



Effect of Accounting Information Systems on Enhancing Decision-Making Processes in Financial Institutions: A Case of Ecobank, Rwanda

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Abstract: This study examined the effect of Accounting Information Systems (AIS) on enhancing decision-making processes in financial institutions, using Ecobank Rwanda headquarters in Kigali as a case study. The research was anchored on Decision Usefulness Theory, Information Systems Success Theory, and Contingency Theory to assess the influence of data entry and processing, financial reporting, budgetary control, and cash management systems on managerial decision-making. A mixed-methods approach employing descriptive and explanatory research designs was adopted. Using a census approach, data were collected from 142 employees, with 138 valid questionnaires returned (97.2% response rate), complemented by four key informant interviews. Quantitative data were analyzed using SPSS through descriptive and inferential statistics. Multiple regression results showed that the model explained 60.2% of the variation in decision-making processes ($R^2 = 0.602$, $F = 50.364$, $p < 0.001$). Data entry and processing ($B = 0.538$, $p < 0.001$) and budgetary control systems ($B = 0.378$, $p < 0.001$) had significant positive effects on decision speed, accuracy, and strategic alignment. However, financial reporting systems ($p = 0.700$) and cash management systems ($p = 0.373$) did not show significant independent effects. The study concludes that despite Ecobank Rwanda's adoption of automated AIS technologies, challenges such as data silos, spreadsheet-based reconciliations, and manual verification reduce system efficiency. It recommends strengthening automated data entry, enhancing budgetary monitoring, improving cash flow forecasting, and providing continuous AIS training to support evidence-based managerial decision-making.

Keywords: Accounting Information Systems (AIS), Decision-Making Processes, Budgetary Control Systems, Data Entry and Processing, Financial Institutions.

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1. Introduction

The global banking industry has undergone a profound and continuous transformation over the past decade, propelled by rapid advances in digital technology, heightened market competition, shifting customer expectations, and increasingly stringent regulatory requirements (Romney & Steinbart, 2021). Within this dynamic environment, commercial banks have come to depend heavily on timely, accurate, and reliable information as the foundation for sound strategic,

tactical, and operational decision-making (Hall, 2023). It follows that organizational competitiveness and long-term sustainability are no longer determined solely by the availability of financial capital, but increasingly by an institution's capacity to generate, process, and effectively utilize high-quality financial information (Romney & Steinbart, 2021). It is within this context that Accounting Information Systems (AIS) have emerged as one of the most indispensable organizational resources for achieving efficient and

evidence-based managerial outcomes (Gelinas et al., 2022).

An AIS, understood broadly, integrates accounting principles with information technology to collect, process, store, and disseminate both financial and non-financial data in support of planning, control, and performance management functions (Romney & Steinbart, 2021). Historically, such systems were confined largely to bookkeeping and statutory reporting obligations, serving a narrow compliance-oriented purpose rather than a strategic one (Hall, 2023). However, the accelerating convergence of Enterprise Resource Planning (ERP) platforms, cloud computing, business intelligence tools, artificial intelligence, and predictive analytics has fundamentally reshaped AIS into comprehensive decision-support architectures capable of enhancing organizational efficiency, transparency, and strategic responsiveness (Gelinas et al., 2022). This evolution is particularly consequential within the banking sector, where institutions process millions of financial transactions daily while simultaneously managing credit risk, liquidity exposure, operational vulnerabilities, cybersecurity threats, and an expanding web of regulatory compliance obligations (Susanto, 2023). Effective managerial decision-making in such a high-volume, high-risk environment is therefore contingent upon the availability of integrated accounting information capable of producing real-time, accurate, and dependable financial reports (Grande et al., 2022). Well-designed AIS have been shown to improve data quality, reduce information asymmetry between departments, minimize the incidence of human error, strengthen internal control mechanisms, and ultimately facilitate more evidence-based managerial judgment (Grande et al., 2022).

Conversely, fragmented or poorly integrated accounting systems tend to generate delayed, inconsistent, or unreliable information, thereby constraining managerial effectiveness and undermining overall organizational performance (Susanto, 2023). These structural challenges are especially pronounced within emerging economies, and particularly across Sub-Saharan Africa, where commercial banks must operate under rapidly evolving regulatory frameworks while simultaneously pursuing accelerated financial inclusion agendas (World Bank, 2023). Banks operating in these environments face the dual imperative of improving operational efficiency while remaining compliant with international financial reporting standards, anti-money laundering regulations, and prudential supervisory requirements (IFAC, 2023). Consequently, sustained investment in modern, integrated Accounting Information Systems has become an essential strategic priority for improving financial reporting quality, strengthening risk management, and enabling sound decision-making across the banking industry (World Bank, 2023).

In Rwanda specifically, the financial sector has experienced a remarkable trajectory of digital

transformation, driven in large part by the ambitions articulated in Vision 2050 and reinforced through the Financial Sector Development Programme (National Bank of Rwanda, 2024). These national policy frameworks place explicit emphasis on innovation, digital finance, expanded financial inclusion, and the broader modernization of financial institutions operating within the country (National Bank of Rwanda, 2024). In response, the National Bank of Rwanda has progressively strengthened the regulatory architecture governing financial reporting standards, data integrity requirements, risk management practices, and the provision of digital financial services (National Bank of Rwanda, 2024). This regulatory tightening has, in turn, compelled commercial banks operating within Rwanda to continuously enhance the quality, reliability, and integration of their internal accounting information systems (National Bank of Rwanda, 2024). It is within this rapidly evolving institutional and regulatory landscape that Ecobank Rwanda, a subsidiary of the pan-African Ecobank Group headquartered in Kigali, conducts its operations (Hall, 2023). The bank's operational footprint spans extensive retail banking, corporate banking, electronic banking, and cross-border financial services, each of which generates substantial volumes of financial and operational data requiring careful management (Gelinas et al., 2022).

