

# Impact of accounting information system on profitability: Specific to the selected private commercial banks of Bangladesh

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## ABSTRACT

Like any other information system, the Accounting Information System (AIS) is perceived as an integral part of management at different stages within the organization. It is composed of different interdependent subsystems that generally work together to compile the AIS as a framework to provide ideal, reliable, and precise information, which facilitates the managerial decision-making process within organizations promptly, based on which the survival and effectiveness of an organization depend. The researchers couldn't recognize notable studies in recent times that assessed the role played by AIS on the profitability of Bangladeshi private commercial banks. Being deeply concerned about this fact, the present study attempts to investigate the impact of AIS on the profitability of the selected private commercial banks in Bangladesh. A self-structured questionnaire, set on a five-point Likert scale (consisting of both dependent & independent variables), has been used to rate the collected primary data. From 265 respondents, data were collected, and linear regression was applied to analyze the data using SPSS software. The results from the analysis have revealed that there is a significant impact of AIS on the selected banks' profitability, except Jamuna Bank Ltd., which discloses the relationship between the AIS used by organizations and their profitability. Finally, it recommends that a successful implementation of AIS is expected to be beneficial for the banking sector of Bangladesh to stimulate profitability. Again, in the future, the paper is to be considered helpful for conducting new research in a wider scope.



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## 1. INTRODUCTION

Data are raw facts, but meaningless by themselves unless they are processed, while information is processed data that has meaning. According to [Wilkinson et al. \(2000\)](#), data, transformed into a more valuable form through a process, had been turned into information. Information, according to [Stair and Reynolds \(2010\)](#), is a well-organized set of facts with added value. Quality information necessitates information systems accessible to both internal and external users ([Wilkinson et al., 2000](#)). Both internal and external decision-makers in every institution need information to make decisions. To do so, they mostly depend on the primary information, i.e., accounting information, which is provided through financial reports. And, this is how the organizational decision-making processes get impacted by accounting information ([Corina & Nicolae, 2012](#); [Stvilia et al., 2007](#)). An information system focuses on a cohesive integration of physical and non-physical subsystems, which work together to process transaction data involving financial matters, resulting in the creation of financial information known as an accounting information system ([Ali et al., 2016](#); [Meiryani, 2016](#); [Omodero & Ogbonnaya, 2018](#); [Susanto, 2013](#)). An accounting information system (AIS) is considered to be one of the most cardinal systems of an institution, which is made up of people, equipment, strategies, policies, and procedures that works as a formal structure for organizations to collect, direct, process, store, retrieve, and disseminate the accounting and financial data in the form of reports to interested users (both insider and outsider) to take strategic decisions timely. Accounting is the field of monetary information. Traditionally, accounting was completely founded on a manual approach where financial transactions were maintained in the form of a written ledger. An individual accountant with his experience and skills performed

a critical role in accounting processes. A single person performed all calculations by hand & was prone to mistakes. At the end of a fiscal year or quarter, financial statements were prepared by the accountants, which was really time-consuming. An AIS settles a significant number of the stated issues by upholding the computerized data processing system. Now, accounting software is used to collect, analyze & store financial data, and that is why getting financial statements is easy as and when required. AIS itself is an arrangement of obtaining, documenting, and processing the data to generate information, archiving, and disseminating the processed information among interested parties for making decisions ([Romney & Steinbart, 2009](#)). In an initial stage, conventional accounting systems were paper-based systems and appeared out of date in the constantly evolving business world of today. [Patel \(2015\)](#), by whom AIS has been described as a subsystem of information throughout businesses. An AIS connects the entity's primary information processing systems to the data it collects from its various subsystems. The gathering, processing, assessing, and sharing of financial information with both internal (management & owner) and external parties (suppliers, investors, creditors, and tax authorities, etc.) has typically been the primary focus of AIS.

The AIS is now in charge of providing all departments and other stakeholders with quantitative and financial information, and in this way, it is at the crossroads between accounting and information systems. As a result, the study of AIS is typically regarded as the study of computerized accounting system. Subsequently, it is better to define an AIS based on its functions over its physical dimension since it can't be measured. So, we arrive at a definition of AIS as a collection of data and its processing

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procedures, which generates the information that its users require ([Moscovitz & Simkin, 1981](#)).

At present, information systems have become the foundation of every organization, without which instant financial transactions would be unimaginable. The area of accounting has been enlarged with the changes in business nature and the processes of recording financial transactions over time. Previously, accounts were maintained only to know the current profit or loss of the entity; however, today they are also useful in increasing the profit of the entity through the application of AIS, since it can produce information as and when required for a better analysis of the recorded business transactions. In order to stimulate timely and precise communication, the AIS must demonstrate effectiveness and proficiency by consistently delivering accurate information. The focus goes towards providing accounting information with peerless utilization of available resources. Usually, the AIS uses different accounting software to record business transactions to ensure the information is precise and complete. Generally, good information provides consistency, efficiency, and internal control of the association. A collection of computer-based electronic systems known as AIS, which is used for collecting, processing, and storing financial and accounting data to stimulate decision-making processes throughout the organization ([Bawaneh, 2014](#)). Being significantly stressed, AIS has established itself as an inevitable tool for the decision-making process, strategic planning, and financial monitoring ([Alrabei, 2014](#)). Recently, many organizations have been found to upgrade the effectiveness of their functional operations through the desirable usage of AIS for improving performance and increasing profitability both in the short and long run ([Wongsim & Gao, 2012](#)).

A company's profitability denotes its ability to make a profit ([Collins Dictionary, 2020](#)). The amount of income or revenue incurred by an entity over and above its costs or expenses is generally recorded as profit, which is an absolute number. In a company's statement of financial performance, profit is computed as total revenue minus total expenses. Profit and profitability are closely connected, yet holding a difference: profitability is a relative measure used to determine the extent of an institution's profit relative to its size, while profit depicts an absolute number. Efficiency and, eventually, the failure or success of an institution are measured by profitability. Albeit making a profit by an organization doesn't necessarily guarantee its profitability ([Horton, 2019](#)). As a framework, AIS assists organizations in achieving the main goal, i.e., desired profit, by making it profitable.

