be improved for the evaluation stage. The following is a description of the steps in this research and development:

Analysis

At this stage, an analysis was conducted on the problems that occurred at the OSF Semarang Education Commission Institution. Problem analysis was carried out through initial observations and initial interviews with the Commission Management at the OSF Semarang Education Commission Institution.

Design

At this stage, the design of the Education accounting information system product is carried out. Designing is done to find out or see an overview of what will be done in the development process. This design stage pays attention to the media side and the material side. The initial design is made in the form of making flowcharts and determining the accounts to be used.

Development

At this stage, the manufacture of educational accounting information system products begins. After the product has been developed, it will be validated by material experts and media experts. Validation is carried out to determine the feasibility of the product before being tested on financial managers at the OSF Semarang Education Commission Institution. If errors are found, the researcher can make improvements to the resulting product to make it more perfect.

At this stage, the product will also be tested by financial managers at the OSF Semarang Education Commission Institution. The trial was conducted to determine the necessary improvements, product feasibility, and evaluation of the developed system. After conducting the trial, users are asked to fill out a questionnaire that has been provided to determine the feasibility of the product if it is used to record the institute's finances.

The material expert validation process was carried out by a lecturer from the Faculty of Economics and Business at Satya Wacana Christian University. The material expert is Dr MI. Mitha Dwi Restuti, S.E., M.Si, an expert in accounting. The media expert validation process was carried out by a lecturer from the Faculty of Information Technology at Satya Wacana Christian University. The material expert is Purwanto, S.E., M.Cs., an expert in the IT field. The product trial was conducted on 12 users as financial managers at the OSF Semarang Education Commission Institution.

The determination of material experts and media experts was based on the expertise of each validator so that the assessment provided is relevant for improving system development. Then, users validated it, and university managers and institutional administrators acted as budget managers.

Implementation

At this stage, the implementation is carried out with real use by users, both college managers and institution administrators, as financial management at the OSF Semarang Education Commission Institution for the preparation of agency financial reports. The education accounting information system was implemented in January 2023. Through the implementation stage, users can better master the features in the developed education accounting information system so that it can support the process of preparing financial reports for both one month and one period.

Research Partners

The subjects in this research are the Commission Management and College Managers as financial managers at the OSF Semarang Education Commission. In comparison, the object of this research is the problems that occur in financial recording at the Semarang OSF Education Commission Institution, which is considered less effective and efficient in organising the flow of preparation to financial reporting of the Institution.

Data Analysis Technique

The procedure for testing the accounting information system in this study was carried out by testing the existing buttons and testing the functions or processes that occur in the system. The data analysis technique used in this research was the quantitative data analysis technique. The data were obtained from the results of filling out a set of instrument tools in the form of a questionnaire given to experts to assess the feasibility of the developed system. Then, the data obtained were analysed using the formula from McCall's quality to obtain the results of the feasibility test that was determined in the feasibility category. The data that had been collected completely were further analysed to determine the assessment and opinions of experts and users of the products developed. The data were obtained from a questionnaire filled out by material experts, media experts, and system users. The data obtained is then analysed with the following steps:

1. Converting qualitative assessments into quantitative using a measurement scale. The measurement scale is a Likert scale. In research and development, the Likert scale is used to develop instruments used to measure the attitudes, perceptions, and opinions of individuals or groups towards potential and object problems, product design, product manufacturing processes, and developed products (Sugiyono 2019). The following eligibility categories are measured by a Likert scale:

Table 1. Eligibility Categories are measured by a Likert scale

Category	Score
Strongly Agree	5
Agree	4
Quite agree	3
Disagree	2
Strongly Disagree	1

Source: (Sugiyono 2019)

2. Calculate the average score of each statement with the following formula:

$$X = \frac{\Sigma x}{N}$$

Description:
X = Average score
∑x = Total score
N = Number of question items
(Widoyoko 2015)

3. Interpret the average score results with the following formula:
Percentage of feasibility (%) = (Σ questionnaire score results)/(Σ ideal score) x 100% (Arikunto 2010). The results obtained are then categorised in the system feasibility criteria as follows:

Table 2. Categorised in The System Feasibility Criteria

Category	Score in Percentage
Very Feasible	81% - 100%
Feasible	61% - 80%
Quite Feasible	41% - 60%
Not Feasible	21% - 40%
Very Unfeasible	-21%

Source: (Arikunto 2010)

RESULTS AND DISCUSSION

Analysis Stage

The first stage carried out in the development of this education accounting information system is to carry out an analysis related to the obstacles or problems experienced by the OSF Semarang Education Commission Institution. After knowing the problems of the institute, the researcher can find the right solution for problem-solving. Like the research conducted by Mujiani and Mardhiyah (2019), the first step is to analyse the needs where researchers collect information related to the problems/constraints and needs of the partners so that alternative solutions can be determined. Based on the analysis of the results of initial observations and initial interviews with the Commission Management at the OSF Semarang Education Commission Institution, several problems faced by the Institution were known. First, the use of financial report formats and the determination of accounts used by each university are different. This occurs due to the absence of special provisions made by the institute, which means that the management of the college does not have the same guidelines for preparing financial statements.