To remain both competitive and financially sustainable within this environment, Ecobank Rwanda's management necessarily depends on integrated accounting information systems capable of supporting effective budgeting, financial reporting, cash management, liquidity planning, and broader strategic resource allocation (Romney & Steinbart, 2021).

It is therefore increasingly important to understand how the distinct components of an AIS, namely data entry and processing systems, budgetary control systems, financial reporting systems, and cash management systems, shape and influence the quality of managerial decision-making within such an institution (Susanto, 2023). This understanding carries direct implications not only for Ecobank Rwanda's own operational performance, but also for the broader competitiveness of Rwanda's commercial banking industry as a whole (World Bank, 2023).

Despite substantial capital investment in sophisticated accounting software, enterprise resource planning platforms, and digital banking infrastructure, many commercial banks continue to grapple with persistent operational challenges linked to their accounting information systems (Hall, 2023). Senior managers across the industry frequently report delays in the production of financial reports, fragmented organizational databases, inconsistent data validation procedures, and limited integration of systems across departmental boundaries (Susanto, 2023). These recurring challenges have the cumulative effect of reducing reporting accuracy, increasing institutional

dependence on manual intervention, fostering the emergence of information silos, and ultimately constraining the capacity for evidence-based managerial decision-making (Hall, 2023). Similar operational difficulties have been observed within Ecobank Rwanda's own institutional context, notwithstanding its adoption of advanced enterprise accounting platforms (Grande et al., 2022). Practical challenges persist in areas such as data validation, interdepartmental reporting coordination, budget monitoring, and financial reconciliation processes, suggesting that technological sophistication alone does not guarantee optimal decision-support outcomes (Susanto, 2023). Notably, in some instances, managers continue to rely on standalone spreadsheet applications to reconcile financial information generated by otherwise automated systems, a practice that increases the likelihood of human error while simultaneously delaying reporting timelines and reducing overall operational efficiency (Grande et al., 2022). Left unaddressed, such practices carry the potential to adversely affect liquidity management, budgeting effectiveness, strategic planning capacity, and ultimately the broader organizational performance of the institution (IFAC, 2023).

It is against this backdrop of rapid digital transformation, tightening regulatory oversight, and persistent operational friction that the present study is situated, seeking to investigate the effect of Accounting Information Systems on organizational decision-making at Ecobank Rwanda Headquarters in Kigali (National Bank of Rwanda, 2024). In pursuing this inquiry, the study gives particular attention to how data entry and processing systems, budgetary control mechanisms, financial reporting infrastructure, and cash management systems collectively shape the quality, timeliness, and reliability of managerial decisions within the institution (Romney & Steinbart, 2021). The study's temporal focus on the period from 2020 to 2024 is deliberate, capturing a phase marked by accelerated digital adoption, post-COVID-19 technological advancement, and significant regulatory reform within Rwanda's financial sector (World Bank, 2023). By grounding the inquiry within one of Rwanda's leading commercial banks, the study is positioned to generate findings that are both institutionally specific and broadly instructive for the wider banking sector across the region (IFAC, 2023). Ultimately, the study is expected to contribute meaningfully to the growing body of scholarship on Accounting Information Systems while offering practical, actionable recommendations for strengthening digital financial management and enhancing organizational performance across Rwanda's commercial banking industry (Gelinass et al., 2022).

2. Literature Review

2.1 Conceptual Review

The conceptual review establishes a shared understanding of the core terminology underpinning the study, beginning with the Accounting Information System (AIS) itself. Drawing on Sidney (2020), the review frames AIS as an integrated framework of people, procedures, data, and technology that collects, records, processes, stores, and disseminates financial information for internal decision-making, control, and external reporting. This framing positions AIS not merely as a bookkeeping mechanism but as strategic infrastructure that supports budgeting, forecasting, performance analysis, and risk management (Erikson, 2020). Monteiro (2021) extends this definition by emphasizing the human and capital resource dimensions of AIS the software, hardware, and personnel that together convert raw transactional data into structured financial reports capable of informing planning and control decisions. The timeliness of this data conversion is repeatedly stressed as especially consequential in banking, where delayed information can translate directly into financial or reputational losses (Terry & Paghna, 2023). Putra (2019), citing Susanto (2013), adds a structural perspective, describing AIS as a network of interrelated subsystems: accounts payable, accounts receivable, payroll, fixed assets, inventory, and the general ledger whose seamless integration reduces redundancy and error while enabling cross-departmental data flow. Romney, Steinbart, and Cushing (2015) reinforce this by highlighting the communicative function of AIS in coordinating information exchange across organizational units. Beyond operational bookkeeping, the conceptual review also positions AIS as a compliance and fraud-detection mechanism, supporting audit trails, regulatory adherence, and variance analysis that underpins resource allocation decisions (Martha, 2019; Yan, 2023).

From this foundation, the review unpacks four specific AIS components central to the study. First, data entry and processing systems are defined as the mechanisms by which raw transactions are captured and transformed into structured, usable information, with accuracy at the entry stage considered critical because errors propagate through the entire accounting cycle (Romney & Steinbart, 2021). Modern systems embed automated validation and error-detection features that reduce manual mistakes and support faster decision-making (Monteiro, 2021; Sidney, 2020); at Ecobank Rwanda specifically, these systems must manage high-volume, high-complexity banking transactions deposits, loans, foreign exchange, and compliance reporting through ERP platforms that enable real-time data flow, regulatory compliance with the National Bank of Rwanda, and rapid fraud detection (Terry & Paghna, 2023; Martha, 2019; Yan, 2023). Second, financial

reporting systems are described as the component responsible for compiling and presenting financial data into structured outputs such as income statements, balance sheets, and cash flow statements (Gasey, 2020), with Romney and Steinbart (2018) emphasizing their role in enhancing transparency and accountability.