Being a technology-driven framework, AISs are gaining importance and revolving around the ever-changing business world by replacing manual accounting processes. Prior research often treats AIS as a single construct, overlooking system quality, information quality, and service quality ([Delone & McLean, 2003](#)). This study integrates these dimensions to explain decision-making effectiveness and profitability. By combining the Resource-Based View, DeLone & McLean IS Success Model, and Agency Theory, the study offers a multi-theoretical framework that captures technological, managerial, and governance perspectives of AIS, thereby advancing AIS theory in emerging economies. At the same time, the study concentrates on the impact of AIS on the profitability of the banking industries of Bangladesh. A well-defined questionnaire has been used to determine the current scenarios of practices of AIS and its impact on firms' profitability. Many countries of the third world, whose economies are underdeveloped, have just received benefits from accounting information systems, and Bangladesh is not an exception. To ensure the practices of AIS in the banking sector of Bangladesh, banking industries should follow the policy guidelines issued by the Central Bank (Bangladesh Bank) to have an impact on their profitability. The study aims at discovering how the profitability of the selected commercial banks of Bangladesh is impacted by the accounting information system (AIS) as its fundamental motive. The findings of this study will provide actionable insights for policymakers (Bangladesh Bank) and bank management to strengthen AIS adoption and quality. This study also enriches the existing literature field. Along with the prime objective, the study also involves the following sub-objectives:

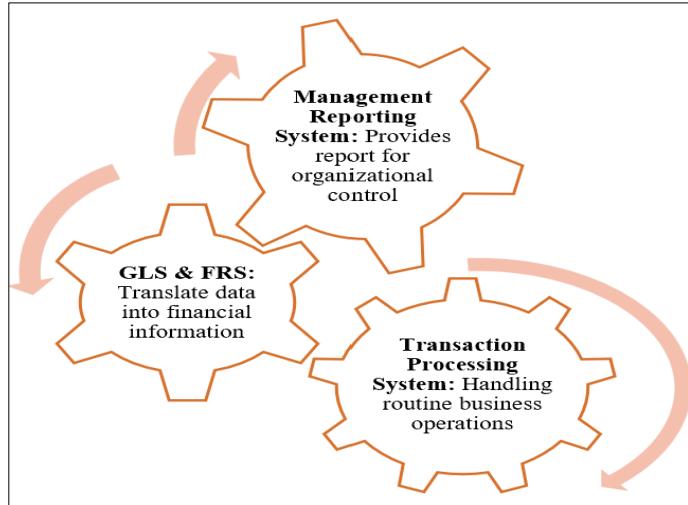
## 2. LITERATURE REVIEW

### 2.1 Accounting Information Systems: Its Parts, Functions, and Principles

[Cushing and Romney \(1987\)](#) defined AIS as "the set of human and capital resources within an organization which is responsible for the preparation of financial information and also of the information obtained from the collection and processing of transaction data. This information is then made available for use by all levels of management in planning and

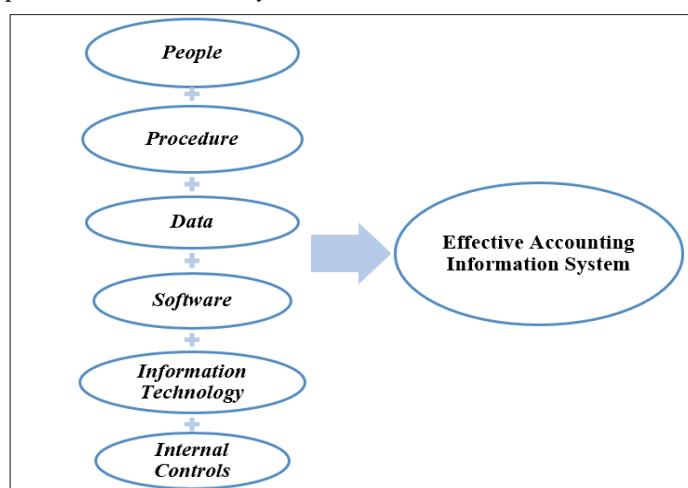
controlling the activities of the organization". He also mentioned that the AIS shares all the traits of a management information system, and uses comparable resources, including a data processing cycle to provide information for management planning and control. Normally, AIS tends to be made up of 3 subsystems below, which are presented in Figure 1:

Transaction Processing System - handling routine business operations regularly. General Ledger System and Financial Reporting System - representing a company's financial data record-keeping system, translating it into financial information, and communicating it to the interested parties. Management Reporting System - providing printed or electronic reports to the mid and low-level management to ensure control of the organization ([Hall, 2010](#)).



**Fig. 1. AIS Subsystems**

According to [Scott \(1986\)](#), one of the components of a management information system is the AIS. Being a subset of MIS, AIS consists of individuals, processes, and resources. It gathers the transaction data of an entity and turns it into information, for example, financial statements and budgets, as well as stores and monitors all of this valuable information for the future. Like any other system, AIS is made up of several elements to attain its objectives. The six distinct components have complied an effective accounting information system ([Fontinelle, 2011](#); [O'Brien & Marakas, 2006](#)) presented in the following Figure 2: *People* (including accountants, managers, and business analysts) who perform different functions by using the system. *Procedure* and instructions are the ways involved in collecting, processing, storing, as well as retrieving data and information about the entity on a real-time basis. *Data* about an entity's business operations goes to AIS to be turned into information through the proper process. *Software* consists of computer programs that process the organizational data. *Information technology* infrastructure involves hardware like computers, network communication devices, etc., used to operate the AIS. *Internal controls*, a vital part of AIS, are the security measures used to protect data stored in the system.



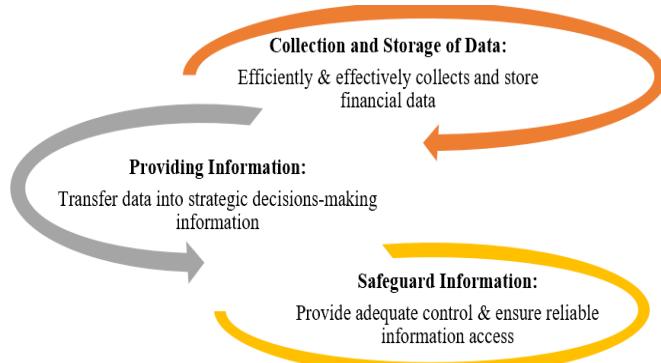
**Fig. 2. Six Distinct Components of AIS**

The above-stated elements of AIS facilitate three basic functions that appear in Figure 3, such as:

**Collection and Storage of Data:** AIS is entitled to the efficient and effective collection and storage of data concerning an organization's financial operations, such as collecting, recording, and posting data from journals to ledgers, so that interested parties can get an idea of what happened during a period.

**Providing Information:** AIS helps transfer data into information through careful processes, which is useful to management for making strategic decisions and executing plans into action.

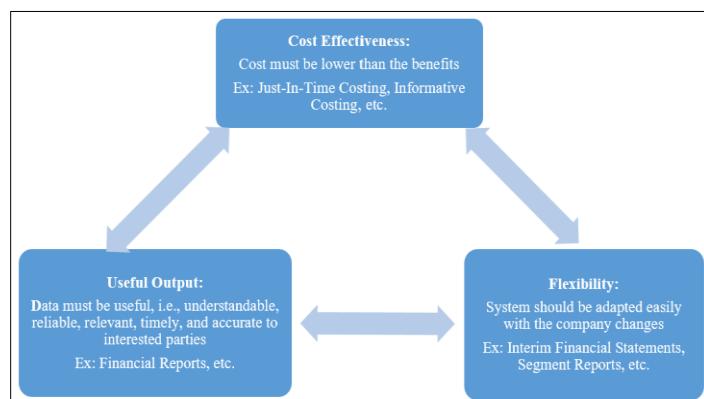
**Safeguard Information:** AIS is to provide adequate control over the organization's business operations and resources (mostly data & information). It also facilitates getting adequate and reliable information as and when required.