Secondly, the use of calculation formulas in Microsoft Excel is often inaccurate and inappropriate because they must be inputted one by one. Manual inputting is inseparable from errors both from calculation formulas and from data entry. This can cause the information contained in the financial statements to be irrelevant if the financial manager does not realise the errors that occur. In the end, it can have an impact on decision-making for the benefit of the institute in the next period. Third, the recording in the financial statements only contains income earned and expenses made. As a result, the Institution does not know whether each college has a surplus or deficit. Therefore, the institution cannot carry out optimal financial management. If it is known that there is a surplus or deficit, Colleges that experience a surplus can cover the shortcomings that occur in Colleges that experience a deficit.

The four Universities submit financial reports to the Commission Management in the form of printouts, which will be archived in physical form. This is considered ineffective and inefficient because the center must collect the financial statements of each college before archiving. Based on some of the above obstacles, the management of the institute's financial statements is considered less effective and efficient for recapitulating, consolidating financial statements, and organising the flow of preparation for the institute's financial reporting. Therefore, the institute needs an accounting information system specifically for financial records. The education accounting information system is expected to facilitate the preparation of financial reports at the OSF Semarang Education Commission Institution so that the time used is more effective and efficient and prevents recording errors.

The material expert validation process was carried out by lecturers from the Faculty of Economics and Business, Satya Wacana Christian University. The material expert is Dr MI. Mitha Dwi Restuti, S.E., M.Si, an expert in accounting. The media expert validation process was carried out by lecturers from the Faculty of Information Technology at Satya Wacana Christian University. The material expert is Purwanto, S.E., M.Cs., an expert in the IT field. Product trials were conducted on 12 users as financial managers at the OSF Semarang Education Commission Institution.

Design Stage

The second stage of developing this educational accounting information system was to create a product design in the form of flowcharts and determine the accounts needed by the institute to prepare financial reports. Like the research conducted by Mujiani and Mardhiyah (2019), the second stage was to design the system by describing the system in the form of a flowchart. Flowcharts are made to be a visualisation tool for workflows and processes in system development. With flowcharts, developers can clearly understand each step required in designing and implementing the system. Developers can detail the tasks that need to be done in planning the stages of system development and ensure that development can achieve the desired goals.

The flowchart was created through the use of the Microsoft Office Visio 2013 program by adjusting the flow of recording financial statements. To produce financial statements, the manager needs to input transaction data into several journals such as cash receipts journal, bank receipts journal, cash expenditure journal, bank expenditure journal, and general journal. From the data in several journals, the ledger, cash flow statement, activity report, and statement of financial position will be generated. On the other hand, the existence of flowcharts can be a guide for end users, providing a visual guide that helps users understand how to operate the education accounting information system. The following is a flowchart of the education accounting information system:

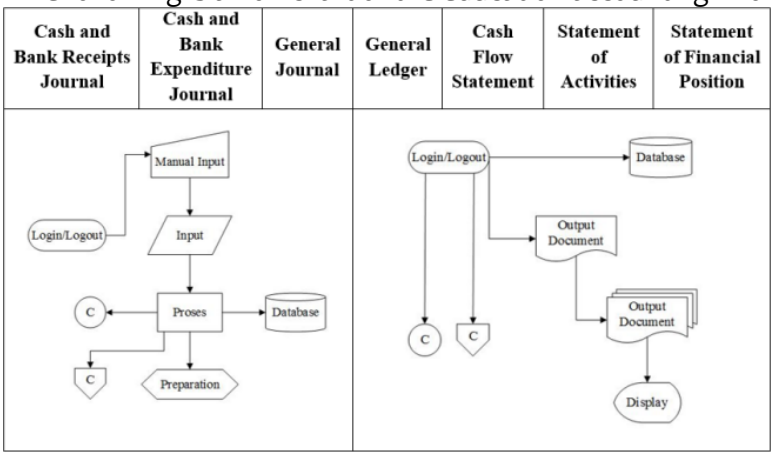

Figure 1. Flowchart of Education Accounting Information System
Source: processed data, 2024

After the flowchart was completed, the researcher began to determine the accounts that would be used in preparing the financial statements of the OSF Semarang Education Commission Institution. The list of accounts helps provide an organised structure to record and classify all the institute's financial activities. In the development of educational accounting information systems, a well-defined list of accounts can make the system produce financial reports that are accurate and easily understood by stakeholders such as management, supervisors, and other parties related to educational institutions.