In Ecobank Rwanda's context, this function extends beyond routine reporting to regulatory compliance with both the National Bank of Rwanda and international standards such as IFRS, with Kinyua (2020) noting that automation improves consistency, accuracy, and stakeholder trust, while enabling managers to respond quickly to emerging financial risks. Third, budgetary control systems are conceptualized as tools that compare actual performance against planned budgets to guide resource allocation and financial discipline (Lucey, 2023). At Ecobank Rwanda, these systems support departmental resource distribution, cost management, and revenue forecasting, with Nyaribo and Omwenga (2025) suggesting that well-functioning budgetary control enhances financial discipline and allows rapid identification of underperformance or overspending through real-time variance analysis.

Fourth, cash management systems are defined as mechanisms for planning, monitoring, and controlling cash inflows and outflows to preserve liquidity and solvency (Gitman & Zutter, 2023). Within Ecobank Rwanda, these systems underpin customer transactions, loan servicing, payroll, and investment decisions, with Mwangi and Kamau (2020) noting that real-time cash visibility reduces overdraft risk and missed payments, while Mariam (2022) links cash management to strategic investment planning and fraud detection through anomaly tracking.

The conceptual review closes by defining decision-making itself as a structured managerial process: problem identification, information gathering, and evaluation of alternatives, selection, implementation, and evaluation that depends fundamentally on the availability of accurate and timely information (Drucker, 2007). AIS supports each stage of this process, with Laudon and Laudon (2020) arguing that modern platforms improve both the speed and quality of decisions through integrated, real-time data access. In banking specifically, AIS reduces uncertainty in complex decisions such as loan approvals and investment planning, and decentralized systems increasingly allow middle and operational managers, not just executives, to make informed, function-specific decisions (Sam & Ferrari, 2020).

2.2 Theoretical Review

The theoretical review anchors the study in three complementary frameworks. The first, Decision Usefulness Theory, originates with George Staubus in the 1960s, who redirected accounting thought away from a stewardship model focused on historical reporting toward a forward-looking model centered on

the informational needs of users making economic decisions (Staubus, 1961). The theory holds that accounting's core purpose is to generate information that is relevant, reliable, timely, and comparable (FASB, 2020), implying that AIS should be designed not merely to process data but to maximize its decision-making utility. Beest, Braam, and Boelens (2019) support this by showing that the quality of accounting information significantly shapes strategic and operational choices. This theory is applied most directly to the study's examination of financial reporting systems, suggesting that when Ecobank Rwanda's AIS produces timely, comprehensible reports, it directly strengthens planning, budgeting, and financial control.

The second framework, the Information Systems Success Theory (the DeLone and McLean IS Success Model), was introduced in 1992 to unify the fragmented literature on information systems effectiveness, originally identifying six interdependent variables: system quality, information quality, use, user satisfaction, individual impact, and organizational impact (DeLone & McLean, 1992). The model was updated in 2003 to add service quality and consolidate impact measures into a "net benefits" construct (Loamy, 2023). Samson (2023) clarifies that system quality concerns technical reliability, information quality concerns accuracy and timeliness of outputs, and service quality concerns user support, together shaping satisfaction and usage, which in turn drive net organizational benefits. Recent studies (Al-Emran et al., 2020; Hien et al., 2021) have validated the model's relevance to cloud-based and enterprise AIS.

This framework maps directly onto the study's four AIS components: reliable, accessible systems (system and service quality) that deliver accurate, timely outputs (information quality) encourage consistent use, ultimately producing better strategic and operational decisions (net benefits). The third framework, Contingency Theory, emerged from Woodward's (1965) and Lawrence and Lorsch's (1967) research, challenging the idea of a single "best way" to organize or manage institutions, instead arguing that effectiveness depends on fitting internal structures to external conditions such as technology, market complexity, and organizational size.

Applied to AIS, the theory suggests that system design and effectiveness are contingent on factors like organizational size, regulatory environment, and technological infrastructure (Otley, 2019; Chenhall, 2023), meaning a centralized AIS may suit a large, heavily regulated institution while a decentralized system may better serve a smaller, more flexible one. This theory is particularly relevant to the study's treatment of budgetary control and cash management systems, explaining why their effectiveness at Ecobank Rwanda may vary depending on how well they are tailored to the bank's specific operational context, and

reinforcing the need for adaptable, context-sensitive AIS design (Werras, 2021).

2.3 Empirical Review

The empirical review surveys prior studies across global, African, East African, and Rwandan contexts for each of the four AIS components, consistently finding positive relationships between AIS components and organizational decision-making by improving information quality, reporting efficiency, financial control, and managerial effectiveness, although these benefits are often tempered by recurring implementation challenges such as inadequate ICT infrastructure, limited user skills, system complexity, and resistance to change (Romney & Steinbart, 2021; Hall, 2023; Gelinas et al., 2022; Heeks, 2018; IFAC, 2021).

For data entry and processing, global evidence from the International Records Management Trust (2019) found 85% of organizations with strong data entry frameworks reported improved decision-making speed and accuracy, though concerns about data security and workforce training persisted. In Africa, the African Records Management Association (2020) found roughly 60% of public institutions had adopted electronic records systems, with 75% of those reporting improved retrieval speed and decision accuracy, though inadequate ICT infrastructure and resistance to change remained barriers. Regionally, the East African Records Management Association (2021) reported that about 70% of Kenyan public institutions had digitized data entry, cutting document retrieval times by half, while Uganda's healthcare sector saw a 40% efficiency gain from electronic health records, though skill shortages and power outages limited full effectiveness. In Rwanda, the Rwanda Revenue Authority's electronic tax system boosted collection efficiency by 30% (RRA Report, 2022), and the Ministry of Health's DHIS2 platform supported more evidence-based policymaking; however, Russpatrick et al. (2021) found a persistent gap between available tools and actual use, with many users defaulting to familiar spreadsheet software over more sophisticated dashboards, pointing to training and system-design shortfalls. For financial reporting systems, IFAC (2021) found that 78% of organizations with integrated reporting systems reported improved decision-making, though data overload and complexity remained obstacles. The African Development Bank (2020) found 65% of African public organizations had computerized their reporting systems, with 80% of those noting improved transparency and accountability, despite ongoing infrastructure and change-resistance issues. In East Africa, the East African Community (2021) found 72% of Kenyan public institutions had adopted computerized reporting, cutting errors by 60%, while Uganda's Integrated Financial Management System delivered a 50% improvement in reporting accuracy and timeliness, though training and resource constraints persisted.