**Fig. 3.** Three Basic Functions of AIS

Figure 4 pointed out the three Basic Principles of Accounting Information Systems (AIS).

Accounting information systems (AIS) must be cost-effective, ensuring that the cost of obtaining financial information is less than the benefits it provides, enabling timely decisions. The output should be useful—clear, reliable, relevant, timely, and accurate—to meet users' needs for informed decision-making. AIS must also be flexible, adapting easily to organizational changes and evolving demands. Additionally, five core principles—security, confidentiality, privacy, processing integrity, and availability—are essential for AIS reliability, as emphasized by the AICPA and CICA.



**Fig. 4.** Three Basic Principles of AIS

Several studies have been conducted in this field nationally and internationally. According to the findings of [Trabulsi \(2018\)](#), consistent with other observations ([Nabizadeh & Omrani, 2014; Soudani, 2012](#)), the successful implementation of AIS might be regarded as a potent indicator of the performance of an institution. Looking at the outcomes, AIS decisively and pleasantly impacted the cost minimization, confirming the prior findings from the literature ([Hla & Teru, 2015](#)). [Patel's \(2015\)](#) study inspected how organizations' profitability gets impacted by the accounting information system and showed that the organizations' profitability and their decision-making processes were strongly correlated with the accounting information system they used. In addition, the study inferred that timely strategic decisions of top management, a persuasive internal control system, high-quality financial reports, a framework for processing transactions and performance, a performance measures framework,

effective financial transaction processes, and organizational expansion decisions, etc., are mostly influenced by a sound and timely accounting information system of associations.

Several selected commercial banks of Jordan were investigated by [Dalaien and Dalayeen \(2018\)](#) to trace how the profitability and AIS were correlated. To conduct research, data were received from 206 staff through the structured questionnaires, upon which linear regression analysis was applied. Finally, the study's conclusion highlighted that the selected banks' profitability was profoundly impacted by the AIS. Using a survey research design, [Kanakriyah \(2017\)](#) distributed and received 112 questionnaires from the employees of some banks in Jordan to examine how the banking operation and profitability of the selected banks were affected through the practices of AIS. He applied the correlation and multiple regression to investigate the relationship and found that AIS is an influential parameter of banks' success. [Akesinro and Adetoso \(2016\)](#) analyzed how the performance of the Nigerian banking sector was impacted by the computerized accounting system. It involved a research survey design and collected 50 samples from 3 Nigerian Deposit Money Banks (DMB). By applying correlation analysis, the study revealed a positive impact of the computerized accounting system on the banks' profitability and client support.

A study in Iran by [Salehi et al. \(2015\)](#) inspected how implementing AIS stimulated the SMEs sector's productivity, efficiency, and profitability by examining 118 SMEs from the Tehran Stock Exchange, which provided data during the period of 2007-2013. To analyze them, descriptive statistics, the Pearson correlation coefficient, and OLS regression were used. It uncovered a decisive connection between the application of AIS and SMEs' productivity and profitability. [Ware \(2015\)](#) carried out research on the Rural Banks in Yamane and argued in favor of implementing a computerized accounting system. Another research on the SMEs sector of Nigeria was conducted by [Kpurugbara et al. \(2016\)](#) to find out whether AIS affected the management and its cost-effectiveness principle. The study involved the collection of data on the five-point Likert scale and examined them by applying the Kruskal-Wallis H test. In order to quantify hierarchical adequacy and effectiveness, the efficiency of management and control of costs played a crucial role as proxy variables. The study reached a conclusion showing that the AIS played a remarkable role in upgrading management efficiency and cost control, and accordingly had an impact on SMEs' effectiveness to ensure profitability.

AIS was marked as one of the significant tools by [Onaolapo and Odetayo \(2012\)](#) for the Department of Finance to upgrade the organizational effectiveness. The study pointed out an utter connection between AIS and organizational effectiveness. AIS performs an indispensable function in dealing with organizations and their execution processes of the internal control system effectively. Organizations, whether private or public, have started using AIS in considerable numbers ([Rom & Rohde, 2007](#)). Both structured and unstructured financial and non-financial information are carefully considered in AIS to facilitate the way of making decision, performance management, and overall control ([Granlund, 2011](#)). [Srivastava and Lognathan \(2016\)](#) identified AIS as a significant component for any organization to attain the ultimate goal of increasing its profitability. Again, they simply said that an apt AIS is significantly helpful in attaining the profitability target set by institutions. [Neogy \(2014\)](#) conducted research over several mobile telecommunication operators of Bangladesh to assess the rationality of practicing AIS. The study found that they maintained a computerized system of recording transactions, which facilitated the recording of day-to-day transactions, processing the transactions, and preparing financial statements as well. AIS provides processed information in convenient formats that are extremely helpful for interested users (both internal and external) to make decisions. [Orga and Onoh \(2020\)](#) contended against and unfurled that a significant level of profitability isn't subject to the use of AIS. The lower clarified variability inferred that the different factors separated from the AIS had decidedly impacted the bank's profitability.

Despite extensive global research on AIS worldwide, few studies have looked directly at how it affects private commercial banks of Bangladesh in terms of profitability. Most of the previous research has been centered either on overall performance, focused on non-banking fields, or performed in other countries, which made their findings less applicable in Bangladesh. Furthermore, few have examined the relationship between profitability and particular AIS components, such as internal control, the quality of reporting, and decision-making support. This study aims to fill those gaps by providing context-specific, fact-based findings on how different AIS factors affect profitability in Bangladeshi private commercial

banks, which will add to academic knowledge and assist in practical decision-making within the local financial sector.

## 2.2 Research Objectives

To figure out how AIS impacts the profitability of the selected private commercial banks of Bangladesh. Following are the specific objectives:

- To evaluate the quality of AIS components (system quality, information quality, and service quality) in the selected private commercial banks.
- To assess the connection that exists between these banks' decision-making efficacy and AIS quality.
- To analyze the direct effect of AIS on key profitability indicators such as Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM), and Operating Profit Margin (OPM).
- To provide recommendations for enhancing AIS adoption and utilization to improve financial performance in the Bangladeshi banking sector.

## 2.3 Theoretical Framework

The accounting information system (AIS) has evolved from a traditional bookkeeping tool into a strategic resource. It helps to make decisions and enhance the performance of an organization. The conceptual underpinnings of this study rest on the premise that AIS functions as both a technological and managerial infrastructure. This infrastructure facilitates the collection, processing, storage, and dissemination of financial and non-financial information to diverse stakeholders (Romney *et al.*, 2021). Within the banking sector, where transactions are voluminous, regulation-intensive, and information-sensitive, AIS serves as a critical enabler of operational efficiency, internal control, compliance, and ultimately, profitability. The present framework integrates Resource-Based View (RBV), Information Systems Success Model, and Agency Theory to explain how AIS adoption and utilization influence the profitability of private commercial banks in Bangladesh.

### 2.3.1 Resource-Based View (RBV)

The RBV posits that sustainable competitive advantage arises from resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991). In the context of private commercial banks, AIS represents a strategic resource combining advanced technology, skilled personnel, and tailored processes. An effectively designed AIS enhances timely and accurate reporting, reduces operational inefficiencies, and strengthens decision-making capabilities. These factors collectively contribute to improved profitability.