Some of these accounts can be grouped into eight major groups, namely current assets, fixed assets, debt, capital, operating income, non-operating income, operating expenses, and non-operating expenses. The list of accounts is expected to support institutions in understanding financial health better and allow users to track and analyse financial performance in more detail. The following is a list of accounts that will be used in the financial statements of OSF Semarang Education Commission Institution:

Table 3. List of Account Names

No	Account	Estimate	Description
1	1100	1110	Cash
2	1100	1120	Bank
3	1100	1130	Deposits
4	1100	1140	Account Receivable
5	1100	1150	Inventory
6	1100	1160	Prepaid Expenses
7	1200	1200	FIXED ASSETS
8	1200	1210	Land
9	1200	1220	Building
10	1200	1230	Vehicles
11	1200	1240	Inventory
12	1300	1300	Accumulated Depreciation
13	2100	2100	PAYABLES
14	2100	2110	Accounts Payable
15	2100	2120	Bank Payabl
16	2100	2130	Taxes Payable
17	2100	2140	Income Received in Advance
18	2100	2150	Accrued Expenses
19	3000	3000	CAPITAL
20	4100	4100	Operating Income
21	4100	4101	Tuition Income
22	4100	4102	Activity Fee Income
23	4100	4103	PMB Income
24	4100	4104	Health Test Revenue
25	4100	4105	Final Exam Revenue
26	4100	4106	Graduation Income
27	4100	4107	Scholarship Income
28	4100	4108	Donation Income

No	Account	Estimate	Description
29	4100	4109	Business Unit Revenue
30	4100	4110	Administration Income
31	4100	4111	Other Operating Income
32	4200	4200	Non-Operating Income
33	4200	4201	Investment Income
34	4200	4202	Interest Income
35	4200	4203	Other Non-Operating Income
36	5100	5100	Operating Expenses
37	5100	5101	Salary, Honor, and Employee Benefits Expenses
38	5100	5102	Student Activity Costs
39	5100	5103	Employee Development Costs
40	5100	5104	Facilities and Infrastructure Costs
41	5100	5105	Maintenance Fee
42	5100	5106	Administration Fee
43	5100	5107	Consumables Fee
44	5100	5108	Tax Costs
45	5100	5109	Other Operating Cost
46	5200	5200	Nons Operating Costs
47	5200	5201	Loan Interest Expenses
48	5200	5202	Bank Administration Fee
49	5200	5203	Bank Tax Expenses
50	5200	5204	Depreciation Expenses
51	5200	5205	Other Non-Operating Expenses

Source: processed data, 2024

Development Stage

The third stage carried out in the development of this educational accounting information system is the manufacture/development of products and the validation process by several experts to test the feasibility of educational accounting information system products. Like the research conducted by Permatasari and Luhsasi (2022), after compiling the flowchart, the researcher begins to translate the design into a code or format that can be read by the system, which can then be tested on the system that has been developed through experts to identify weaknesses and make necessary improvements. At this stage, product development begins to be carried out based on the flowchart that has been made previously. With the flowchart, developers have a clear framework for creating applications according to predetermined specifications. The developed system can be accessed flexibly through mobile phones, laptops, and computers.

After the product has been developed, a validation process is carried out by several experts in the fields of accounting and IT. The experts conducted a thorough evaluation of the developed product so that the necessary improvements, product feasibility, and evaluation of the developed system were known. Validation by experts provides a critical external perspective and helps ensure that the developed system meets the expected quality and reliability standards. In addition, product trials were also carried out with the financial managers of the Institution so as to obtain an assessment of the feasibility of the product from the users. From this assessment, criticism, suggestions, and input are obtained, which can be a reference for product improvement so that improvements can be made.

At this stage, a website-based education accounting information system product is made using the PHP MySQL database. Therefore, the system can be set up if the institution wants online access. That way, the recording of financial statements can be done in real time, and parties at the college and the institution can conduct direct checks. Development is carried out based on the flow of recording financial statements needed by the Institution, including the concept of input, process, and output. The flow consists of cash and bank receipt journals, cash and bank expenditure journals, general journals, ledgers, cash flow statements, activity reports, and statements of financial position. This system was developed using the single-entry method, where the recording of financial transactions was only done

once, and the data were automatically inputted into the relevant accounts. Here are some of the displays on the developed education accounting information system product:

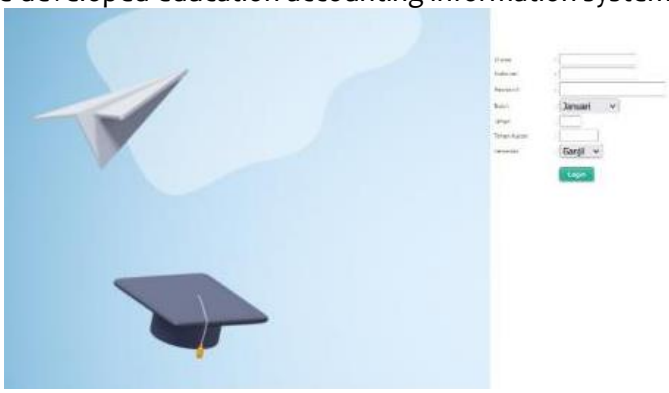

Figure 2. System Login Page View

The education accounting information system can be accessed through the URL ptosf.marsudirini.or.id. On the login page, the user ID, unit code, unit password, month and year of the intended school, and semester type are provided. The four universities have their own access so that the contents of the user ID and password can be adjusted according to their provisions. The Central Admin can access all data in each college where financial data is grouped every month so that it can produce financial reports per month.