In Rwanda, similar gains were noted through the electronic tax system and DHIS2, but Russpatrick et al. (2021) again highlighted underutilization of advanced analytical tools in favor of familiar spreadsheet applications. For budgetary control systems, the IMF (2004) found that countries with strong budgetary control mechanisms saw a 15% increase in public expenditure efficiency, though capacity and monitoring gaps remained. In Rwanda specifically, Gasana (2020) found a significant relationship between budget preparation/execution and effective public financial management, though monitoring and reporting showed weaker correlations. In Uganda, Ndahiro (2023) found that participatory budgeting improved accountability, transparency, and decision quality, despite capacity and resource limitations. At the organizational level in Rwanda, Mudakemwa (2020) found that the Imbaraga Farmers Organization's budgetary control practices particularly regular variance monitoring improved resource allocation and decision-making, though inadequate training and tools limited outcomes.

For cash management systems, Salas-Molina et al. (2016) found that improved cash flow forecasting accuracy correlated strongly with cost savings, though data integration and system complexity posed challenges. In Rwanda's banking sector, Wandira et al. (2025) found a statistically significant positive relationship between internal control activities and cash flow management practices, with risk assessment procedures showing a notably strong effect (unstandardized coefficient of 0.597; standardized Beta of 0.491), though infrastructure gaps and resistance to change persisted. Regionally, the East African Community (2021) found that 70% of Kenyan public institutions had adopted digital cash management systems, halving cash-handling errors, while Ugandan banks saw a 40% improvement in cash flow forecasting accuracy. In Rwanda specifically, Kabale et al. (2025) found that Bank of Kigali's internal controls improved cash flow management through regular monitoring, while Twesige et al. (2020) found that 98.3% of surveyed not-for-profit respondents relied on management accounting information for strategic decisions, underscoring the broad relevance of financial data to institutional decision-making.

2.4 Research Gap

Existing studies consistently show that Accounting Information Systems (AIS) enhance organizational decision-making by improving data accuracy, financial reporting, budgetary control, and cash management (Romney & Steinbart, 2021; Hall, 2023). However, most global and regional research has focused on AIS adoption and implementation rather than on how multiple AIS components jointly influence managerial decision-making, particularly in commercial banking institutions (IFAC, 2023; Susanto, 2023). In Africa and East Africa, studies have highlighted challenges such as inadequate ICT infrastructure, limited technical skills,

and underutilization of AIS, while largely overlooking the banking sector's specific operational and regulatory environment (African Development Bank, 2023; World Bank, 2023; East African Community, 2023). In Rwanda, empirical evidence has focused mainly on public institutions and has examined individual AIS components in isolation, with limited research on their integrated effect within commercial banks (Gasana, 2020; Mudakemwa, 2020; Wandira et al., 2025). Consequently, no study has comprehensively investigated the combined influence of data entry and processing, financial reporting, budgetary control, and cash management systems on managerial decision-making in Rwanda's commercial banking sector. This study addresses this gap by examining the integrated effect of these four AIS components on decision-making processes at Ecobank Rwanda during the period 2020–2024.

2. Methodology

This study adopted a descriptive and explanatory research design to examine the effect of Accounting Information Systems (AIS) on decision-making processes at Ecobank Rwanda. The descriptive design enabled the assessment of the existing AIS practices, while the explanatory design established the causal relationship between AIS components and decision-making effectiveness (Saunders et al., 2023; Creswell & Creswell, 2022; Sekaran & Bougie, 2020).

A mixed-methods approach combining quantitative and qualitative techniques was employed to provide comprehensive findings (Bazeley, 2021). The study was conducted at Ecobank Rwanda Headquarters in Kigali, targeting 142 employees drawn from the Finance, Internal Audit, Risk Management, Branch Management, and Heads of Units. Since the population was manageable, a census approach was used for quantitative data collection, while purposive sampling selected four Heads of Units for qualitative interviews

(Yin, 2018; Moser & Korstjens, 2018; Hennink et al., 2024). Primary data were collected using a structured questionnaire based on a five-point Likert scale and semi-structured interviews, while secondary data were obtained from annual reports, policy documents, audit reports, and other institutional records (Flick, 2023; Turner et al., 2021; Taherdoost, 2022; DeJonckheere & Vaughn, 2019). To ensure instrument quality, face and content validity were assessed through expert review using the Content Validity Index (CVI), producing an overall CVI of 0.89, which exceeded the recommended threshold of 0.80 (Lynn, 1986; Hardesty & Bearden, 2004; Zamanzadeh et al., 2015).

Reliability was established through a pilot study using Cronbach's Alpha, yielding an overall coefficient of 0.87, indicating high internal consistency (Goforth, 2023; Taber, 2018). Collected data were edited, coded, and analyzed using SPSS Version 23. Descriptive statistics (frequencies, percentages, means, and standard deviations) summarized respondents' views, while Pearson correlation and multiple linear regression examined relationships and tested the study hypotheses at a 5% significance level (Field, 2024; Pallant, 2023; Gujarati & Porter, 2022). Diagnostic tests, including normality, multicollinearity, and Durbin-Watson autocorrelation, were conducted to verify the assumptions of regression analysis (Hair et al., 2022; Razali & Wah, 2011; Daoud, 2017). Qualitative interview data were analyzed using thematic analysis, allowing the identification of recurring themes that complemented the quantitative findings (Braun & Clarke, 2022). Throughout the study, ethical principles were strictly observed by obtaining informed consent, maintaining confidentiality and anonymity, ensuring voluntary participation, and using the collected data solely for academic purposes (American Psychological Association, 2020; Mertens, 2023; Wiles, 2019).