### 2.3.2 DeLone and McLean IS Success Model

The (DeLone & McLean, 2003) model emphasizes system quality, information quality, and service quality. It works as an antecedent of user satisfaction and system use. Within banks, AIS quality influences managerial confidence in financial data, supports real-time risk assessment, and fosters compliance with Bangladesh Bank regulations. This consequence leads to improved loan portfolio management, reduced non-performing loans, and optimized asset-liability strategies. As a result, these activities enhance profitability metrics such as Return on Assets (ROA) and Return on Equity (ROE).

### 2.3.3 Agency Theory

Agency theory addresses information asymmetry and goal misalignment between principals (shareholders) and agents (management) (Jensen & Meckling, 1979). In private commercial banks, AIS mitigates agency costs by increasing transparency, standardizing reporting formats, and enabling audit trails. For these consequences, it fosters investor confidence and market credibility. It has an indirect contribution to profitability through enhanced customer retention and investment inflows.

## 3. METHODOLOGY OF STUDY

One of the significant parts of any research is its methodology section, which describes what actually has been done and how, as well as upholding the reliability of the study. In its simplest sense, methodology may pertain to a process, to the discipline that studies methods, or philosophical arguments of the underlying presumptions of these techniques (Howell, 2013; Herrman, 2009). To put it simply, the methodology section of a research paper ought to clarify how someone came up with research data and show its analytical processes (SHU Library, 2020). According to Mills and Birks (2014), methodology is outlined as a set of principles & concepts that govern the design pattern of a research work. Methodology is the fundamental conceptualization and analysis of

how research is conducted or should continue (Kirsch & Sullivan, 1992). The methodology section of the study involved:

### 3.1 Sample Size

The authors used a convenience sampling method for gathering data from the respondents (only bank officials at different levels). The actual sample size was 265 (For surveys, a commonly cited rule of thumb is that a sample size of 200 gives a margin of error around  $\pm 7\%$  at 95% confidence for large populations (Cochran, 1977)), although a total of 300 questionnaires were sent, as mentioned in Table 1.

In this research, 265 valid responses were received, which is adequate to ensure the statistical power for performing the PLS-SEM analysis (Joseph *et al.*, 2019; Kock & Hadaya, 2018; Reinartz *et al.*, 2009).

### 3.2 Data Collection

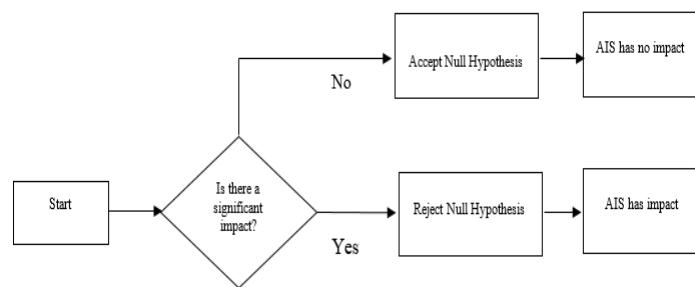
The present study has taken a long time to collect the questionnaires due to COVID-19. Particularly, the data collection period was from November 2020 to January 2023, which was atypically lengthy. To guarantee consistent comparisons over the years, the same version of the questionnaire was used, keeping its wording or structure unchanged. The methods for collecting data, including how it was administered, and the instructions given to participants, were made uniform. To keep the sampling profile of the participants consistent, the same sampling criteria were used. During analysis, external factors were tracked and their potential impacts were taken into account. To find changes between years, preliminary statistical tests were performed, and the year of data collection was controlled for where relevant. These measures helped guarantee the dependability and uniformity of data. To collect primary data, the authors visited the selected banks to meet with respondents and gave them a questionnaire containing 43 statements. The respondents took responsibility for reading and answering questions, although the authors offered a brief explanation/overview of the questions while giving the questionnaire. A sum of 300 questionnaires was dispersed among employees, from which 265 (88.33%) were received as complete & valid, and 12 (4%) questionnaires were received as invalid/incomplete. 23 (7.67%) questionnaires were rejected. In the questionnaire, there were two separate variables, like AIS (independent variable) and profitability (dependent variable).

### 3.3 Statistical Tools for Data Analysis

At the 5% level of significance, SPSS (V\_26) has been used to analyze the valid questionnaires (265) under the present study. A structured questionnaire set on a five-point Likert Scale has been applied to rate the collected data, stating statements as (5) strongly agree, (4) agree, (3) neutral, (2) disagree, and (1) strongly disagree. The diagnostic tests were performed to support the regression analysis.

### 3.4 Hypotheses: Theoretical Framework of the Study

The key variables in the present study were identified by the conceptual framework. Here, AIS and profitability have been treated as independent variables (Communication/Work Speed, Simplification of Organizational Work, Organizational Informational Quality) and dependent variables (Organizational Profitability), respectively. The hypotheses developed by the authors for this study are shown in Figure 5. Hypotheses testing of AIS impact on profitability:



**Fig. 5.** Theoretical Framework of the Study

Source: Authors' Own Creation

### 3.5 Limitations of the Study

Using a convenience sampling technique, the authors collected data only from bank officials, receiving 265 responses out of 300 questionnaires. Although useful, this method introduces sampling bias and limits the generalizability of results (Etikan *et al.*, 2016). Furthermore, relying on a single questionnaire raises the possibility of common method bias, since all data were self-reported at the same time, which could inflate

corrections (Podsakoff et al., 2003). Both internal and external validity are weakened by these methodological flaws. Therefore, in order to increase transparency and direct future efforts toward more rigorous and diverse data collection methods, they should be explicitly recognized and addressed. Besides, it focused only on 6 out of 60 scheduled banks in Bangladesh, limiting its ability to represent the entire banking sector. Time constraints also restricted the scope of the research. Additionally, initial reluctance from the respondents to participate—due to concerns over sharing personal information—posed a challenge. To address this, the authors removed identity-related questions, which improved response rates but may have reduced the depth of the analysis.

**Table 1.** Sample Size of the Study

No.	Name of Banks	Distributed	Questionnaires		
			Accepted (as Complete & Valid)	Rejected	Invalid/Incomplete
1	BRAC Bank Limited (BBL)	50	44	5	1
2	City Bank Limited (CBL)	50	43	5	2
3	National Bank Limited (NBL)	50	44	4	2
4	Premier Bank Limited (PBL)	50	44	3	3
5	Jamuna Bank Limited (JBL)	50	45	4	1
6	Dutch-Bangla Bank Limited (DBBL)	50	45	2	3
Total		300	265	23	12

#### 4. DATA ANALYSIS AND HYPOTHESES TESTING

The null hypothesis ( $H_0$ ) depicts no significant impact, whereas the alternative hypothesis ( $H_a$ ) depicts a significant impact of AIS on the selected Bangladeshi banks' profitability.

The authors have drawn the following hypotheses for the study presented in Table 2.