Figure 3. Income and Expenditure Graph View

The graph can be used to compare income and expenses that have been inputted. The graph can also be used to compare the type of income that best supports college revenue. Through this comparison, each college can find out whether it is experiencing a surplus or deficit in its financial management. The bottom table is a record of the last inputted transaction data, making it easier for users to continue inputting new transactions.

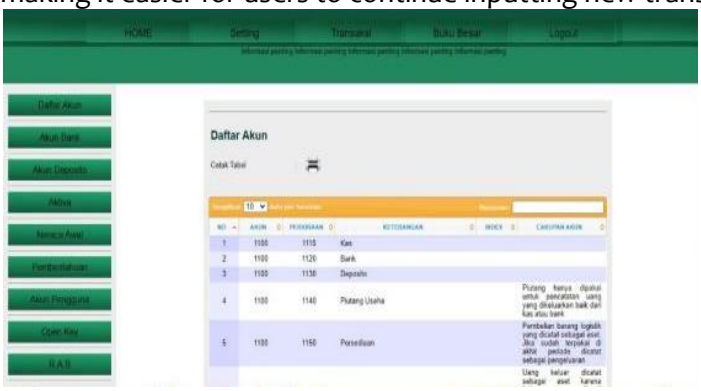

Figure 4. View of Account Name List

A list of account names used for the preparation of financial statements is provided so that it is easier for users to determine the account to which data will be inputted. Users can organise and classify all financial transactions that occur in the institution through a list

of available account names. This list of accounts provides a clear structure, making financial management and reporting easier. Each account reflects a specific type of transaction, such as income, expenses, assets, and liabilities. With the list of accounts, users can easily track and analyse financial information for decision-making. In addition, the list of accounts also supports compliance with applicable accounting standards.

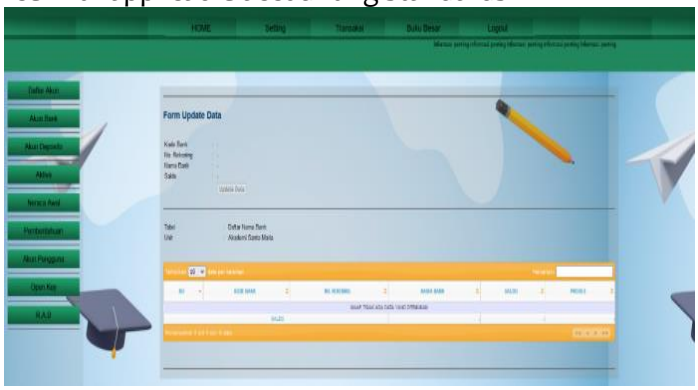

Figure 5. Bank Account View

The bank account can be more than one. If there is an additional bank account, then it can be inputted by the Central Admin. The nominal initial bank balance entered must be the same as the nominal initial bank balance on the initial balance sheet. Transactions are only done once at the beginning of using the system. When the system is running, the initial bank balance will remain zero, the nominal entry in the bank is inputted via cash deposit.

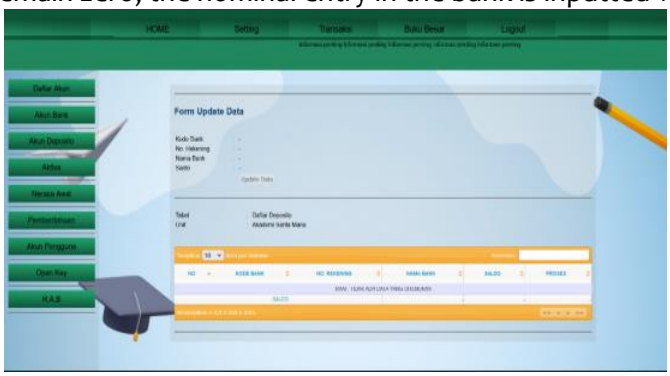

Figure 6. Deposit Account View

The deposit account used can be more than one. If there is an additional deposit account, then it can be inputted by the Central Admin. The nominal balance of the initial deposit entered must be the same as the nominal balance of the initial deposit on the initial balance sheet. Transactions are only done once at the beginning of using the system. When the system is running, the initial balance of the deposit will remain zero, and the nominal input on the deposit is inputted through cash deposits.