4. Results and Discussion

Table 1: Statistics of Data Entry and Processing

Statements	N	M	SD
Transactions are accurately recorded promptly in our accounting system.	138	3.84	.953
The organization uses automated tools to process large volumes of financial data efficiently.	138	4.39	.739
Supporting documents (such as receipts, invoices, and vouchers) are consistently generated and stored for every transaction.	138	4.25	.936
The data entry process is regularly reviewed to minimize errors and improve accuracy.	138	4.31	.862
The organization's data processing systems support real-time access to financial information for decision-making.	138	4.40	.798
Efficient transaction recording and data processing contribute positively to the speed and quality of financial decisions.	138	3.92	.774

The first objective sought to assess the effect of data entry and processing on enhancing decision-making processes at Ecobank Rwanda. As presented in Table 1 respondents generally expressed high levels of agreement with all statements, indicating that the bank has established effective data entry and processing mechanisms that support managerial decision-making. Among the six statements, the highest mean score was recorded for "The organization's data processing systems support real-time access to financial information for decision-making" ($M = 4.40$, $SD = 0.798$), closely followed by "The organization uses automated tools to process large volumes of financial data efficiently" ($M = 4.39$, $SD = 0.739$). These findings suggest that Ecobank Rwanda has invested significantly in automated accounting technologies that enable managers to access financial information promptly to support operational and strategic decisions. Real-time access to financial information enhances responsiveness, reduces delays, and improves the quality of organizational decisions.

Similarly, respondents strongly agreed that the data entry process is regularly reviewed to minimize errors and improve accuracy ($M = 4.31$, $SD = 0.862$) and that supporting documents are consistently generated and stored for every transaction ($M = 4.25$, $SD = 0.936$). These findings imply that the bank maintains strong internal controls over transaction processing, thereby improving the reliability and integrity of accounting information. Although respondents agreed that transactions are accurately recorded promptly ($M = 3.84$, $SD = 0.953$) and that efficient transaction recording contributes positively to the speed and quality of financial decisions ($M = 3.92$, $SD = 0.774$), these indicators registered comparatively lower mean scores than the other items. This suggests that while respondents acknowledged the effectiveness of transaction recording processes, opportunities still exist to further improve transaction timeliness and maximize the contribution of data processing to decision-making.

Table 2: Statistics of Financial Reporting Systems

Statements	N	M	SD
The financial reporting system efficiently supports the creation of accurate financial statements.	138	4.37	.775
Financial statements produced by the system are clear and comply with relevant accounting standards.	138	4.57	.712
The system facilitates comprehensive financial analysis to support decision-making.	138	4.02	.927
The financial reports generated provide valuable insights for evaluating organizational performance.	138	4.36	.755
Submission of financial statements to stakeholders is timely and well-organized.	138	4.39	.797
Stakeholders find the financial statements easy to understand and useful for their decisions.	138	3.81	.862

The second objective examined the effect of financial reporting systems on enhancing decision-making processes. Table 2 indicates an overall high level of agreement among respondents, demonstrating that the bank's financial reporting system effectively supports financial accountability and managerial decision-making. The highest mean score was obtained for the statement indicating that financial statements produced by the system are clear and comply with relevant accounting standards ($M = 4.57$, $SD = 0.712$).

This finding demonstrates respondents' confidence in the credibility, transparency, and regulatory compliance of Ecobank Rwanda's financial reporting framework. Compliance with accounting standards increases stakeholders' confidence and strengthens organizational

governance. Respondents also highly agreed that submission of financial statements to stakeholders is timely and well-organized ($M = 4.39$, $SD = 0.797$), the financial reporting system efficiently supports accurate financial statement preparation ($M = 4.37$, $SD = 0.775$), and financial reports generated provide valuable insights for evaluating organizational performance ($M = 4.36$, $SD = 0.755$). These findings suggest that the reporting system enables management to monitor financial performance and make informed strategic decisions. Moderate agreement was observed regarding the system facilitating comprehensive financial analysis ($M = 4.02$, $SD = 0.927$), while the lowest mean score was reported for stakeholders finding the financial statements easy to understand and useful for their decisions ($M = 3.81$, $SD = 0.862$). Although these scores remain positive, they

indicate that there is room for improving the presentation and interpretation of financial reports for different stakeholder groups. The descriptive findings suggest that Ecobank Rwanda possesses a robust

financial reporting system capable of generating reliable financial information necessary for organizational planning, performance evaluation, and strategic decision-making.

Table 3: Statistics of Budgetary Control Systems

Statements	N	M	SD
Budget planning processes in the organization provide a clear framework for resource allocation.	138	4.55	.801
The budget implementation phase is effectively managed to ensure adherence to financial plans.	138	3.98	.974
Continuous monitoring of the budget allows timely detection of deviations from planned targets.	138	4.44	.715
Evaluation of budget performance provides valuable feedback to improve future budgeting and decision-making.	138	4.40	.798
The budgeting control system supports informed decision-making by providing relevant and up-to-date financial data.	138	4.37	.664
Stakeholders are actively engaged during budgeting, planning, implementation, and evaluation to enhance accountability.	138	4.24	.873

The third objective evaluated the effect of budgetary control systems on enhancing decision-making processes. Results presented in Table 4.8 reveal consistently high agreement across all indicators, indicating that budgeting plays a significant role in organizational financial management. The highest mean score was recorded for budget planning processes providing a clear framework for resource allocation ($M = 4.55$, $SD = 0.801$). This finding demonstrates that respondents perceive budgeting as an important planning tool that guides organizational priorities and efficient allocation of financial resources. Respondents also strongly agreed that continuous monitoring of budgets enables timely detection of deviations ($M = 4.44$, $SD = 0.715$), budget performance evaluation provides valuable feedback for future budgeting ($M = 4.40$, $SD = 0.798$), and budget control systems support informed decision-making through relevant financial data ($M = 4.37$, $SD = 0.664$).