**Table 2:** Research Hypotheses

	Hypotheses
$H_0$	There is no significant impact of AIS on the profitability of <i>BBL, CBL, NBL, PBL, JBL, DBBL</i>
$H_a$	There is a significant impact of AIS on the profitability of <i>BBL, CBL, NBL, PBL, JBL, DBBL</i>

The researchers applied multiple linear regression to investigate and assess the dependency of profitability on AIS.

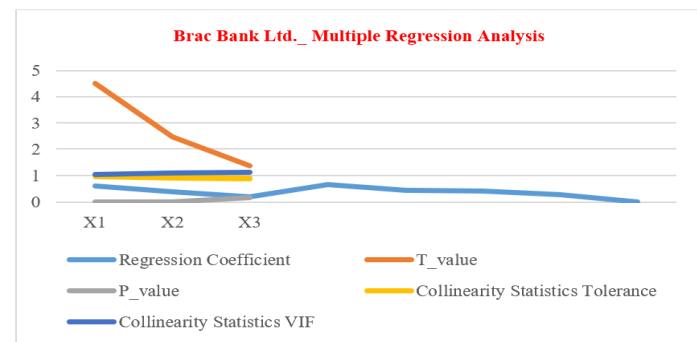
*Hypothesis-1:*

**Table 3.** Brac Bank Ltd.\_ Multiple Regression Analysis

Phase-1	Considered Variables	Regression Coefficient	T_value	P_value	Collinearity Statistics Tolerance	VIF
X <sub>1</sub>	Communication/Work Speed	.621	4.523	.000	.967	1.034
X <sub>2</sub>	Simplification of Organizational Work	.402	2.480	.017	.928	1.078
X <sub>3</sub>	Organizational Informational Quality	.194	1.374	.177	.899	1.113
R		.680				
R <sup>2</sup>		.463				
Adjusted R <sup>2</sup>		.423				
Standard Error		.2899				
ANOVA (Model Fitness)		F = 11.487, P = 0.000				

Here in Table 3, the researcher finds that the value of Adjusted R<sup>2</sup> is .432, which states that 43.2% of variations in the Brac Bank's profitability is narrated by communication/work speed, simplification of organizational work, and organizational informational quality, i.e., independent variables. The remaining variable (1-R<sup>2</sup>) turns out to be indescribable and is attributed to other factors. F and P values are 11.487 & 0.000, respectively, which signify that all the considered variables have met the condition for accuracy of the model presented by the ANOVA test. The variable "communication/work speed" comes with an unstandardized beta coefficient of .621, signifying that a .621 unit change in the profitability will occur due to a 1 unit change in this variable. According to the regression coefficient value of .402 for the variable "simplification of organizational work", there's a .402 unit change in the profitability with 1 unit change in

this variable. Again, the regression coefficient for the "organizational informational quality" variable shows .194, depicting that a change of 1 unit in this variable corresponds to a .194 unit change in profitability. The value of Tolerance and VIF of communication/ work speed, simplification of organizational work, organizational informational quality is .967, 1.034, .928, and 1.078, .899, 1.113, respectively. Here, the tolerance value is above .25, and the VIF value is below 4, which means the data are normally distributed, and no multicollinearity exists. All the statistical values are presented in Figure 6 for easy understanding. At a 95% confidence level, all regression coefficients are statistically significant. Henceforth, the analysis laid the ground to conclude that the null hypothesis gets rejected, i.e., the use of AIS is positively associated with bank profitability.



**Fig. 6.** Brac Bank Ltd.\_ Multiple Regression Analysis

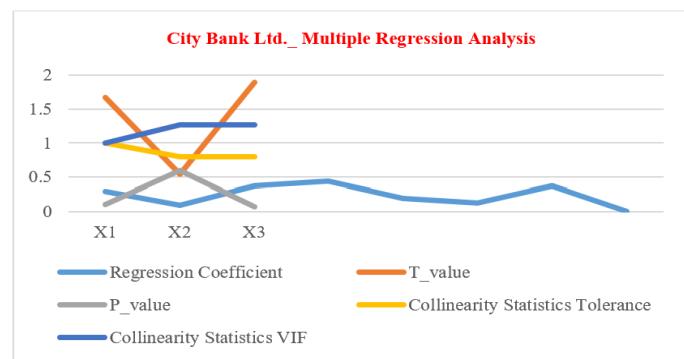
*Hypothesis-2:*

Here in Table 4, the authors find that the value of Adjusted R<sup>2</sup> is .125, which states that 12.5% variations in City Bank's profitability are narrated by communication/work speed, simplification of organizational work, and organizational informational quality, i.e., independent variables. The remaining variable (1-R<sup>2</sup>) turns out to be indescribable and is attributed to other factors. The values of F and P are 2.999 & .042, respectively, which signifies that the considered variables have met the criteria for the model's accuracy presented by the ANOVA test. The variable "communication/work speed" comes with an unstandardized beta coefficient of .296, signifying that a .296 unit change in the profitability will occur due to a 1 unit change in this variable.

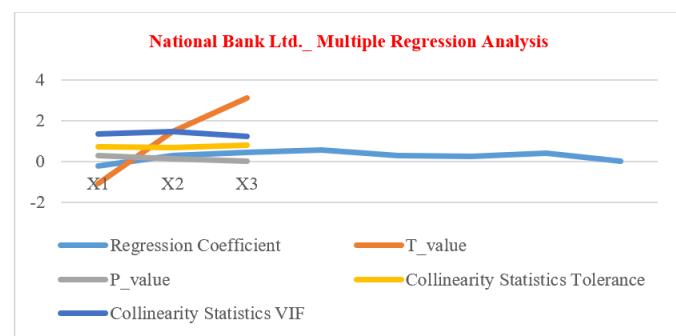
**Table 4.** City Bank Ltd.\_ Multiple Regression Analysis

Phase-1	Considered Variables	Regression Coefficient	T_value	P_value	Collinearity Statistics	
					Tolerance	VIF
X <sub>1</sub>	Communication/Work Speed	.296	1.663	.104	.998	1.002
X <sub>2</sub>	Simplification of Organizational Work	.094	.539	.593	.791	1.263
X <sub>3</sub>	Organizational Informational Quality	.368	1.894	.066	.791	1.264
R		.433				
R <sup>2</sup>		.187				
Adjusted R <sup>2</sup>		.125				
Standard Error		.3662				
ANOVA (Model Fitness)		F = 2.999, P = .042				

According to the regression coefficient value of .094 for the variable "simplification of organizational work", there's a .094 unit change in the profitability with a 1 unit change in this variable. Again, the regression coefficient value from the variable "organizational informational quality" is .368, depicting that a .368 unit change in profitability will occur along with a 1 unit change in organizational informational quality. The value of Tolerance and VIF of communication/ work speed, simplification of organizational work, and organizational informational quality is .998, .791, .791, and 1.002, 1.263, 1.264, respectively. Here, the tolerance value is above .25, and the VIF value is below 4, which means the data are normally distributed, and no multicollinearity exists. All the statistical values are presented in Figure 7 for easy understanding. At a 95% confidence interval, all the regression coefficients are statistically significant. Henceforth, the above analysis laid the ground to conclude that the null hypothesis gets rejected, i.e., the use of AIS is positively associated with bank profitability.