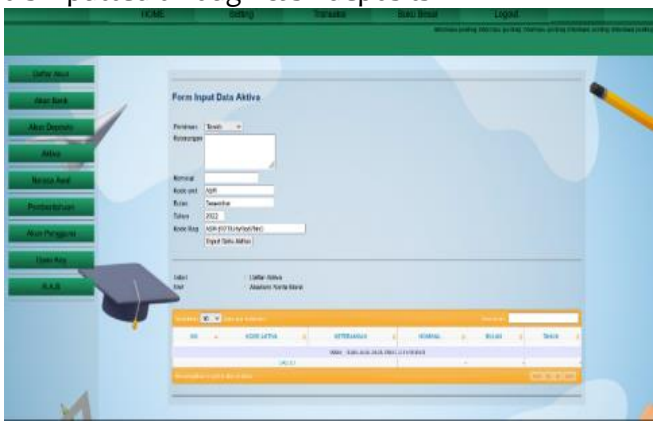

Figure 7. View of Asset Input

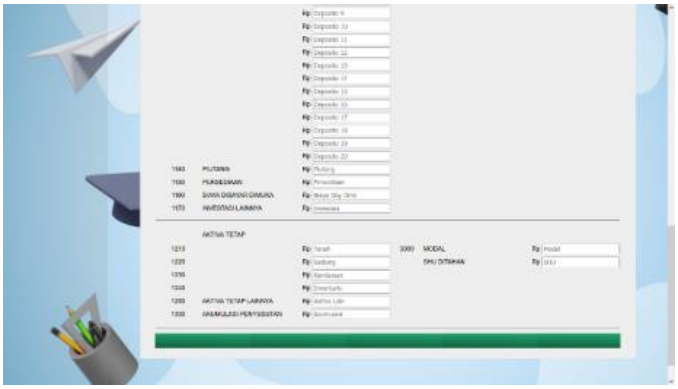

Figure 8. Initial Balance Sheet Input View

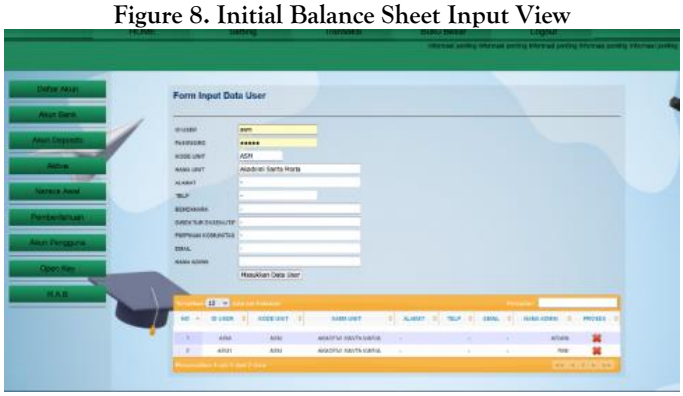

Figure 9. User Account Input View

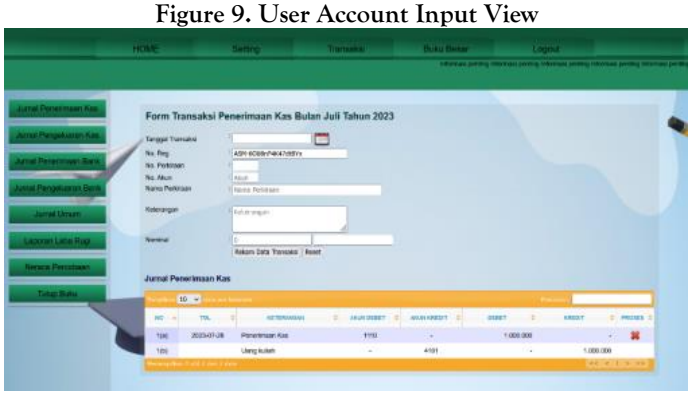

Figure 10. View of Cash Receipt Transaction Input

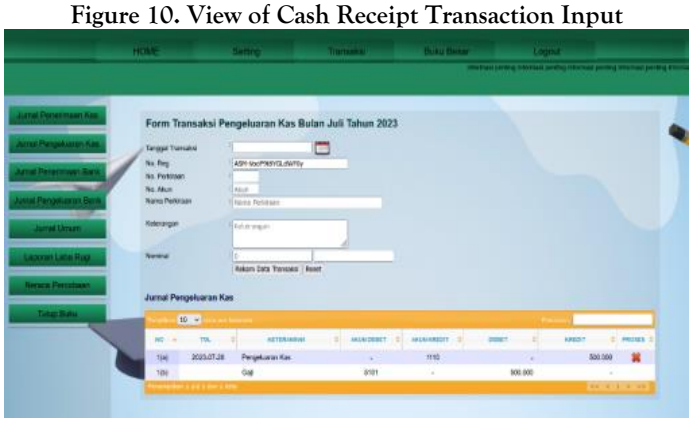

Figure 11. View of Cash Expenditure Transaction Input

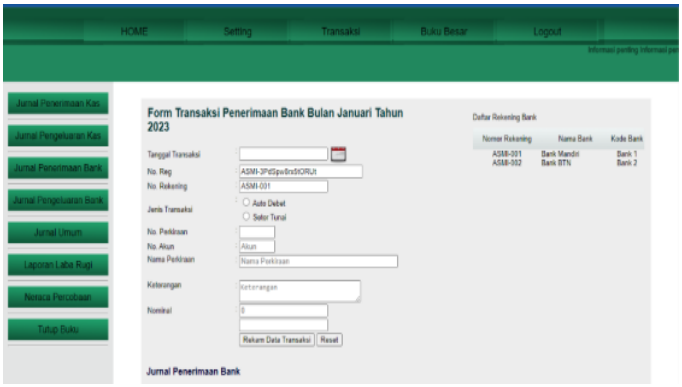

Figure 12. View of Bank Receipt Transaction Input

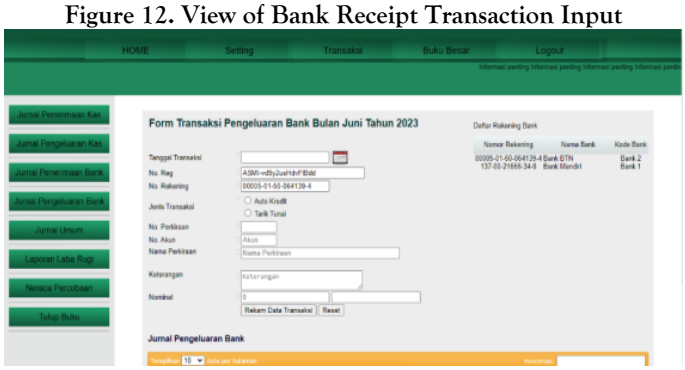

Figure 13. View of Bank Expenditure Transaction Input

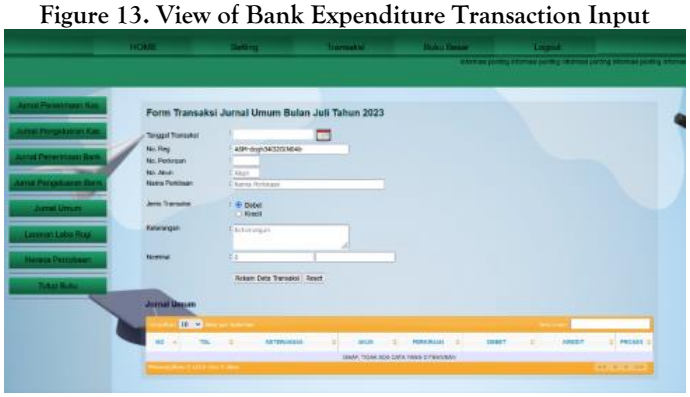

Figure 14. General Journal Input View

The input display on the education accounting information system consists of eight groups, namely asset input, initial balance input, user account input, cash receipt transaction input, cash expenditure transaction input, bank receipt transaction input, bank expenditure transaction input, and general journal input. Asset input serves to record data on assets owned by the Institution, such as land, buildings, vehicles, and inventory. Initial balance input serves to record initial balance sheet data consisting of current assets, fixed assets, debt, and capital. Recording initial balance sheet data was only done once at the beginning of the system's use. User account input serves to record data related to users. Cash receipt transaction input serves to record all transaction data from the acquisition of the institute's cash. Cash expenditure transaction input serves to record all transaction data from the use of Institution cash.

Bank receipt transaction input serves to record all transaction data from the acquisition of cash at the bank used by the Institution. Bank expenditure transaction input serves to record all transaction data from the use of cash at the bank used by the Institution. General journal input serves to record all Institutional transaction data using the double-entry method, where transactions need to be classified into debits or credits. Transactions in the general journal are only carried out at the end of the period, and corrections are recorded that require adjustments and do not involve cash and bank accounts.