These results indicate that budgeting is not merely a planning exercise but also an effective monitoring and performance management mechanism. The statement regarding stakeholder engagement during budgeting recorded a relatively high mean ($M = 4.24$, $SD = 0.873$), reflecting participatory budgeting practices that enhance accountability and organizational ownership. The comparatively lowest mean score related to effective management of budget implementation ($M = 3.98$, $SD = 0.974$). Although respondents generally agreed, the relatively larger standard deviation indicates varying opinions, suggesting that budget implementation may occasionally face operational challenges. The findings demonstrate that budgetary control systems are widely perceived as effective tools for financial planning, monitoring organizational performance, and improving decision-making quality.

Table 4: Statistics of Cash Management Systems

Statements	N	M	SD
Daily cash reports are accurately prepared and support timely decision-making.	138	4.31	.722
Bank reconciliations are regularly performed to ensure the accuracy of cash balances.	138	4.38	.795
Cash flow planning is effectively conducted to manage liquidity and meet organizational needs.	138	4.40	.798
Cash management systems provide reliable data that guides short-term financial decisions.	138	4.39	.739
The organization uses cash flow forecasts to anticipate financial challenges and opportunities.	138	1.50	.975
Proper control mechanisms are in place to prevent cash mismanagement and fraud.	138	3.48	.699

The fourth objective examined the effect of cash management systems on enhancing decision-making processes. As shown in Table 4 most respondents agreed that Ecobank Rwanda maintains effective cash management practices. The highest mean score was observed for cash flow planning being effectively conducted to manage liquidity ($M = 4.40$, $SD = 0.798$), followed closely by cash management systems providing reliable data for short-term financial decisions ($M = 4.39$, $SD = 0.739$) and regular bank reconciliations ensuring accurate cash balances ($M = 4.38$, $SD = 0.795$). These findings demonstrate that cash management contributes significantly to liquidity management and operational financial stability.

Similarly, respondents agreed that daily cash reports are accurately prepared and support timely decision-making ($M = 4.31$, $SD = 0.722$), suggesting that routine cash monitoring enhances managerial responsiveness.

However, two findings require particular attention. First, respondents showed only moderate agreement regarding proper control mechanisms preventing cash mismanagement and fraud ($M = 3.48$, $SD = 0.699$), indicating opportunities for strengthening internal control systems. Second, an exceptionally low mean score was obtained for the organization uses cash flow forecasts to anticipate financial challenges and opportunities ($M = 1.50$, $SD = 0.975$). This unusually low score sharply contrasts with the other responses and suggests either limited utilization of cash flow forecasting or a possible measurement or data-entry inconsistency that warrants further verification.

The descriptive results indicate that while Ecobank Rwanda demonstrates strong operational cash management practices, greater emphasis should be placed on strengthening forecasting capabilities and preventive financial controls.

Table 5: Decision-Making Processes

Statements	N	M	SD
The accounting information system enables timely decision-making in the organization.	138	4.29	.858
Access to accurate financial data improves the quality of decisions made.	138	4.32	.811
Decision-making processes are well-aligned with the organization's strategic objectives.	138	4.50	.792
The AIS helps reduce operational risks by supporting informed decisions.	138	3.87	.976
Timely financial reports from the AIS contribute to faster and more effective decisions.	138	4.32	.846

The respondents' perceptions regarding decision-making processes. Overall, respondents expressed high agreement across all indicators, suggesting that the Accounting Information System substantially supports organizational decision-making. The highest agreement was observed for decision-making processes being aligned with organizational strategic objectives ($M = 4.50$, $SD = 0.792$), indicating that managers effectively utilize accounting information to support strategic planning. Similarly, respondents strongly agreed that accurate financial data improves decision quality ($M = 4.32$, $SD = 0.811$), timely financial reports contribute to faster decisions ($M = 4.32$, $SD = 0.846$), and AIS enables timely decision-making ($M = 4.29$, $SD = 0.858$). These

findings emphasize the important role of accounting information in facilitating prompt and evidence-based managerial decisions. Moderately high agreement was observed regarding AIS supporting long-term strategic planning ($M = 4.11$, $SD = 0.772$), while AIS reducing operational risks obtained the lowest mean score ($M = 3.87$, $SD = 0.976$). Although respondents generally agreed, this suggests that additional improvements could further enhance the system's risk management capabilities. The descriptive findings indicate that Accounting Information Systems play a central role in improving the effectiveness, efficiency, and strategic alignment of decision-making processes at Ecobank Rwanda.

Table 6: Normality Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk	
	Statistic	df	Sig.	Statistic	df
Data entry and processing (X_1)	0.151	138	0	0.953	138
Financial reporting systems (X_2)	0.186	138	0	0.895	138
Budgetary control systems (X_3)	0.167	138	0	0.953	138
Cash management systems (X_4)	0.188	138	0	0.904	138
Decision-Making Processes (Y)	0.128	138	0	0.965	138

a. Lilliefors Significance Correction

Table 7: Multicollinearity Test

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
1 Data entry and processing	.477	2.095
Financial reporting systems	.446	2.242
Budgetary control systems	.887	1.127
Cash management systems	.902	1.109

Table 8 : Autocorrelation Test

Model	Durbin-Watson	Decision
1	1.081 ^a	Positive autocorrelation detected

a. Predictors: (Constant), Data entry and processing, financial reporting systems, budgetary control systems, Cash management systems

b. Dependent variable: Decision Making Process

The normality test revealed statistically significant results ($p < 0.05$) for all variables under both the Kolmogorov-Smirnov and Shapiro-Wilk tests, suggesting departures from normality. However, given the relatively large sample size ($n = 138$), the Central

Limit Theorem supports the continued use of multiple regression analysis because parameter estimates remain robust even when data are not perfectly normally distributed. The multicollinearity test indicated acceptable tolerance values ranging from 0.446 to 0.902

and VIF values between 1.109 and 2.242. Since all VIF values were substantially below the commonly accepted threshold of 10 (and even below the stricter threshold of 5), multicollinearity was not considered a problem. Therefore, each independent variable contributed unique explanatory information to the regression model.