**Fig. 7.** City Bank Ltd.\_ Multiple Regression Analysis

The value of the regression coefficient from the variable "communication/work speed" showed -.231, depicting that a 1 unit change in communication/work speed can result in a -.231 unit change in profitability. According to the regression coefficient value of .274 for the variable "simplification of organizational work", there's a .274 unit change in the profitability with 1 unit change in this variable. Again, the regression coefficient value from the variable "organizational informational quality" was found to be .461, depicting that a .461 unit change in profitability occurred with a 1 unit change in organizational informational quality. The value of Tolerance and VIF of communication/ work speed, simplification of organizational work, and organizational informational quality is .734, .675, .815, and 1.361, 1.481, 1.227, respectively. Here, the tolerance value is above .25, and the VIF value is below 4, which means the data are normally distributed, and no multicollinearity exists. All the statistical values are presented in Figure 8 for easy understanding. At a 95% confidence interval, all the regression coefficients are statistically significant. Henceforth, the above analysis laid the ground to conclude that the null hypothesis gets rejected, i.e., the use of AIS is positively associated with bank profitability.

**Fig. 8.** National Bank Ltd.\_ Multiple Regression Analysis**Hypothesis-3****Table 5:** National Bank Ltd.\_ Multiple Regression Analysis

Phase-1	Considered Variables	Regression Coefficient	T_value	P_value	Collinearity Statistics	
					Tolerance	VIF
X <sub>1</sub>	Communication/Work Speed	-.231	-1.071	.291	.734	1.361
X <sub>2</sub>	Simplification of Organizational Work	.274	1.474	.148	.675	1.481
X <sub>3</sub>	Organizational Informational Quality	.461	3.128	.003	.815	1.227
R		.546				
R <sup>2</sup>		.298				
Adjusted R <sup>2</sup>		.245				
Standard Error		.3910				
ANOVA (Model Fitness)		F = 5.653, P = 0.003				

Here in Table 5, the researcher finds that the value of Adjusted R<sup>2</sup> is .245, which states that 24.5% variation in National Bank's profitability is explained by communication/work speed, simplification of organizational work, and organizational informational quality, i.e., independent variables. The remaining variable (1-R<sup>2</sup>) turns out to be indescribable and is attributed to other factors. F and P values are 5.653 & 0.003, respectively, which signifies that the considered variables have met the criteria for the model's accuracy presented by the ANOVA test.

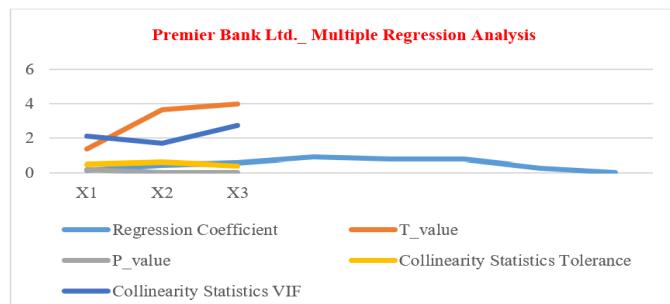
**Hypothesis-4**

Here in Table 6, the authors find that the value of Adjusted R<sup>2</sup> is .753, which states that 75.3 % variation in Premier Bank's profitability is explained by communication/work speed, simplification of organizational work, and organizational informational quality, i.e., independent variables. The remaining variable (1-R<sup>2</sup>) turns out to be indescribable and is attributed to other factors. F and P values are 44.730 & 0.000, respectively, which signifies that the considered variables have met the criteria for the model's accuracy presented by the ANOVA test.

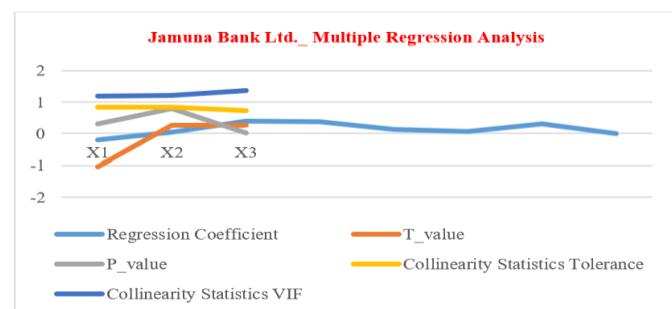
**Table 6:** Premier Bank Ltd.\_ Multiple Regression Analysis

Phase-1	Considered Variables	Regression Coefficient	T_value	P_value	Collinearity Statistics	
					Tolerance	VIF
X <sub>1</sub>	Communication/Work Speed	.145	1.339	.188	.480	2.085
X <sub>2</sub>	Simplification of Organizational Work	.442	3.644	.001	.602	1.661
X <sub>3</sub>	Organizational Informational Quality	.539	3.976	.000	.369	2.712
R		.878				
R <sup>2</sup>		.770				
Adjusted R <sup>2</sup>		.753				
Standard Error		.2772				
ANOVA (Model Fitness)		F = 44.730, P = 0.000				

The regression coefficient value from the variable "communication/work speed" revealed .145, depicting that a 1 unit change in communication/work speed can result in a .145 unit change in profitability. The regression coefficient value from the variable "simplification of organizational work" is found to be .442, stating that a .442 unit change in the profitability, along with a 1 unit change in the simplification of organizational work. Again, the regression coefficient value from the variable "organizational informational quality" revealed .539, depicting that a .539 unit change in profitability is associated with a 1 unit change in organizational informational quality. The value of Tolerance and VIF of communication/ work speed, simplification of organizational work, and organizational informational quality is .480, .602, .369, and 2.085, 1.661, 2.712, respectively. Here, the tolerance value is above .25 and the VIF value is below 4, which means the data are normally distributed, and no multicollinearity exists. All the statistical values are presented in Figure 9 for easy understanding. At a 95% confidence interval, all the regression coefficients are statistically significant. Henceforth, the above analysis laid the ground to conclude that the null hypothesis gets rejected, i.e., the use of AIS is positively associated with bank profitability.

**Fig. 9.** Premier Bank Ltd.\_ Multiple Regression Analysis

The regression coefficient value from the variable "communication/work speed" is found to be -.189, depicting that a 1 unit change in communication/work speed results in a -.189 unit change in profitability. The regression coefficient value from the variable "simplification of organizational work" showed .044, stating that a .044 unit change in the profitability, together with a 1 unit change in the simplification of organizational work. Again, the regression coefficient value from the variable "organizational informational quality" is found to be .406, depicting that a .406 unit change in profitability occurred along with a 1 unit change in organizational informational quality. The value of Tolerance and VIF of communication/ work speed, simplification of organizational work, and organizational informational quality is .837, .831, .730, and 1.195, 1.203, 1.369, respectively. Here, the tolerance value is above .25 and the VIF value is below 4, which means the data are normally distributed, and no multicollinearity exists. All the statistical values are presented in Figure 10 for easy understanding. At a 95% confidence interval, all the regression coefficients are statistically significant. Henceforth, the null hypothesis is accepted, which is the ground to conclude that Jamuna BL lacks an impact of AIS on its profitability. So, the above analysis laid the ground to conclude that the null hypothesis gets accepted, i.e., the use of AIS is not positively associated with bank profitability.