Figure 15. Balance Recap / Data Synchronisation View

Balance Recap is done to withdraw data that has been inputted so that the input data does not cause errors and can be checked through the trial balance.

Figure 16. Close Book View

Close the book in the current month to lock the transaction menu so that data cannot be changed but can still be seen in the ledger menu for that month. Users can ensure that all financial transactions have been recorded correctly before the new period begins. In addition, this process helps identify errors or discrepancies that may have occurred during the accounting period. Thus, book closing plays an important role in maintaining the accuracy and transparency of an institution's financial statements.

Figure 17. Viewing and Printing Financial Statements

This menu can show all data on the institute's financial statements, and users can print financial reports in hardfile form. Some of the records that can be printed are ledgers, cash flow statements, profit/loss statements, and balance sheets.

Figure 18. Cost Budget Plan View

The Cost Budget Plan menu serves to carry out financial planning before the new period runs. Cost Budget Plan filling is done by inputting a nominal adjustment to the approved plan. With the Cost Budget Plan, the institute can see a comparison between the financial plan and the realisation in the period in question. The Cost Budget Plan menu is in the settings section.

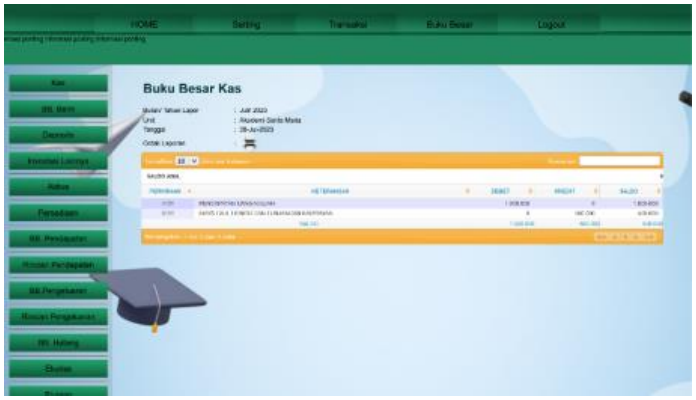

Figure 19. Logout Display

The logout menu functions to close or exit the system so as to avoid system errors/timeouts. With this menu, users can ensure that sensitive financial data and information cannot be accessed by unauthorised parties after they have finished using the system. Logging out also helps prevent potential account abuse, especially if the device is used by multiple people.