The Durbin-Watson statistic of 1.081 suggested some positive autocorrelation among the residuals. Although autocorrelation is more critical in time-series data than in cross-sectional survey data such as this study, the result indicates that future studies should examine residual independence more closely.

Table 9: Pearson Correlation

		X1	X2	X3	X4	Y
Data entry and processing (X1)	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	138				
Financial reporting systems (X2)	Pearson Correlation	.721**	1			
	Sig. (2-tailed)	.000				
	N	138	138			
Budgetary control systems (X3)	Pearson Correlation	.282**	.321**	1		
	Sig. (2-tailed)	.001	.000			
	N	138	138	138		
Cash management systems (X4)	Pearson Correlation	.218*	.306**	.163	1	
	Sig. (2-tailed)	.010	.000	.056		
	N	138	138	138	138	
Decision Making Process (Y)	Pearson Correlation	.679**	.556**	.548**	.240**	1
	Sig. (2-tailed)	.000	.000	.000	.005	
	N	138	138	138	138	138

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The Pearson correlation analysis demonstrates that all four Accounting Information System components exhibit positive relationships with decision-making processes. Data entry and processing showed the strongest positive correlation with decision-making ($r = 0.679$, $p < 0.001$), indicating that improvements in transaction recording, processing accuracy, and automation are strongly associated with better managerial decisions. Financial reporting systems also exhibited a strong positive relationship ($r = 0.556$, $p < 0.001$), suggesting that reliable financial reports improve organizational decision quality. Budgetary

control systems recorded a similarly strong positive correlation ($r = 0.548$, $p < 0.001$), confirming the importance of budgeting in supporting planning and resource allocation. Cash management systems demonstrated a weaker but statistically significant positive relationship ($r = 0.240$, $p = 0.005$), implying that although cash management contributes to decision-making, its influence is comparatively smaller than the other AIS components. The correlation analysis confirms that stronger Accounting Information Systems are associated with more effective decision-making at Ecobank Rwanda.

Table 10: Coefficient of Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.776 ^a	.602	.590	.24487

a. Predictors: (Constant), Data entry and processing, Financial reporting systems, Budgetary control systems, Cash management systems

b. Dependent variable: Decision Making Processes

Table 11: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	12.080	4	3.020	50.364	.000 ^b
Residual	7.975	133	.060		
Total	20.055	137			

a. Dependent Variable: Decision Making Processes

b. Predictors: (Constant), Data entry and processing, Financial reporting systems, Budgetary control systems, Cash management systems

Table: 12: Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.502	.305		-1.642	.103
Data entry and processing (X1)	.514	.076	.538	6.763	.000
1 Financial reporting systems (X2)	.027	.069	.032	.391	.700
Budgetary control systems (X3)	.447	.069	.378	6.478	.000
Cash management systems (X4)	.046	.051	.051	.902	.373

a. Dependent Variable: Decision Making Processes (Y)

The coefficient of determination ($R^2 = 0.602$) indicates that 60.2% of the variation in decision-making processes is explained jointly by data entry and processing, financial reporting systems, budgetary control systems, and cash management systems. The remaining 39.8% is attributable to other organizational, managerial, technological, or environmental factors not included in the study. The ANOVA results ($F = 50.364$, $p < 0.001$) demonstrate that the overall regression model is statistically significant, confirming that the Accounting Information System components collectively provide a strong explanation of decision-making performance at Ecobank Rwanda. The regression coefficients reveal important differences among the AIS components. Data entry and processing emerged as the strongest predictor of decision-making ($\beta = 0.538$, $p < 0.001$), indicating

that improvements in data processing significantly enhance managerial decisions. Budgetary control systems also exerted a significant positive effect ($\beta = 0.378$, $p < 0.001$), emphasizing the importance of budgeting in organizational planning and control. Conversely, financial reporting systems ($\beta = 0.032$, $p = 0.700$) and cash management systems ($\beta = 0.051$, $p = 0.373$) did not have statistically significant effects after controlling for the other AIS components. Although both variables were positively correlated with decision-making, their independent contributions became insignificant within the multivariate regression model, suggesting that much of their influence may operate indirectly through stronger data processing and budgetary control functions.

Discussion of Results

The purpose of this study was to examine the effect of Accounting Information Systems (AIS) on enhancing decision-making processes at Ecobank Rwanda by focusing on four AIS components: data entry and processing, financial reporting systems, budgetary control systems, and cash management systems. Overall, the findings indicate that Accounting Information Systems play a critical role in improving organizational decision-making. The regression model explained 60.2% ($R^2 = 0.602$) of the variation in decision-making processes, demonstrating that AIS components collectively provide substantial explanatory power for managerial decision effectiveness. These findings are consistent with the Resource-Based View (RBV), which argues that organizational capabilities such as high-quality information systems constitute valuable strategic resources that improve organizational performance through better managerial decisions. Regarding the first objective, the study established that data entry and processing have a significant positive effect on decision-making processes ($\beta = 0.538$, $p < 0.001$). The descriptive findings further showed high levels of agreement that Ecobank Rwanda uses automated tools, maintains accurate transaction records, and provides real-time access to financial information. These findings suggest that efficient transaction processing enables managers to obtain timely, reliable, and accurate financial information for operational and strategic decisions.