**Fig. 10.** Jamuna Bank Ltd.\_ Multiple Regression Analysis**Hypothesis-5****Table 7:** Jamuna Bank Ltd.\_ Multiple Regression Analysis

Phase-1	Considered Variables	Regression Coefficient	T_value	P_value	Collinearity Statistics	
					Tolerance	VIF
X <sub>1</sub>	Communication/Work Speed	-.189	-1.036	.306	.837	1.195
X <sub>2</sub>	Simplification of Organizational Work	.044	.267	.791	.831	1.203
X <sub>3</sub>	Organizational Informational Quality	.406	.262	.029	.730	1.369
R		.369				
R <sup>2</sup>		.136				
Adjusted R <sup>2</sup>		.073				
Standard Error		.3157				
ANOVA (Model Fitness)		F = 2.155, P = 0.108				

Here in Table 7, the researchers find that the value of Adjusted R<sup>2</sup> is .073, which states that 7.3% variation in Jamuna Bank's profitability is narrated by communication/work speed, simplification of organizational work, and organizational informational quality, i.e., independent variables. The remaining variable (1-R<sup>2</sup>) turns out to be indescribable and is attributed to other factors. F and P values are 2.155 & 0.108, respectively, which signifies that the considered variables have met the criteria for the model's accuracy presented by the ANOVA test.

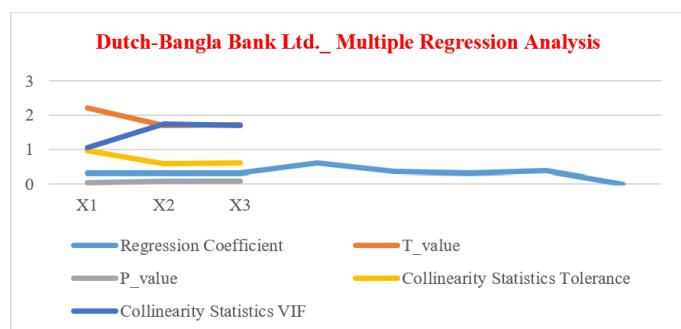
**Hypothesis-6**

Here in Table 8, the authors find that the value of Adjusted R<sup>2</sup> is .321, which states that 32.1% variation in DBBL's profitability is narrated by communication/work speed, simplification of organizational work, and organizational informational quality, i.e., independent variables. The remaining variable (1-R<sup>2</sup>) turns out to be indescribable and is attributed to other factors.

**Table 8:** Dutch-Bangla Bank Ltd.\_ Multiple Regression Analysis

Phase-1	Considered Variables	Regression Coefficient	T_value	P_value	Collinearity Statistics
					Tolerance
					VIF
X <sub>1</sub>	Communication/Work Speed	.306	2.207	.033	.958
X <sub>2</sub>	Simplification of Organizational Work	.303	1.705	.096	.574
X <sub>3</sub>	Organizational Informational Quality	.315	1.711	.095	.593
R		.606			1.043
R <sup>2</sup>		.368			1.742
Adjusted R <sup>2</sup>		.321			
Standard Error		.3888			
ANOVA (Model Fitness)		F = 7.944, P = 0.000			1.686

F and P values are 7.944 & .000, respectively, signifying that all the considered variables have met the criteria for the accuracy of the model presented by the ANOVA test. The regression coefficient value from the variable "communication/work speed" is found to be .306, depicting that a 1 unit change in communication/work speed results in a .306 unit change in profitability. The regression coefficient value from the variable "simplification of organizational work" revealed .303, stating that a .303 unit change in the profitability occurred with a 1 unit change in the simplification of organizational work. Again, the regression coefficient value from the variable "organizational informational quality" is found to be .315, depicting that a .315 unit change in the profitability is associated with a 1 unit change in organizational informational quality. The value of Tolerance and VIF of communication/ work speed, simplification of organizational work, and organizational informational quality is .958, .574, .593, and 1.043, 1.742, 1.686, respectively. Here, the tolerance value is above .25, and the VIF value is below 4, which means the data are normally distributed, and no multicollinearity exists. All the statistical values are presented in Figure 11 to have an easy understanding. At a 95% confidence interval, all the regression coefficients are statistically significant. Henceforth, the above analysis laid the ground to conclude that the null hypothesis gets rejected, i.e., the use of AIS is positively associated with bank profitability.

**Fig. 11.** Dutch-Bangla Bank Ltd.\_ Multiple Regression Analysis

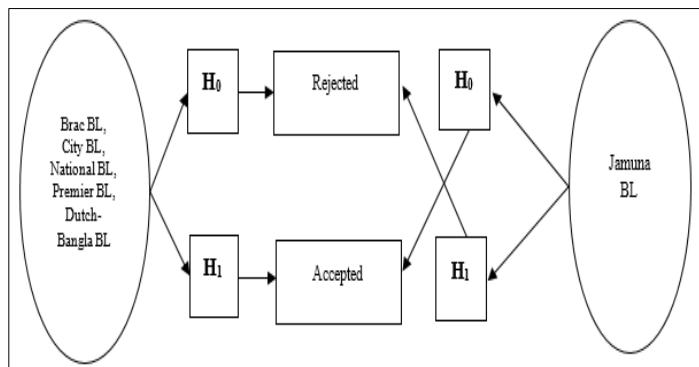
#### 4.1 Results of Hypotheses Testing (Summary)

After the thorough analysis & testing of the research hypotheses, the researchers have drawn a conclusion of the study, which is presented in Table 9.

**Table 9.** Results of Hypothesis Testing (Summary)

Sl No.	Hypothesis	Result/Comment
Brac BL, City BL, National BL, Premier BL, Dutch-Bangla BL	H <sub>0</sub> Null Hypothesis	Rejected
	H <sub>a</sub> Alternative Hypothesis	Accepted
Jamuna BL	H <sub>0</sub> Null Hypothesis	Accepted
	H <sub>a</sub> Alternative Hypothesis	Rejected

The results of hypotheses testing have been summarized and presented in Figure 12, from which readers will reach a conclusion easily.

**Fig. 12.** Results of Hypotheses Testing (Summary)

Source: Authors' Own Creation

#### 5. DISCUSSION OF THE RESULT

The paper aimed to find whether there was any impact of AIS on the selected bank's profitability. Considering almost every aspect of AIS, it was discovered that the system had a major impact and importance on the institution's performance. The study looked at how the adoption of AIS affected the profitability of six different banks. DBBL (0.321), Brac Bank (0.432), National Bank (0.245), City Bank (0.125), and Jamuna Bank (0.073) are the next banks with the highest explanatory power, after the Premier Bank (Adjusted R<sup>2</sup> = 0.753). Regression coefficients demonstrated that AIS components-communication/work speed, simplification of organizational work, and organizational informational quality had a favorable impact on profitability, and ANOVA tests show statistically significant models (p<0.05) for all the considered banks except Jamuna Bank. However, communication/work speed was found to have a detrimental impact on the profitability of National and Jamuna Banks. The null hypothesis is accepted as Jamuna Bank's results are not statistically significant overall (p=0.108), demonstrating that AIS had no discernible impact on its profitability. The null hypothesis is dispelled in every other bank, indicating a positive correlation. All models' tolerance and VIF values verified that there is no multicollinearity. With the exception of Jamuna Bank, AIS implementation was generally linked to improved profitability. In most cases, the findings of the present study are found align with earlier research results of [Akhter, 2022](#); [Egiyi et al., 2023](#); [Gofwan, 2022](#); [Sutriani et al., 2024](#) along with others (mentioned in the literature review section) in the same field with a little exception, indicating a statistically significant positive impact of AIS on the profitability of selected banks.