After the product has been developed, it is validated by material experts and media experts. Validation was carried out to determine the feasibility of the product before it was tested on financial managers at the OSF Semarang Education Commission Institution. If errors are found, the researcher can make improvements to the product based on the experts' assessment. The following are the results of the validation process from material experts and media experts:

Material Expert

This stage is carried out by assessing the product by filling out a questionnaire related to the substance of AIS and the benefits of AIS. The following are the results of validation by material experts for educational accounting information system products:

Table 4. Material Expert Validation Results

Aspect	Average Score	Percentage	Category
AIS Substance	3.89	78%	Feasible
Benefit of AIS	4.00	80%	Feasible
Average	**3.94**	**79%**	**Feasible**

Source: Processed primary data, 2024

Table 4 shows that the material applied to the education accounting information system is included in the feasible category. This can be seen in the average score of 3.94 or

in the percentage value of 79%. Both aspects, namely the substance of SIA and the benefits of SIA, are included in the feasible category. In the evaluation of the questionnaire given to the material expert, several comments need to be observed. First, there is a question of whether revenue recording is only done on cash income. In fact, the income recorded in the system includes both cash and bank account income. Furthermore, there was a note regarding the title of the guide, which was originally titled SIMDIK, but the content was related to accounting records. Therefore, the name of the education accounting information system guide was changed from SIMDIK to SIADIK because the system focuses on financial records in higher education in OSF Semarang, not on higher education management.

Media Expert

This stage is carried out by assessing the product by filling out questionnaires related to the database, design, operation, substance of AIS, and benefits of AIS. The following are the results of validation by media experts for educational accounting information system products:

Table 5. Media Expert Validation Results

Aspect	Average Score	Percentage	Category
Database	4.60	92%	Very Feasible
Design	5.00	100%	Very Feasible
Operation	4.50	90%	Very Feasible
AIS Substance	4.72	94%	Very Feasible
Benefit of AIS	5.00	100%	Very Feasible
Average	**4.76**	**95%**	**Very Feasible**

Source: Primary data processed, 2024

Table 4 shows that the education accounting information system is included in the very feasible category. This can be seen in the average score of 4.76 or in the percentage value of 95%. The five aspects, namely database, design, operation, AIS substance, and AIS benefits, are included in the very feasible category. In the evaluation of the questionnaire given to media experts, there were no significant comments because the system was considered good.

At this stage, based on the validation process from both material experts and media experts, product improvements are made according to the evaluation results given. Judging from the evaluation results in the questionnaire, material experts and media experts did not provide revisions to the educational accounting information system product. Therefore, after going through the assessment of the validator and the product is declared suitable for use, it will continue at the field trial stage to the Users.

Then, the educational accounting information system that has been developed will undergo a refinement stage based on the capabilities and needs of future Users. Evaluation through the questionnaire provided will provide input for researchers regarding deficiencies and User expectations of system functionality. Therefore, researchers have a basis for implementing relevant improvements so that this education accounting information system can work more optimally, be easily used, and be in accordance with the needs of the OSF Semarang Education Commission Institution.

User Validation

The trial was conducted to determine the necessary improvements, product feasibility, and evaluation of the developed system. Users provided product assessment through questionnaires related to the design, operation, substance of the AIS, and benefits of the AIS. The following are the results of validation by users for educational accounting information system products:

Table 6. User Validation Results

Aspect	Average Score	Percentage	Category
Design	4.40	88%	Very Feasible
Operation	4.50	90%	Very Feasible
AIS Substance	4.58	92%	Very Feasible
Benefit of AIS	4.54	91%	Very Feasible
Average	**4.54**	**91%**	**Very Feasible**

Source: Primary data processed, 2024

Table 5 shows that the educational accounting information system developed is considered very feasible by users. This can be seen in the average score of 4.54 or in the percentage value of 91%. The four aspects, namely design, operation, substance of AIS, and benefits of AIS, are included in the very feasible category. The existence of an education accounting information system is very helpful for the work of financial managers and is able to produce transparent and open financial information. Financial data can also be accessed in real time so that reporting to the center is delivered more quickly. On the other hand, users experience difficulties when there are network problems because the data in the system can only be accessed online.

The development of this education accounting information system successfully provided a comprehensive solution to the problems faced by the OSF Semarang Education Commission Institution. The implementation of the system not only provides operational efficiency, accuracy, and reliability of financial data but can facilitate a better understanding of the institute's financial health. Supported by a well-defined list of accounts, the system can present financial information clearly, support comprehensive reporting, and provide a solid basis for decision-making.