The results support the findings of Romney and Steinbart (2021), who argued that the quality of accounting information largely depends on accurate data collection and processing, which directly influences managerial decision-making. Similarly, Hall (2023) observed that organizations with efficient transaction processing systems experience faster decision cycles because managers have immediate access to reliable accounting information. Likewise, Gelinas et al. (2022) reported that automated accounting information systems significantly improve information quality, operational efficiency, and management responsiveness. Therefore, the present findings reinforce previous empirical evidence that data entry and processing constitute the foundation of effective accounting information systems.

Concerning the second objective, although respondents expressed high levels of agreement regarding the effectiveness of financial reporting systems, regression analysis revealed that financial reporting systems did not have a statistically significant independent effect on decision-making processes ($p = 0.700$). This finding implies that while financial reporting remains important in providing reliable financial statements and performance information, its direct contribution becomes less influential when other AIS components, particularly data processing and budgetary control

systems, are considered simultaneously. This result partially contrasts with the findings of Grande, Estébanez, and Colomina (2011), who found that financial reporting systems significantly enhance managerial performance and organizational decision-making in Spanish firms. Similarly, Soudani (2012) concluded that financial reporting generated by AIS improves organizational effectiveness by providing reliable information for strategic planning. However, the current findings are consistent with Al-Dmour (2018), who argued that financial reports primarily serve as supporting tools whose effectiveness depends on the quality of underlying accounting processes and management utilization.

Consequently, financial reporting systems at Ecobank Rwanda may contribute indirectly to decision-making through their integration with other AIS components rather than exerting an independent influence. The third objective sought to evaluate the effect of budgetary control systems on decision-making processes. The findings established that budgetary control systems have a significant positive effect on decision-making ($\beta = 0.378$, $p < 0.001$). Respondents highly agreed that budget planning, monitoring, evaluation, and stakeholder participation strengthen financial management and resource allocation.

These findings suggest that budgeting serves not only as a financial planning mechanism but also as an important managerial control tool that supports evidence-based decisions. The results are consistent with Horngren et al. (2021), who emphasized that budgeting facilitates planning, coordination, performance evaluation, and resource optimization within organizations. Similarly, Drury (2018) observed that effective budgetary control systems enable managers to detect operational deviations early and implement corrective actions, thereby improving organizational decision quality. Furthermore, Otley (2016) argued that management control systems, particularly budgeting, significantly enhance strategic planning and organizational performance by providing timely financial information for decision-making. Therefore, the current findings confirm that budgetary control remains one of the strongest determinants of managerial decision-making in financial institutions. With respect to the fourth objective, the study found that cash management systems did not significantly influence decision-making processes after controlling for the other AIS variables ($p = 0.373$), despite exhibiting a significant positive bivariate correlation with decision-making ($r = 0.240$, $p = 0.005$). This finding suggests that although cash management contributes to organizational liquidity and operational stability, its direct influence on managerial decision-making is relatively limited when stronger AIS components are considered simultaneously. The descriptive analysis also revealed an exceptionally low rating regarding cash-flow forecasting, indicating possible weaknesses in forecasting practices.

These findings differ from those of Brigham and Ehrhardt (2022), who argued that effective cash management and liquidity forecasting significantly improve financial decision-making and organizational sustainability. Similarly, Pandey (2021) emphasized that efficient cash management enables managers to make informed short-term financing and investment decisions. Nevertheless, the findings are consistent with Atrill and McLaney (2022), who observed that cash management contributes indirectly to decision-making through its interaction with broader financial planning and budgeting systems rather than acting as an independent driver of managerial decisions.

Overall, the findings of this study demonstrate that Accounting Information Systems significantly enhance decision-making processes at Ecobank Rwanda, with data entry and processing and budgetary control systems emerging as the strongest predictors of effective managerial decisions. Although financial reporting systems and cash management systems were positively perceived by employees and significantly correlated with decision-making, their independent contributions were statistically insignificant in the regression model, indicating that their influence is largely mediated through other AIS components. These findings generally support previous theoretical and empirical literature, particularly the works of Romney and Steinbart (2021), Hall (2023), Gelinas et al. (2022), Horngren et al. (2021), and Drury (2018), which emphasize that the effectiveness of Accounting Information Systems depends on the integration of accurate transaction processing, efficient budgeting, quality financial information, and effective financial controls to support organizational decision-making.

5. Conclusion and Recommendations

5.1 Conclusion

This study examined the effect of Accounting Information Systems (AIS) on decision-making processes at Ecobank Rwanda. The findings revealed that AIS significantly enhances managerial decision-making, with the model explaining 60.2% ($R^2 = 0.602$) of the variation in decision-making and remaining statistically significant ($F = 50.364$, $p < 0.001$). Among the AIS components, data entry and processing ($\beta = 0.538$, $p < 0.001$) and budgetary control systems ($\beta = 0.378$, $p < 0.001$) had significant positive effects on decision-making, leading to the rejection of H_{01} and H_{03} . However, financial reporting systems ($p = 0.700$) and cash management systems ($p = 0.373$) did not have statistically significant independent effects after controlling for other variables; therefore, H_{02} and H_{04} were accepted. The study concludes that while AIS is a critical strategic resource for improving organizational decision-making, its effectiveness depends on integrated systems, continuous staff capacity building, strong data

governance, and enhanced utilization of analytical and forecasting tools to maximize organizational performance.

5.2 Recommendations

From the findings, the following recommendations were established:

1. Ecobank Rwanda should strengthen automated data entry and processing systems, improve budgetary control through real-time monitoring tools, and enhance financial reporting by incorporating interactive dashboards and customized reports.
2. The bank should also invest in advanced cash-flow forecasting tools, continuous AIS training, and full integration of accounting systems across departments to eliminate information silos. Furthermore, management should establish robust data governance and quality assurance frameworks to improve data reliability.
3. Future studies should examine additional factors such as organizational culture, digital leadership, artificial intelligence, and business intelligence, while extending research to other commercial banks to improve the generalizability of the findings.

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