The research presents a strong and meaningful link between the use of AIS and profitability in selected Bangladeshi private banks, suggesting that AIS boosts financial performance. It brings new insights by examining how AIS works in the context of developing countries and updating existing models to consider factors related to organizations and their regulations that are specific to Bangladesh. It extends the existing framework by emphasizing the role of management support and personnel training as mediators. From a practical viewpoint, the results encourage banks to focus on investing in AIS, enhance the precision of their decision-making, and integrate their strategic planning with technological advancements to improve profitability.

## 5.1 Conclusion

The study highlights the role of accounting information systems (AIS) as structured, computerized tools that support managerial decision-making by providing timely and accurate financial information. AIS enhances data quality, interdepartmental collaboration, and financial forecasting. The research investigated how AIS affected the profitability of selected private commercial banks of Bangladesh and experienced a significant impact in all but one case (Jamuna Bank Ltd.). The findings suggest that AIS positively influences bank profitability, but proper regulation and increased awareness are necessary to optimize its use. It depicts that the profitability of institutions that use AIS is either stable or rising. Last but not least. The study recommends that businesses should continuously work on the system to keep it up to date and reliable. The govt. ought to adopt rules and regulations to stimulate the implementation of AIS on a large scale across the country. Future research should explore both financial and non-financial aspects for a more comprehensive understanding.

## Author Contributions Statement

Conceptualization: [A.K.M Mahfuj Ullah, Mohammad Abu Sufian, Md. Amirul Islam, & Md. Abdullah Al Mamun]; Methodology: [A.K.M Mahfuj Ullah, Md. Kamruzzaman, Md. Amirul Islam, Md. Abdullah Al Mamun & Iftakher Mahmud Ziad]; Formal analysis and investigation: [A.K.M Mahfuj Ullah, Nahedul Islam, Md. Abdullah Al Mamun, Md. Kamruzzaman, Md. Amirul Islam, Mohammad Abu Sufian & Iftakher Mahmud Ziad]; Writing - original draft preparation: [A.K.M Mahfuj Ullah, Md. Amirul Islam, Md. Abdullah Al Mamun & Nahedul Islam]; Writing - review and editing: [A.K.M Mahfuj Ullah, Md. Amirul Islam, Md. Kamruzzaman, Md. Abdullah Al Mamun & Iftakher Mahmud Ziad]; Supervision: [A.K.M Mahfuj Ullah, Md. Amirul Islam & Mohammad Abu Sufian]. All authors read and approved the final manuscript.

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**Appendix: (Questionnaire) EMIC PURPOSE USE****Impact of Accounting Information System on Profitability: Specific to Selected Private Commercial Banks of Bangladesh**

(Please give your opinion in regards to the role played by AIS in your organization on a Five-Point Likert Rating Scale, as 5 represents for strongly agree, 4 represents for agree, 3 represents for neutral, 2 represents for disagree while 1 represents for strongly disagree respectively.)

Sl. No.	Particulars/Statements	5	4	3	2	1
<b>Communication/Work Speed</b>						
<b>1</b>	Accounting Information System performs Automatic Clearing House (ACH) activities very fast and smooth.					
<b>2</b>	It facilitates the communication, integration and consistency among branches easier and faster.					
<b>3</b>	It helps reduce the time spent on banking transactions.					
<b>4</b>	It helps the management to make decisions on time.					
<b>5</b>	It stimulates faster clients' purchasing through Debit/Credit cards by the collaboration with companies.					
<b>6</b>	Lost/Damage of main server doesn't affect the branch operations.					
<b>7</b>	Communication with other banks is quite secured.					
<b>8</b>	Electricity supply system of BD supports AIS completely.					
<b>9</b>	Central Bank (BB) has full real time control on other banks due to AIS.					
<b>10</b>	It makes easier reporting to primary regulatory bodies including BB.					
<b>11</b>	It reduces time lag of publishing annual report.					
<b>Simplification of Organizational Work</b>						
<b>12</b>	Accounting Information System brings simplification in banking jobs.					
<b>13</b>	It brings higher efficiency in recording, classification, analyses and storage of data.					
<b>14</b>	It ensures easy retrieval of stored information on demand.					
<b>15</b>	It coordinates various business activities orderly.					
<b>16</b>	It prevents mess of banking activities.					
<b>17</b>	It is easily usable by all level employees without any training.					
<b>18</b>	It eliminates paper work completely and mimeses physical storage space.					
<b>19</b>	Little possibility of getting interim financial statements/segment reports immediately.					
<b>20</b>	ATM Booth facility reduces physical cash withdrawal pressure inside banks.					
<b>21</b>	Banks doesn't have available & highly skilled technicians for maintenance of AIS physical framework.					
<b>Organizational Informational Quality</b>						
<b>22</b>	Accounting Information System makes the information more reliable and understandable.					
<b>23</b>	It provides accurate and valid information on demand.					
<b>24</b>	It ensures good governance, transparency and accountability.					
<b>25</b>	It provides information in easier and universal format.					
<b>26</b>	It provides adequate information at right time.					
<b>27</b>	It helps detect changes in business over time.					
<b>28</b>	It helps to predict/forecast the future based on the stored data.					
<b>29</b>	It helps prevent and minimize fraud and errors to achieve the organizational goals and improved performance.					
<b>30</b>	Information stored in this system is fully secured/ Cyber threat from outside is zero.					
<b>31</b>	Upgradation of system is easy & quick.					
<b>Organizational Profitability</b>						
<b>32</b>	Accounting Information System minimizes the cost of manual recording and interpretation of data.					
<b>33</b>	It introduces a sound internal control system for organization.					
<b>34</b>	It helps in finding and retaining valuable staffs as well as clients in the organization.					
<b>35</b>	It does not affect internal checking system of an entity.					
<b>36</b>	It helps in reducing the costs of production/services, i.e. cost effectiveness.					
<b>37</b>	AIS software maintenance is cheap.					
<b>38</b>	It contributes to timely inventory management.					
<b>39</b>	It contributes to improved supply chain management.					
<b>40</b>	It supports planning and execution of decisions in the organization.					
<b>41</b>	Introduction of new form of E-banking services incurs low cost and little impact on profitability initially.					
<b>42</b>	It helps prevent malpractices to make investment decisions by some bankers.					
<b>43</b>	Getting information regarding non-performing loans (NPL) is easy to know for clients' transaction history.					