Implementation Stage

The fourth stage of the development of this educational accounting information system is the implementation or application of the product. Like the research conducted by Prasticha, Isnain, and Yasin (2022), when the system is finished being developed, the researcher implements the program to users so that it can simplify and speed up the work. At this stage, real use began to be carried out by financial managers at the OSF Semarang Education Commission Institution, but evaluation activities had not yet been carried out. The education accounting information system was implemented in January 2023. Through the implementation stage, users can better master the features in the developed education accounting information system so as to support and facilitate the process of preparing financial reports for both one month and one period. Users, in addition to requiring adequate hardware, also need to have good internet network access to access this system.

This stage is a crucial phase where the system that has been developed begins to be realised into real operational activities. At this stage, there needs to be training for users who will operate the system. This aims to provide an adequate understanding of how to use the new education accounting information system. In addition, it is necessary to monitor and evaluate to ensure that the system functions as expected and can facilitate user needs effectively. Evaluation is done to identify potential problems and ensure that the quality of the system is maintained. If discrepancies or problems are found, improvements need to be made to the system immediately. The implementation stage can provide certainty that this education accounting information system can make a positive contribution to financial management and be able to meet the accounting needs of educational institutions.

Based on the implementation stage, the system is considered capable of recording and tracking the institute's financial transactions, generating financial reports, and providing relevant accounting information. The Central Admin can pay attention to the financial performance of each university so that the budget can be managed optimally. It is expected

that the developed education accounting information system can make a significant contribution to improving the efficiency and accuracy of accounting management within the OSF Semarang Education Commission Institution.

In addition to providing convenience in managing finances, there are several evaluations from users that can be taken into consideration for the improvement of system development and improvement. First, there is a need for a detailed video tutorial as an operational guide for users. Second, there is a proposal to add features related to the personnel administration system. Third, users highlight the need for maintenance so that errors that appear on the system can be resolved immediately. Furthermore, several users conveyed the need for additional columns containing codes on expenditure and income transactions, especially on the cash and bank side, to ensure accuracy and facilitate verification. In addition, there are obstacles related to deleting data due to recording errors where the data still appears in the recapitulation, requiring Central Admin intervention to resolve it.

Then, there is a suggestion to sort the results of data input to match the order of input so that it makes it easier to search or double-check to delete data if there are recording errors. Furthermore, in the ledger, income and expenses are not summed up with a fixed total of 0. Finally, there is a suggestion to beautify the appearance of the menu options with an image icon design so that the system interface becomes more attractive and eye-catching. The feedback will be a guide for researchers to develop further and improve the quality of this education accounting information system.

CONCLUSION

The education accounting information system is developed based on a website where users can access all the institute's financial data anywhere and anytime via cellphone, laptop, or computer supported by a stable network. The parties who can access this system are the Commission Management and Financial Manager at the OSF Semarang Education Commission Institution to manage the Institution's finances. This system contains cash and bank receipt journals, cash and bank expenditure journals, general journals, ledgers, cash flow statements, activity reports, and statements of financial position. The system is developed with the single entry method for cash and bank journaling, where the financial manager only needs to input data once, and the data will automatically be inputted into the relevant accounts. In the adjustment journal, journaling can only be done using the double-entry method because the data input must be determined in advance by the financial manager. The system is equipped with RAB as a budget allocation planner so that the Institution can more easily realise the budget in the relevant period in accordance with its planning. The system also provides files that can be printed based on the format provided.

The feasibility of educational accounting information systems can be seen through the results of validation by material experts, media experts, and users. Validation by material experts shows an assessment of 3.94 or 79%, which is classified in the "Feasible" category. Validation by media experts shows an assessment of 4.76 or 95%, which is classified as "Very Feasible." Validation by users shows an assessment of 4.54 or 91%, which is classified as "Very Feasible." Based on the results of this validation, it can be concluded that the education accounting information system is very feasible to be implemented at the OSF Semarang Education Commission Institution so that it can facilitate the work of Institutional Administrators and College Managers in preparing financial reports.

The research implications of this study include several important aspects. First, this research provides an understanding of increasing the efficiency and accuracy of institutional financial management by utilising technology. Second, the results of the study can guide

decision-makers to improve system implementation so as to support the transparency and accountability of the institution's financial statements. Third, system development contributes to improving the quality of educational institutions by providing more accurate data for analysis and planning. Then, the social implication of this research is that it can increase public trust in the institution's budget management.

Based on the results, discussion, conclusions, and limitations of this study, there are several suggestions that researchers can convey, including for the OSF Semarang Education Commission Institution and Further Researchers. College managers need to prepare a stable internet network so that there are no problems when inputting financial data. In addition, the institution's management can conduct special training to enable college managers to adapt to the education finance information system, improve their understanding of system operations, and optimise work efficiency. Furthermore, institutional managers need to conduct regular maintenance to care for, maintain, and update the system so that its quality remains optimal and errors can be prevented that can impact the institution's financial data. Further, researchers can conduct research and develop accounting information systems whose products can be tailored to the capabilities and needs of research partners so that they can contribute optimally, such as integrating accounting information systems with management information systems for staffing to facilitate calculations on employee payroll. Therefore, the operational activities of research partners can run effectively, efficiently, transparently, and accountably.

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